tarkan

Cantar's mirror, **v1.14** p.51

firmware **v2.44**

- ultra precise auto-slate *p.23*
- mix to track-7 boom to track-8 *p.28*
- 'tape-ref' goes to ltc u-bits *p.32*
- 'wild' 'all' and 'trio' pdf-reports *p.38*
- editor friendly rotate1 & 2 *p.39*
- stereo monitoring soundfield-b *p.44*
- playback, adr, remix play&rec *p.48*
- internal backup to CF card *p.54*

Aaton Cantar-X1&2

CONTENTS

User manual

The latest User Manual is on: http://www.aaton.com/products/sound/cantar/usermanual.php ; to read it on iPhones, use FileMagnet: http://magnetismstudios.com/FileMagnet Note: iPhone v2.2.1 supports all PDF's.

Software

Cantar, Arcan, Tarkan, Majax software can be downloaded from: http://www.soft.aaton.com/swcantar/

• ***first visit***: click 'create an account', enter your details, don't forget the country. After a few seconds, you will receive an email with your password. Enter this password with your email address in the login page.

• ***next visits***: forgotten password? Click 'lost password', it will be sent to your email address.

Cantar software is accessible to registered owners only; beta versions are not to be used for commercial assignments.

Cantar Users' Group

Exchange tips with other cantarists: http://ulysse.aaton.com/cgi-bin/mailman/listinfo/cantar-users

Pictures on the road

Send us your 'Cantar at work' pictures, we will put the best ones on the gallery: http://www.aaton.com/gallery/

Post Production helper

Spread the 'CantarPostChain' tutorial around: http://www.aaton.com/documentation/

Cantar-X1 vs X2

• Wider FPGA Motherboard (CM-5). • A-to-D (AD-5) provide 85ms @48kHz delays. • 100BaseT Ethernet Board (ET-1).

• Play&Rec, Ethernet, Differential analog delays, Track-AutoSlate and Wordclock sync require X2 hardware.

Firmware history

– for X1&X2, + for X2

v2.44 Nov 2011 – Corrected take length in ALE lists allows for Monophonic import with *all track names* and *full comments* into Avid MCs..

v2.43 May 2011 – Bug fix correcting MonoRotate Idle backup on CF, Ext. HD and DVD-RAM. – PPR keyed 'TapeRef' HEX char. can go to LTC-Out U-bits. – U-bits manually entered, p.32. – Backup to internal CF caddy, p.54. – [eye] button in Backup.06 & .14 displays the media remaining space.

v2.37 Dec. 2010 – 'Xa mix to T7, Mic1/Mic5 to T8, p.28. – Solo/MidPan middle position enables buttons 1–6 trigger solos of L1 to L4 and T7-T8, p.4. – Line-out & Foldback mute in TEST, p.31. – Creation date set by Cantar if incoming user bits are all zero. – Sc&Take/Filetag display pref. stored at power-off. – HD1080 flag in ALE header. – Bug fix on PLAY LTC-out 'Off' at file end. + Play&Rec stiky BLUE over TEST, PPR and REC.

v2.36 May 2010 – Error fix on DVD Rotate2mono sound-report with long names. – Rotate1&2mono respectively stored in .AAL & .AAM folders. – Track-names stored as "aTRK#=name" for Avid MCs' monophonic import (v4 & up). – Track-names inserted in T1–T8 columns of ALE lists.

v2.30 Sept. 2009 – Line-out & Foldback mute in PLAY. – Up to twenty stored setups. – Take-gender resets to 't' after scene ID change. – MS jog pan direction identical to others. – 250MB auto jump keeps eight track polys under 2GB. – Wrong play-LTC after pause, fixed; Cantarem accidentally disarming T7-T8, fixed. + Operands accessible from Tarkan. + Tarkan's 'Virtual Cantarem' gets access to Cantar's gain controls.

v2.28 Aug. 2009 – Absolute-TC [shift eye] displayed in PLAY; back to elapsed upon exit. – Cantarem mixes T1–T7 to Xb (T8), or T1–T8 to Fb, Line-out & Phones. – ALE incremental 'Index' replaced by 'SqScTk'; first AutoSlate TC stored in Mark-In column. – Fudge in 'AUDIO/TC.14' adds 60ms to the file's TC. – BattAlert extended to 15V for Li-Ion batt. – Improved SATA disk manager. – No more freeze when playing 'Majax cantarized' foreign files.

v2.26 Feb. 2009 – Idle Bckp can be interrupted while saving T7T8 after a T1–T8 Rotate2poly. – Mic3 master of Mic4 & Mic5. – Direct PLAY of the take preceding a deleted one. – Fat-32 formatting of CF cards. – SoundReport generated once backup At Call is completed. + Tarkan v1.11 adds CSV to PDF SoundReport. + Tarkan completion menu fits WinXP netbook screens.

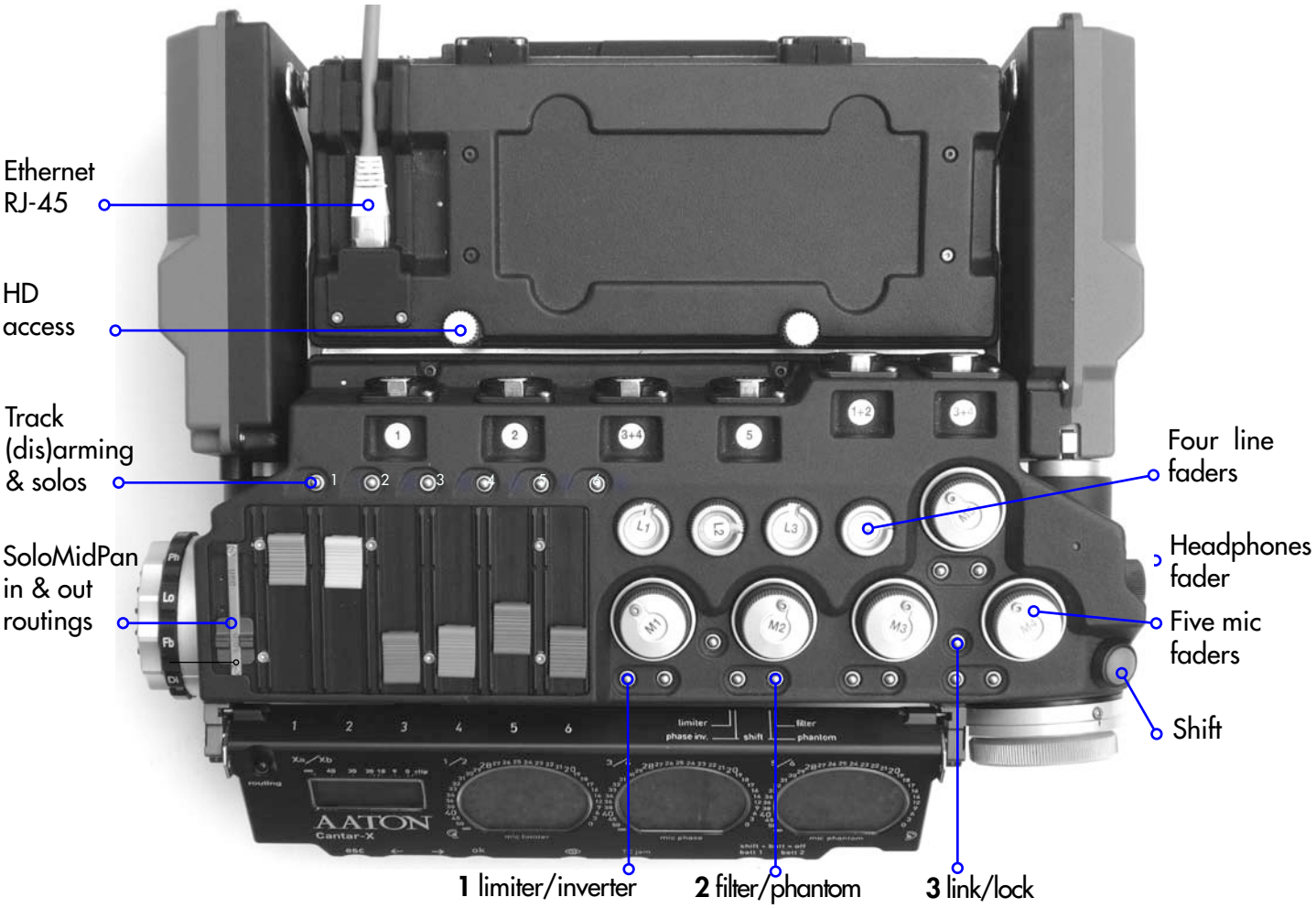
v2.24 Nov. 2008 – PCs handle 'unmounted' internal drives. – Simultaneous internal/external, PATA/SATA drives. – Line-in links for Soundfield ST350. – Rotate poly by one or two ranks. – T8T8 backup. – False-start: take-gender keeps same # for next take. – Trash/Revive files in BROWSE. – Swift access to ROUTINGS with no PLAY/BROWSE triggering. – Thumb-free check/select In-Grids and Out-Maps. – All letters for seq./scene. – Delayed Idle Bckp activation. – DVD-RAM exact space is displayed. – Erratic behaviour after PDF creation, fixed. + Linking-Trios in the CSV SoundReport. + Tarkan v1.09 brings pan-pot control, T7T8 settings, metadata editing and PDF generation.

v2.15 March 2008 – In-Grids to T7T8 displayed with T1–T6 banks. – Mixdown w/T7 into T8. – Line-out/Foldback gain adj. in TEST. – 'So' monitoring of the mix in TEST, REC and PLAY: Xa (center), Xb (center), Xa Xb (center), Xa Xb (left/right). – One hand Solo/Filter adjust. – 3sec+ press protects limiter activation. – Storage of project's sound-report headers with 'save setup'. – Same clockwise jog for TC and operands.

v2.11 Jan. 2008 – New PLAY commands. – Creation of 'play-cards' with in/out marks. + ***Play&Rec*** plays up to six tracks while recording nine analog inputs to eight internal tracks. + ***ADR*** for 'hear it, say it'. + ***Remix*** with dynamic mixdown and new commentary. + ***Re-recording,*** up to eight track.

Permanently accessible faders

The Cantar interface is the easiest to use under the most technically demanding conditions: • It offers the largest display surface of all portable recorders, which simultaneously shows every critical recording parameter. • The high contrast displays remain viewable under bright light (sun, sand, sea, snow, storm), and at low temperatures too.
• The swiveling front panel always provides the best viewing angle for both on cart and over the shoulder work.
• The large MainSelector eliminates diving into sub-menus. • The three-crown turret gives instant access to all recording and monitoring configurations while wearing heavy winter gloves. • Nine rotary faders (analog inputs) plus six linear faders (mixdown) devoted to one specific task are faster to handle than multi-function knobs.
• For desert or high seas work, all of the mechanical actuators are sandproof and waterproof.



1

[lim-inv]	Mic limiter ON/OFF.
[shift] [lim-inv]	Input signal inversion.

2

[fil-tom]	Filter, solo and balance access.
[shift] [fil-tom]	Phantom 48V ON/OFF.

3

[link-lock]	Leftside, Mixer faders locking. Rightside, Mic/Line faders locking.
[shift] [link-lock]	Mic linking.

[**Solo**MidPan]	pulled to the **O**perator side
+ [routing]	displays the outputs to **mOnitors**
+ [track-solo]	1 – 6 activate T1 to T6 **sOlos**
[Solo**Mid**Pan]	put in the middle
+ [track-solo]	1 – 4 activate Line-in1 to Line-in4 solos
+ [track-solo]	5 & 6 activate T7 T8 solos
[SoloMid**Pan**]	pushed to the b**A**ttery side
+ [routing]	displays the inputs to **trAcks**
+ [track-solo]	1 – 6 show track **pAn-pots**

Protected ins & outs

To complement the waterproof design, all audio sockets are pointed toward Earth, the same direction that rain falls. This concept has the notable side effect that no plugs protrude from the sides; this allows third party designers to build very narrow 'Made for Cantar' carts!

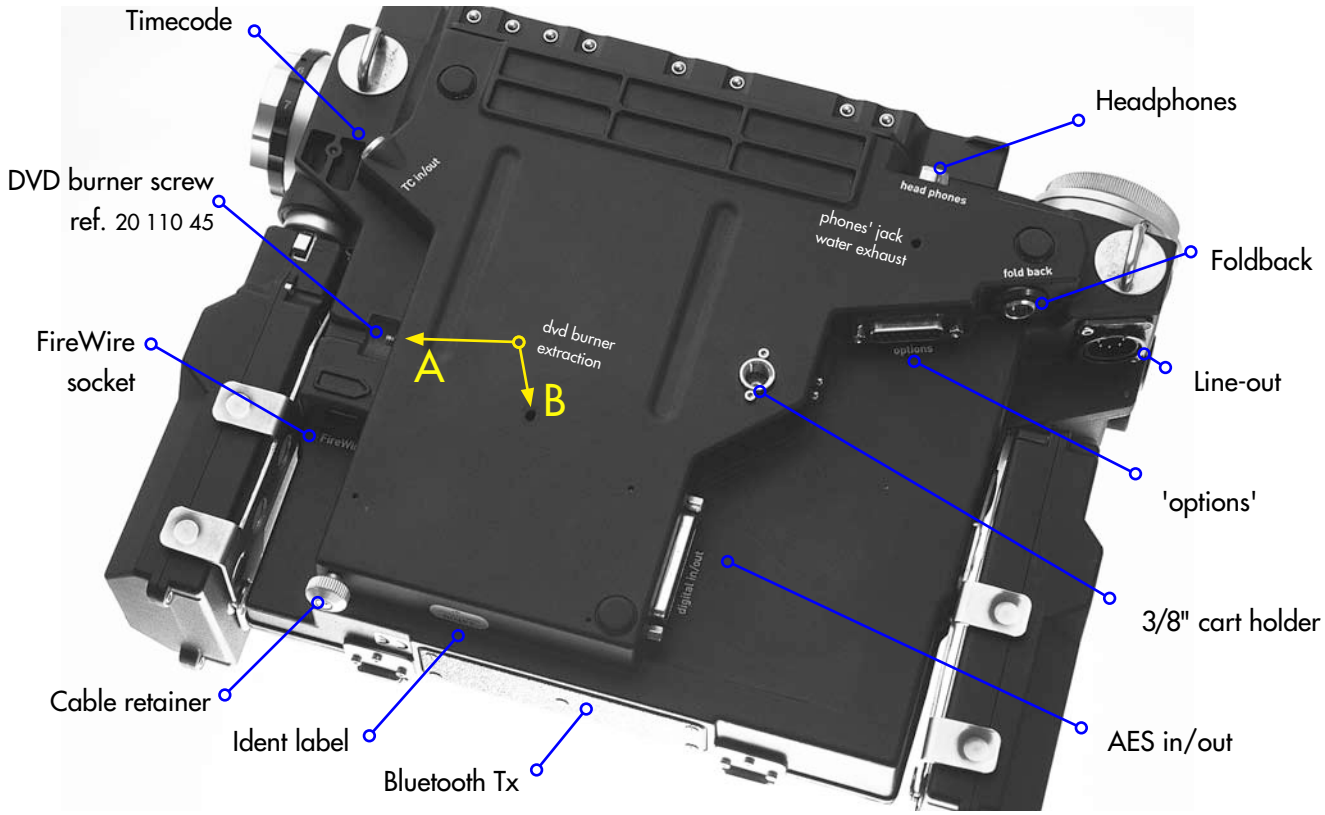
•• the ***SubD 15*** (p.58) is used to connect CantaRem (p.53) or a USB-PS2 keyboard adapter .

•• the ***SubD 25*** (p.58) is the AES in/out connector which can externally loop playback signals in "Play&Rec" mode.

•• the ***3/8" screw*** is placed between three rubber pads, it is used to secure Cantar onto a cart.

•• the ***weep hole,*** underneath the phone-jack socket, is a drainage port for water that has entered through the phone-jack.

•• the backup caddy is protected beneath the swiveling front panel. To remove the DVD caddy, remove retaining screw 'A' (picture below), introduce a ball pen into hole 'B' and push it toward the front opening where you can grab the caddy. The CF caddy is held by spring tension only and the 'A' screw is not used.



Rules about FireWire (FW) connection

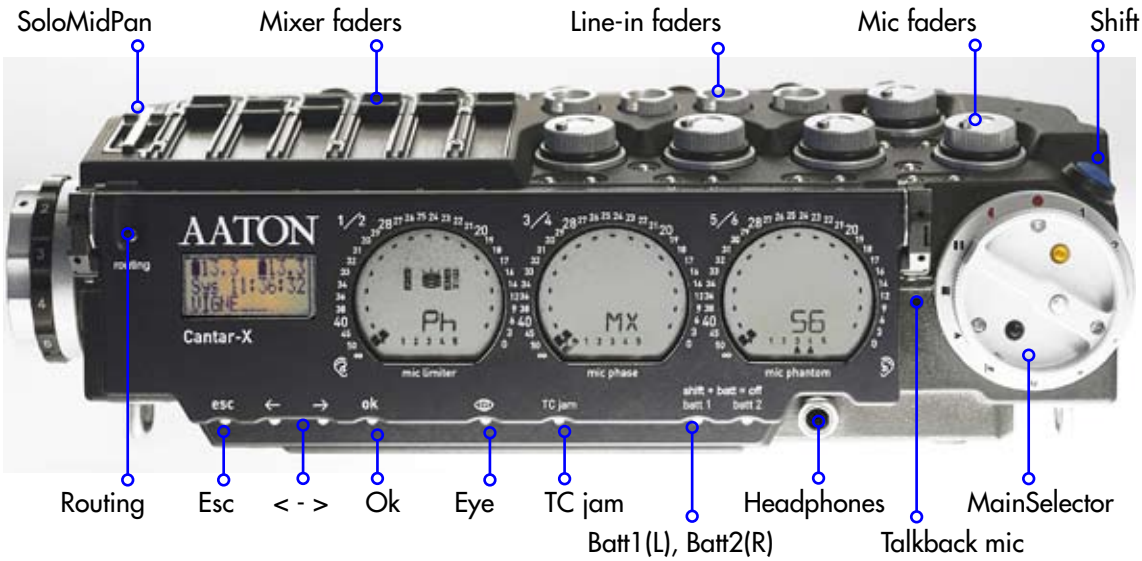
•• the **cable retainer** should be used at all times (gaff-tape if your Cantar is not equipped with it) to avoid intermittent contact or sudden cable pull-out. An intermittent FW connection induces 'bus hangs' and can stop recording on both the external and internal drives.

•• considering the above, when (un)plugging an external FW device, disconnect the cable from the device side, not from the Cantar side.

•• **never** plug a cable into the FW socket while Cantar is powered; the 6-pin socket has a hot +12V in it for powering accessories. If the plug enters at an angle, it will produce a short between the +12V pin and the in/out pins and blow up the internal FW driver.

•• for the MacBookPro 800 FW socket, use a 9 to 6-pin cable (IE9496-3).

•• only use **ferrite choke ring equipped** high quality FW cables, not the cheap skinny ones.



Front panel buttons

[routing]	[SoloMid**Pan**] battery side: In-Grids.
[routing]	[**Solo**MidPan] Operator side: Out-Maps.
[esc]	pause/restart from there.
[shift] [esc]	in PLAY, *continuous play of files toggle.* *in PPR, 'comment' line erasure.*
[<] [>]	prev/next play-card (p/n file if no card) in 'Operands', other parameter value.
[shift] [<] [>]	*prev/next play-file.*
[ok]	start/stop playback; in 'Operands' push focus to bottom row; value validation.
[shift] [ok]	*digitization parameters and TC fps view.*
[eye]	toggles T5T6/T7T8 on right side modulo. displays help screen in 'Operands'.
[shift] [eye]	*toggles 'filetag & duration' / 'scene & take' (stored preference)*
[TC jam]	in PLAY, shows absolute TC; in TEST, a 3 sec. press sets Sync clock to incoming LTC.
[shift] [TC jam]	*in TEST, stops the 'int c' reminder blinking.*
[batt L] or [R]	short pressure displays battery voltage; long pressure puts battery on duty.
[shift] [batt]	*in STOP, turns 'OFF' Cantar.*

Headphones

1/4" jack in an isolated compartment. To facilitate extraction of a right angle 1/4" jack plug, the phone socket is slanted toward the bottom of the machine. The stored output level is protected by the [shift] button.

Talkback mic

Nested near the MainSelector, the automatic gain talkback mic can be routed to line-out, foldback and tracks (p.10).

Circular and **Rectangular screens**

Always visible under the brightest light (p.7, p.8).

TripleCrown and **MainSelector**

Easy to manipulate with winter gloves on, they give access to all operating/operands actions (p.9, p.10, p.26).

Mixer's faders

Dustproof and waterproof, they are magnetically driven. The black or colored fader caps can be instantly replaced.

Backup caddy

The DVD and CF caddies are easily swapped (p.43, p.54).

Three Circular screens

These are the largest, easiest to read screens found on any audio recorder. They provide the user with ongoing data concerning every aspect of the machine's operation.
It takes a few moments to get used to the display paradigms but thereafter you will be driving the fastest machine you have ever had in your hands.

- ***input grids*** links from nine analog inputs and six digital inputs to the recording tracks are graphically displayed.
- ***output maps*** three screens emulate the left, 'both' and right ears.
- ***pan-pots*** the continuously variable contribution of each track to the mixdown has never been so clear.
- ***modulometers*** their circular shape makes the signal level easy to evaluate in a wink.
- ***physical status*** permanent control of the tracks, and setups.

1 Input grids

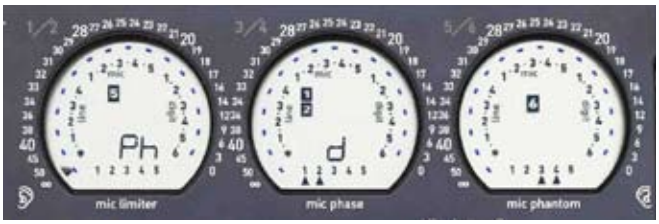
Analog sources (line 1–4, mic 1–5) can be sent to any one of the T1–T6 tracks conveniently grouped in pairs T1/T2, T3/T4, T5/T6.
Digital sources (digi-in 1– 6) can be sent to any one of the T1–T6 tracks.

The middle screen displays **In-Grid A4**, *the current preset in use*

To ***create*** inputs-to-tracks *In-Grids*, read p.27. Fifteen *In-Grids* can be stored in three banks to help you sort and memorize your routing configurations, e.g. A1 to A5 for mic only set-ups, B1 to B5 when some line-inputs are used, C1 to C5 for setups that include digi-ins.
To ***display*** the *In-Grid* in use, even while recording, the [SoloMid**Pan**] slider being pushed toward the battery, press the [routing] button top-left of the swiveling panel. The [config] crown gives instant sequential access to all of them.
note: the [routing] button must be pressed to change the ***out-maps***; as a protection against wild modifications ***in-grids*** can't be changed in the course of a recording.

2 Output maps

The Cantar's three screen 'mapping' is self explanatory. Audio signals going to the left ear appear on the left screen, signals to be listened to in mono appear on the middle screen and those going to the right ear appear on the right screen. All inputs, recorded or not (useful in Play&Rec), and all tracks can be monitored along different configurations for each of the eight independent output channels: **Ph** Phones, **Lo** Line-out, **Fb** Foldback and **Do** Digital-out. Twenty six different 'output routing' maps are available; the black [monitor] crown gives instant access to all of them (p.29).



In this **Ph d** example, T5 goes to the left ear, T1 T2 go to both ears, and T6 goes to the right ear.

With the [**Solo**MidPan] slider pulled toward the Operator's side, press the [routing] button to instantly display the current configurations (successively displayed by the 'monitor' crown).

3 Pan-pots to mixdown

Push the [SoloMid**Pan**] slider toward the battery side, press the [track-solo] buttons #1 – #6 to verify and [jog] the pan-pot positions of the T1–T6 tracks. The rank of the pan activated track is displayed in the central screen.
The black dots graphically indicate the tracks' contribution to the **Xa** (left) and **Xb** (right) mixdown channels, while the

T1 to Xb (left)	T3 to Xa & Xb	T5 to Xb (left)
T2 to Xb (left)	***(active) T4 to Xb***	T6 to Xa (right)

dBFS value of each track contribution is successively displayed in the rectangular screen (p.8).

4 modulometers

Cantar's large circular modulometers, visible under the brightest light as well as in the dark, converting levels into angular values, are the most accurate metering tools found in any portable recorder. They feature a non-linear scale with increased resolution (1dB) in the most important range: -55 to -40dBFS (5dB per segment); -40 to -32dBFS (2dB / segment); -32 to -12dBFS (1dB / segment); -12 to 0dBFS (3dB / segment).

The peak level segment hold duration is adjustable from one-half to five seconds in TECHSET.13 (p.34).

The tracks are grouped into 'natural' pairs: T1T2, T3T4, T5T6. When a track is momentarily dis-armed, its modulometer appears dashed.

5 Monitoring physical status

The center of each circular screen continually displays the status of the main recording elements:

• activity of the internal HD ('three-platter' icon on the left screen), the external HD ('three-platter' icon on the middle screen), and the DVD ('one-platter' icon on the right screen). Disk activity is highlighted by the presence of the track IDs recorded on it.

left screen Internal HD | middle screen External HD | right screen CD/DVD

• sync clock mode: either master **int c** or slave **ext c**.

• mic preamplifier status: Limiter On/Off, Direct/Invert, Phantom On/Off.

• the current monitor map name (sent to the phones too) is constantly displayed by large alphanumeric characters.

• the activation of the ***mixdown recording*** on T7T8 is indicated by the '**mix**' icon next to the T7 & T8 track IDs.

note: the screens are visible in very bright sunlight; to save backlight power, see TECHSET.05 'Backlight' (p.33).

Rectangular screen

• Operating positions (p.10)

```
V16.2  V14.8
Sys 12:45:22
2007-11-24
```

In **STOP**

top row: batt-L & batt-R voltage

middle row: system time

bottom row: system date.

In **TEST** or **REC**

top row: T7T8 modulometers in dBFS: -50 -45 -40 -38 -36 -34 -32 -30 -28 -26 -24 -22 -20 -18 -16 -14 -12 -9 -6 -3 0 Clip.

To display T7T8 levels with higher precision, press the [eye] button, this will swap T7T8 with T5T6 on the right circular screen.

The [jog] overwrites the T7T8 bargraphs with battery voltage, available disk space, or remaining recording time calculated from the current track count, bit-depth and sample rate.

middle row: the source and the TC stamped in the audio files: '**Atc**' (ASCII-TC), '**Ltc**' (jam from LTC), '**Stc**' (from the system calendar), '**Otc**' (Operator entered TC), '**Rtc**' (Record-Run TC), and '**Etc**' (slaved to an external clock).

bottom row: (in TEST) current project name; (in REC) 'filetag & duration' or 'scene & take' by [shift] [eye]. While adjusting a pan-pot, the track rank, plus the maximum gain value of the whole mixer panel (0dB or +6dB) are displayed.

```
NEXT  AX0490
Seq  Sc  Tk
121R/a12t06
```

In **PPR** or **BROWSE**

scene, take, track-names, comments, Sound-Roll/Shoot Day, for their editing (p.19 & p.25).

```
A00*  >00:00
02:15  02:17
CC2165 03:32
```

In **PLAY**

player's position, cue points, absolute time, 'filetag & duration' or 'scene & take' (p.24).

```
AUDIO/TC  01
SampleRate
48048
```

• Operand positions (p.26)

In **AUDIO/TC**, **TECHSET**, **SESSION** and **BACKUP**

the pathtree of each parameter:

top row: the 'Operand', e.g. AUDIO/TC. ***middle row:*** parameter name, e.g. Sample-Rate. ***bottom row:*** parameter value, e.g. 48048.

In TEST, PPR and REC, depending on the [SoloMidPan] slider position, the [routing] button displays the input routing templates called *In-Grids* or the active output routings called *Out-Maps*.
The large all weather triple crown is used to check and select the routings with only one hand.
note: to create routings, see p.27 to p.30.

Monitor Crown

1 So mic, line, digi-ins, active tracks and combinations of the mixer outputs directly sent to the headphones as 'solos'.
2 Ph seventeen user configurable maps (A to Q) plus the stereo mixer output to headphones.
3 Lo nine user configurable maps (R–Z) plus the stereo mixer output to dual line-out (XLR 5).
4 Fb nine user configurable maps (R to Z) plus the stereo mixer output to dual foldback out (mini XLR 3).
5 Do nine user configurable maps (R to Z) plus the stereo mixer output to digi-out on AES7&8.

The headphones also receive the signal sent to the output being selected/configured.

Config Crown

In-Grids

To check and select the *In-Grids*, ***PUSH*** the [SoloMid**Pan**] slider to the battery side and press or click-in/click-out the [routing] button. The silver [config] crown gives sequential access to fifteen In-Grids, the last in use is displayed first.

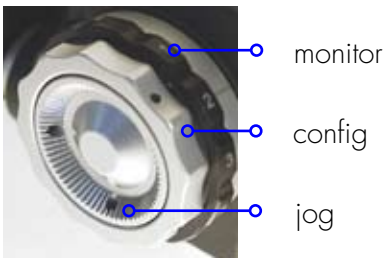
Out-Maps

To check the *Out-Maps* for each **Ph**, **Lo**, **Fb** and **Do** outputs, ***PULL*** the [**Solo**MidPan] slider to the Operator's side, and press or click-in/click out the [routing] button with the thumb and rotate the black [monitor] crown.
To browse the *Out-Maps* and select another one, rotate the silver [config] crown, the active map will be the one displayed when closing the [routing] command.
note: selecting a different *Out-Map* while recording doesn't affect the recorded signal.

Jog Crown

The [jog] is used: to move the cursor in the routing circular screens; to edit scene, take and comments; to select high-pass filters; to adjust the backlight's intensity; to control the pan-pots; and to scrub the player in fast forward/reverse.
Both the [jog] and [config] crowns increment time and operand values while rotating **clockwise**.

note1: [shift] [jog] accelerates the speed 10x.
note2: the Operand's middle and bottom rows of the rectangular screen can be browsed by the [>] [<] arrows just as easily as withthe [jog].



MainSelector positions

The [MainSelector] is easy to manipulate even while wearing heavy winter gloves; it gives direct access to all essential functions.

The **OPERATING** (West) positions control the recording, annotation and playback of audio files.

To get access to the Play&Rec 'BLUE' positions, press and hold the blue [shift] button while rotating the [MainSelector] to the next Operating position (p.48 & p.49).

The OPERAND (East) positions, which establish Cantar's operating parameters, are described on p.26.

Standard positions	*Play&Rec positions*	
REC	●	BLUE-REC
PPR	❨	BLUE-PPR
TEST	⏸	BLUE-TEST
STOP	■	
PLAY	>	BLUE-PLAY
BROWSE	⋞	BLUE-BRWS

MainSelector buttons

[silver] in REC, inserts a marker on-the-fly.
in TEST, after [routing] opens routing creation (future)
in PLAY, goes to Operator's record-markers.

[shift] [silver] in REC, triggers AutoSlate detection.
in PPR, toggles take editor (PREV/NEXT take).
in TEST, opens LEVEL&DELAY menu.
in PLAY, goes to AutoSlate marker.

[black] in REC, PPR, TEST, talkback mic activation. (p. 31)
in PLAY, inserts a play mark.
[ok] starts/stops from the play mark (p.24)
in BLUE-PLAY, inserts a cue-in.
in IN-GRIDS, links an input to a track.
in OUT-MAPS, connects sources to outputs.

[shift] [black] in REC, PPR, TEST talkback mic to active tracks.
in PLAY, plays from start of take.

[red] in REC, PPR, BROWSE, changes take-gender.
in BLUE-PLAY, inserts a cue-out.
in IN-GRIDS, unlinks an input from a track.
in OUT-MAPS, disconnects sources from outputs.

[shift] [red] in TEST, PPR,REC, triggers 1kHz reference tone:
'OFF' at [red] release, remains 'ON' if [shift] is released first, [shift] to turn 'OFF'.
in BLUE-PLAY, hides play-card from Play&Rec lis

[red] [silver] [black]

Mechanical MainSelector

[red] [silver] [black]

[shift]

Contactless MainSelector
(zero maintenance)

Starting & Stopping

To turn 'ON' Cantar, set the [MainSelector] to STOP, press the [batt L] or [batt R] button for a couple of seconds. The rectangular screen lights up. Cantar's cold start from an un-powered machine to recording is a blazing two to three seconds. On the left circular screen, the 'three-platter' icon blinks the time it takes for the disk to spin up to speed; it is surrounded by the icons of the routed tracks. The rectangular screen displays batt-L and batt-R voltages, plus the system day and time.

To shut down go to STOP and press the blue [shift] button and [batt L] or [batt R] until 'AU REVOIR' is displayed. For safety, if you are not in STOP, nothing happens.

Reminder: while in STOP, internal HD sleeping, the current drain is a mere 270mA. To keep the internal sync-clock running, do NOT turn 'OFF' Cantar during the workday.

Twin battery safety

Cantar's low power consumption electronics offer the longest operating time of all portable eight-track audio recorders. With a single set of onboard Li-Ion batteries, the eighteen hour Cantar outperforms all other recorders. And with the twin battery system you will never be taken by surprise.

While in REC, both batteries are permanently put on duty, in case you unplug one by mistake.

Mains power supply

Use a low ripple 15V/2A (16V max.) supply, NEVER connect a battery charger, its idle voltage goes up to 24V, this would be a Cantar killer. While working on a cart from a mains power supply, leave a battery onboard and activate both inputs: the battery will buffer possible mains power problems, e.g. power cord accidently disconnected, and it will supply the 4A surge at Cantar's start-up (off duty the rest of the time, thanks to the power supply higher voltage).

Voltage

Minimum: Each battery socket (Left & Right) gets its own ***Batt Alert*** level (TECHSET.14–15, p.34). This allows the simultaneous use of a NiMH battery with alert set to 10.8V, and a Li-Ion battery with alert set to 14.2V. Upon reaching the alert level, a two-beep alarm is sent to the headphones and the rectangular screen displays BATT L (R) LOW. When the active battery drops 300mv below the alert level both are put on duty.

Maximum: 16.6V is the maximum sustained voltage on any socket including the FireWire socket.

Never connect a FW cable coming from a desktop (e.g. MAC G3/4/5) delivering 30V. Extract the HD (it can sustain up to 40V), and connect it directly to the desktop.

Laptops deliver a safe 13V on their FW sockets.

Battery check

In TEST, [jog] to display the battery voltage; it also appears whenever you press the [batt L] or [batt R] button; pressing for more than two seconds puts that battery on duty.

Power Consumption

STOP 270mA (sleep mode), 420mA (HD running)
TEST 600mA (AES Off, Phantom Off, Heater Off)
REC 650mA (AES Off, Phantom Off, Heater Off)
AES 100mA. **Phantom**: 10 to 20mA per mic (60mA total).
Heater 500mA until screens reach +4°C. **Ethernet**: 50mA.

Lithium-Ion

Batteries The 14.8V/4.2Ah Aaton Li-Ion R-Cells are more powerful and lighter than their NiMH equivalent, 61Wh vs 45Wh, and 560gr vs 695gr (see p.59). To avoid their destruction by NiMH chargers, the XLR 4 plug pin-4 is protected by an 80V reverse voltage diode; pin-3 is directly connected to the cells; current is either flowing through the pin-4 diode to Cantars under #268, or through pin-3 to Cantars #268 up having the XLR 4 socket pins 3&4 tied together.

IMPORTANT NOTICE

Flight rules: *"NO Lithium-Ion batteries in stowed luggage. **A**- Under 8gr of lithium content, carry on as many as you want within size and weight limits. **B**- Between 8gr & 25gr, carry on no more than two batteries with a total lithium content between them of 25gr max."*

At 5.8gr lithium, Aaton R-Cells fall within the first category.

Charger Before plugging a battery, reset the ChaScot five hour charger by pressing the square 'OFF' button for about four seconds until the LED totally vanishes (see p.60).

Project, Day & Files

Error-free filing with *NO* disk partitioning

When you cold-start Cantar, it assumes you want to continue working on your latest project, which is displayed at the bottom of the rectangular screen.

When you rent a Cantar, its project memory should be empty; the rectangular screen should display 'No Project'. Once created, a 'project name' regroups all data related to it, such as the days of recording, the tracks and the disks used. This name is stored in each audio file, there is no risk of a file getting lost in a maze of terabytes.

Unlike other machines, the Cantar file sorting system doesn't rely on disk partitions. Instead, it uses the *'Project/Work Day/Filetag'* path tree, which allows for the intuitive and safe retrieval of any audio file on unpartitioned disks, anywhere along the PostChain. It is ***not*** Operator-error prone.

1 Project

If you are in a bind and have no time to select a project in SESSION.01 'ProjectName' (p.36), go directly to REC, your audio files will be stored in a project named AACANTAR. Later, with Majax you will move these audio files out of the 'AACANTAR' folder and into the project directory you would have created in the mean time.

note: in their iXML chunk, the moved files still hold 'AACANTAR' as the Project Name. You will need to manually replace that provisional name with the correct name.

2 WorkDay folder

At startup Cantar asks: '**New Workday?**', giving you the possibility to say 'NO'. Note that going to TEST or REC is a way to say 'YES'. The 'workday' is not the same as the actual 'time-of-day' as defined by the sync clocks, it is an interpretation of the 'human' day (see next page).

```
New Workday?
No = [esc]
Yes = [ok]
```

```
v13.5  V13.9
Sys 12:29:14
2005-03-22
```

The Cantar recorded files are multi-monophonic, i.e. independent files stored in a 'workday folder'. That folder is automatically created at the start of each day and is named for the date, e.g. 20041206.AAD (see *Calender Time*, p.13). If the isolated (ISO) tracks must be interleaved before import into crippled editing machines in need of polyphonic files, Cantar builds an .AAP suffixed 'provisional folder' to momentarily store them (see BACKUP.13 'Clean Polys', p.41).

3 Filename

In 1997, the Aaton Indaw multi-track digital recorder introduced the Aaton filename system. Each filename consists of: a unique ***filetag***; an optional ***descriptor*** that displays the scene, take-gender and take#; a ***suffix*** that indicates the kind and rank of the file.

The aim is to perform these tasks while remaining compatible with EDL standards which only handle '8+3' DOS filenames, and with Mac OS9 limited to 31 characters.

- The ***filetag*** (six character, automatically incremented index, i.e.AD1234) differentiates 6.7 million takes, a sound mixer's lifetime! (Indaw generates a 3 letter and 3 number filetag for 17.6 million takes). The filetag must remain untouched all the way through the final mix.

Each 'Take' generates a 'file group' sharing the same scene ID, take # and filetag, the filetag uniquely identifies and reunites the native ISO tracks/files, e.g. AD1234 is the unique filetag of AD1234_1 to AD1234_8, of their associated polyphonic file AD1234PR, and of their poly mixdown AD1234PX.

- The ***descriptor*** displays the scene, take-gender, and take #, e.g. scene A18:2a, take-gender t, take 04.
- The ***suffix*** is used to flag the kind of file, either multi-monophonic (_1 .. _8), or interleaved polyNative (PN), or interleaved polyRotate (PR), or poly miXdown (PX).

Examples

A short filename: AD1234_1.wav

A long filename: AD1234==A18:2a t04==_1.wav

A questionable file?

Ask Aaton to give you access to their file-repair FTP site. If you don't have an ftp client, download the Mac-OS 'Cyberduck' freeware from http://cyberduck.ch/ and for Win2K PCs http://www.smartftp.com

An operational problem?

Go to TECHSET.03 'Save Setup', and create a Setup file to be e-mailed to cantar-support@aaton.com, this will help them solve your problem.

Calendar and Sync Times

Time is the essence of a digital audio recorder. Cantar uses two kinds of time: '**Calendar Time**' organizes folders and files, '**Sync Time**' links audio and picture.

Calendar Time

System date and ***time*** run on a medium precision clock which creates the workday folders. This clock is powered for four to six years by a 3V Lithium CR1220 button battery. With the HD compartment open, it is easily reached; replace it as soon as you witness date freezes.

In STOP, the system date and time is displayed on the rectangular screen; check it for a ±five minute consistency with the time-zone you are working in. Think of it when you get off of a three-hour flight.

Go to TECHSET.21 'System Time', [ok], a triangle points to the modifiable digit. Using [jog], select the desired value, press the [>] or [<] to move on to the next column, [ok] to exit. Power 'OFF' Cantar then 'ON' for the CPU to use the new system time.

The ***Workday*** is related to the date defined by the calendar clock but not totally a clone of it. The workday is an interpretation of the 'human' day; its duration can be from 6 AM in the morning to 3 AM in the deep night next day. If you turn 'OFF' the batteries after midnight, Cantar thinks the Operator has gone to sleep. But if your 'workday' is continued into the wee hours after a midnight snack, you would probably not want it to be considered a 'new' workday. That is why Cantar displays '**New Workday?**', giving you the opportunity to say 'NO'. Note that going to TEST or REC is a way to say 'YES'.

Thus, if you stop working at 2 AM one day, the audio files are technically still part of the previous workday. Conversely if you want to start a new workday right after midnight, just turn 'OFF' Cantar, then back 'ON' and answer 'YES' or go to TEST.

Sync Time

At startup you will notice a blinking **int c** or **ext c** icon, depending upon the master (internal clock) or slave (external clock) mode selected in AUDIO/TC.15 'Tc Source'. This blinking icon reminds you to verify that the same timecode is running in all of the camera(s) and audio recorder(s).

Four methods are used to sync images and sounds

Method 1
'int c' internal *Free-Run* master-clock

Set AUDIO/TC.15 'Tc Source' to '**Int. Clock**'. The internal TCXO 1ppm 'Sync Clock' keeps the time accurate to within ±one frame in nine hours; this time is used to stamp the sound files with the very same TC as the one stamped on the camera's images (AatonCode method called 'Free-Run TC' in the video world).

Once initialized Cantar behaves as a ***master-clock.***

Internal 'Sync Clock' initialization choices:

A Calendar init.

At startup, Cantar reads the system's calendar date and time to initialize the 'Sync Clock', '***Stc***' (System-TC) is displayed in the rectangular screen.

To remind you to sync other equipment around to the Cantar 'Sync Clock', the '**int c**' icon keeps blinking until you press [shift] [TC jam]. 'Confirm Sys time' is displayed.

B Operator init.

If you want to set the 'Sync Clock' with your own date and time, go to AUDIO/TC.21 'OperTc Init'. '**Otc**' (Operator-TC) is displayed in the rectangular screen.

C LTC init. & control *(from camera, GPS, or Cantar)* LTC-out

On TEST, press [TC jam] for more than three seconds; the entered LTC jams the internal 'Sync Clock', '**Jtc**' (Jammed-TC) is displayed in the rectangular screen.

On TEST, press [TC jam] shortly; the difference between entered TC and internal TC is displayed: 'no answer', 'good 0.3', 'fair 0.5', 'bad +1', 'other' (to be implemented in a future version).

[TC jam] has no effect if there is no valid timecode on the TC input, '**Jam Failed No LTC**' appears in the rectangular screen and the '**int c**' icon continues to blink.

D ASCII init. *(from Aaton OriginC)*

On STOP, the 'Sync Clock' is set by an Aaton OriginC which also initializes cameras and GMT generators. '**Atc**' (ASCII-TC) appears in the rectangular screen.

Cantar as a master-clock

As soon as the **int c** icon stops blinking, Cantar starts generating timecode kept in its 'Sync Clock', a 1ppm 'Temperature Compensated (X)crystal Oscillator' (TCXO) clock accurate to ±one frame in nine hours. This high accuracy 'Sync Clock' makes Cantar ***the*** TC reference on set.

To continuously sync equipment through cables and transmitters, or to quickly jam-sync a camera, a Cantar or a GMT*, turn 'ON' the LTC generator in AUDIO/TC.17 'Ltc Gen Out'.

* Aaton GMTs are low power, high accuracy timekeepers to be attached to cameras and digi-slates.

Do not power down a master-clock!

Being on a job on which the Free-Run time-of-day TC is the essence (AatonCode camera, Digital camera with GMT reference generator, smart digi-slate), never power down Cantar during the workday to avoid the loss of its 1 ppm reference time! While the internal HD is in sleep mode the total power consumption is a mere 270mA! Set TECHSET.16 'HD Pwr Dwn' to '**After 5min**', to have the HD sleep five minutes after STOP. If you still want to power down Cantar at lunch time, the blinking **int c** icon at power up will remind you to re-initialize all other timekeeping machines on the set.

Method 2
'int c' internal *Record-Run* driving clock

Go to AUDIO/TC.20 'RecRunTc In', [ok]: 01:00:00 is proposed as the first TC of the day (it can be modified). From now on, at the beginning of each audio file Cantar will stamp a start-TC incremented by two seconds later than the preceding take's end-TC. This clocking, called Record-Run, produces audio files which appear as if they have been recorded in continuity.

If for some reason Cantar is turned 'OFF', the Record-Run TC must be initialized again. To prevent any TC overlap, Cantar proposes to start on the next hour integer, e.g. if the last recorded take has been closed at 01:34:15, the next start-TC proposed to the Operator will be 02:00:00.

The Cantar Record-Run mode lets you use the pre-record buffer without creating TC overlaps. For example, if the preceding take ends at 01:45:00, and the pre-record buffer is set at thirteen seconds, the next audio file will start at 01:45:02 (two second gap), but the LTC emitted by the generator to the camera when hitting REC will be 01:45:15.

While Cantar is in Record-Run mode, its reference TC must be continuously sent to all cameras on the set by wire or RF.

note: in TEST and PPR, the LTC output is frozen on the end-TC value, it can thus be used as a master TC to start and stop another Cantar (see *Record by LTC*, p.21).

Method 3
'int c' internal clock, *AutoSlate* on clapsticks

If the same TC is not running in Cantar and cameras, the only way to sync pictures and audio is to use clapsticks; forget digi-slates, they have too many drawbacks. The Cantar AutoSlate sample-accurate clapstick detection function puts a timecode crown over the simplest piece of wood (p.23).

Method 4
'ext c' *slaved* to an external clock

An externally-slaved Cantar stamps the audio files with the same TC as the one running in the video camera. This requires a link from the camera to Cantar.

Set AUDIO/TC.15 'Tc Source' to '**Ext. Clock**'; **ext c** blinks in the circular screen, meaning that Cantar is waiting to be slaved to an external LTC, e.g. a video camera. ***Cantar, while set to 'external clock', will only jam when you go to REC; pressing the [TC jam] button will do nothing.***

Cantar is usually in REC before the camera, so it monitors the Lemo 5/SubD 15 incoming LTC and grabs it when coherent TC is received. That is why **ext c** keeps blinking until the camera is up to speed.

Before closing the audio file, Cantar stamps the TC by using the latest valid timecode so as to eliminate spurious transmission errors and false camera starts. If there is no external timecode signal, an '**LTC Not Detected**' warning appears in the rectangular screen and a phone beep is triggered every four seconds. The beep is muted during 'w' (wild track) tagged takes (see *Warning beeps*, p.22). Nevertheless, the external TC is grabbed if it is received before the take's end.

note: external LTC breaks can be used to slave the REC start and stop (see *Record by LTC*, p.21).

Sampling Rate, Camera fps, Audio-TC

These parameters are not correlated. The number of audio samples per Earth second (Hertz), is called the sampling rate, e.g. 48000 is 48kHz. The camera 'frames per second' value should have no influence at all on the audio sample rate frequency; unfortunately, some vintage NTSC post-machines still impose the use of the disgraceful 48048 or 47952 sample rates to sync real-time audio with drifting-time images. The frame-rate used to express the audio time can be 30, while images are filmed at 24 or 25fps.

On planet Earth

Timecode handling is simple at integer speeds such as 24, 25 and 30fps; *at 29.97DF (Drop-Frame) the frame count jumps over two images every minute except for every tenth minute to keep the count in line with Earth's time.* Stored in the file metadata, the camera fps is a simple reminder and can be changed later and then applied to the audio LTC used in some audio-post sync operations.

'U' *Universal : 24.00, 25.00, 30.00, 29.97DF*

In a file digitized at 48kHz, the Format stamp indicates the number of samples per real-second, i.e. 48000; the Time-stamp carries the number of samples since midnight using the sample rate value found in the Format stamp *(the same logic is used in the Barebone mode-B for 'slow-planet' recordings).*

On the .1% 'Slow-Planet'

NTSC-compatible 23.976fps cameras cannot use the no-time-drift drop frame system invented for 29.97fps. Nobody found a workable counting algorythm. In this environment the 'slow-second' (*the time it takes to shoot 30 frames of NTSC video, i.e. 1.001 Earth sec.)* imposes its law.

As soon as you enter ***Camera fps = 23.98NDF*** or ***29.97NDF***, you are on the 'slow-planet', with its lazzy 24 (aka 23.976fps on Earth) or lazzy 30 (aka 29.97fps on Earth). The Cantar's TCXO clock is switched to a slower beat and TC separators change from '**:**' to '**∗**', e.g.12∗45∗36.

Many nights of engineers' time have been spent trying to find a universal method to sync sound and images on the slow-planet but nothing came out. You must ask your post-facility which one of the following *three sample-stamp modes* is requested:

'A' *Avid v11 23.98NDF–A 29.97NDF–A*

In a file digitized at 48kHz, the **Format-stamp** indicates the number of samples digitized in a slow-second, i.e. 48048; the **Time-stamp** noted at the file's head is the number of samples since midnight, using the 48048 value of the Format-stamp.

Introduced for the AvidMC v11.3.2, the 'A' mode is fading away. See 'Avid-Recording-Rates' in Aaton tutorials http://www.aaton.com/documentation/

'B' *Barebone 23.98NDF–B 29.97NDF–B*

In a file digitized at 48kHz, the **Format-stamp** indicates the number of samples digitized in a real-second, i.e. 48000; the **Time-stamp** is the number of samples since midnight using the 48000 value of the Format-stamp.

While images and timecode are beating the slow-second, the audio remains on Earth! Since modern post-machines (e.g. Indaw) perform high quality real-time sample rate conversion, 'Barebone' and 48kHz should have been THE only choice but unfortunately some other manufacturers decided differently (see below).

'C' *Compensated ('F' Faux) 23.98NDF–C 29.97NDF–C*

The 'C' mode is made for challenged post-machines. In a file digitized at 48kHz, the **Format-stamp** value indicates the real number of samples per real-second, i.e. 48000, but the **Time-stamp** is the number of samples since midnight ***as if*** the digitization was done at 48048!

The '**F**' index (for Fake or Faux) is given by Fostex and FCP to this mode used by most US productions.

For 02h00m00s on Earth at the start of take, the Time-stamp value is 345,945,600 samples (02h x 3600s x 48048).

Summary recording done at 23.976NDF or 29.97NDF:

A-mode, the actual recording sample rate is 48K, the sample rate noted at the file's head is 48048, the Time-stamp noted at the file's head is calculated using 48048.

B-mode, actual recording sample rate 48K, sample rate noted 48K, Time-stamp calculated by using 48K.

C-mode, actual recording sample rate 48K, sample rate noted 48K, Time-stamp calculated by using 48048.

Audio inputs (pin allocation p.58)

Analog: Five symetrical transformer isolated **mic inputs**, and four asymetrical **line-inputs**.

AES: eight sample-rate converted **digi-inputs** (Tascam TD88 standard), AES42 option.

note: The RF-mic asymetrical output ('headphones') delivers better quality than the symetrical mic level output going through a tiny transformer. Preferably connect RF mics to Line-inputs.

Mic-preamps

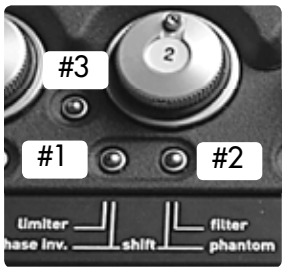
Cantar's mic-preamps offer such a wide dynamic range in one single stroke that they don't need any trims. Whenever you adjust a fader, all inputs for the same kind are displayed in dBFS on the rectangular screen.

Phantom power

Press [**shift**] [**fil-tom**] (2) to toggle that mic's Phantom 48V power 'ON/OFF'. The default setting is 'ON'. Turn it 'OFF' while using a dynamic microphone, the preamp gain will be boosted by +12dBu, and the triangle below the mic number will disappear from the right circular screen.

Limiters

Press [**lim-inv**] (button#1) to toggle the limiter 'ON/OFF' (to protect the limiters from mistaken fingers, a one second pressure must be applied). While the limiter is turned 'ON', a triangle is displayed below the mic number on the left circular screen. If the signal level reaches the limiter zone (–8dBFS), the triangle will start blinking. In 24-bit recording mode, it is common practice to adjust the input gain so that a 'normal' signal does not go over the -20dBFS level. Limiter activated, the 32dBu head-room above the –8dBFS kick-in point gives 24dBu above the 'no-limiter' full scale. The Operator can count on a 44dBu reserve over the normal –20dBFS level.



If the signal does reach the –1dBFS level, a '**clip**' icon appears at the end of the modulometer scale and a beep can be sent to the headphones (TECHSET.08 'Clip Beep'). To maintain equilibrium between linked channels, the same limiter command is applied to ganged preamps.

Inversion

Press [**shift**] [**lim-inv**] (1) to invert the mic's phase. A triangle appears below the mic number on the middle circular screen.

High-pass filters and line attenuators

Click the [**fil-tom**] #2 button of a mic to open the filter selection screen, another click on any [**fil-tom**] button closes it. In between these two clicks you can [jog] through the filter selection screen. Continuously leaving the finger on the [**fil-tom**] button simulates both clicks, when you remove it, the filter screen closes itself.

Displayed in the rectangular screen, three **banks** offer corner frequencies/slopes from 60Hz/–6dB to 180Hz/–12dB and LFA (see p.58).

To avoid mic preamp saturation by very low frequencies, always insert a high-pass filter when mics such as an MKH8050, Shoeps CMIT 5U or Neumann KMR 81 are installed on a moving boom. An efficient wind jammer is paramount.

- **Mic Level:** default for all mic inputs.
- **High Level:** an 8dBu command offset puts the fader knobs in the same angular position as when a standard sensitivity mic is used.
- **Line Level:** a 24dBu attenuator converts mic to line inputs (available on SL1 preamplifier, Cantars from #268).

Differential delays *Cantar-X2*

Sound speed (0.3 m/ms) or signal processing lag (up to 3.8 ms in some wireless kits) generate 'phasing' between mics placed around a single source. Close sounds contributing to the live ***mixdown*** must wait in buffers for the time it takes for the 'late-sound' to arrive. Cantar automatically applies the value entered on the late sound input to all other inputs.

```
LVL&DELAY 07
mic5 delay
78.8ms
```

In TEST, press [shift] [silver] to open LVL&DELAY, [jog] from 'mic1' to 'line4'; press [ok] on the input of which ***the travel time*** or electronic delay must be compensated for (most often the digital wireless mics and their 3.8ms delay). [jog] from 0 to 85 ms by 0.1 ms increments *(1 ms increments by [shift] [jog])*. Fine tune its value by listening to the tracks in 'double-solo' (see *Soloing tracks*, p.22). An ear protecting mute is applied during modifications.

The value of the longest travel time is applied to the buffers of all analog inputs but the one being set. *Digital inputs are unaffected.*

Example1: a wireless lavalier (3.8ms processing lag) on line1 must be aligned with a 6m distant boom (18ms travel time) on mic5. Set mic5 at 18ms and line1 at 3.8ms; all analog inputs will be buffered by 18ms, line1 by (18 – 3.8) 14.2ms, and mic5 by 0.0ms.

Example2: a digital boom (5ms processing) on AES-in1 must be aligned with a 1ms lavalier on mic1. Set an unused analog input to 5ms and mic1 to 1ms. All analog inputs will be buffered by 5ms, mic1 by 4ms. Both the unused input (set to the longest travel) and the AES-in1 (by very nature) will remain at 0.0ms.

Travel compensation can go up to 85ms (two frames), the TC stamp of the audio file is corrected accordingly, it appears in the iXML chunk and the CSV Sound-Report.

Gain values

Set TECHSET.06 'Display dBFS' 'ON'; when adjusting a fader, the gains for that line or mic kind are displayed.

Mic links

They are preselected in AUDIO/TC.10 'Mic Links' (p.31).

Stereo-pairs: 1 > 2 3 > 4 *Surround:* 1 > 2.3.4.5

Double M/S: 1 > 2 3 > 4.5 (p.44).

To activate the preselection, press the [shift] [link-lock] button to the right of the master fader; a (**IIIIII**) appears between the linked mic figures, bottom of the circular screens. Phantom, Limiter and Highpass filter are applied identically to the linked faders. Phase inverters remain independent. The slave gain is ±12dBu of its master's value. Whenever you adjust a fader, the master/slave status is displayed on the rectangular screen as (**II II**) for the master, (**II**) for the slave.

```
AUDIO/TC  10
Mic Links
1>2.3.4.5
```

All of these links remain active when the onboard faders are taken over by the **CantaRem** RemFaders.

Protecting the balances

To protect the 'balancing' faders against flying fingers, set AUDIO/TC.09 'Bal. Access' to 'Locked': balance adjustments will only be accessible while pressing the [fil-tom] button. The slaved gain value is displayed with (**<**) (**I**) (**>**) signs showing in which direction you should rotate the fader to avoid any sudden level change when reactivating its balancing power.

```
* MicX lokd*
-dB     22I
14IIII16> 21< 15I
```

Line links

The links are selected and armed in AUDIO/TC.11 'Line Links' (p.31). For Surround sound recording with a Soundfield ST350, use the line1 fader as the master of the two other line inputs: set 'Line Links' to **1>2.3**. Slaved line faders (**I**) have no balancing activity, they get their gain value from the master (**IIII**).

```
AUDIO/TC  11
Line links
1>2.3
```

```
* line X   *
-dB
14IIII 14I 14I 22
```

The T1–T6 Mixer

The mixer's pan-pot and fader controlled outputs are called **Xa** (left), and **Xb** (right).

Pan-pots

Each recorded ISO track can be sent to Xa or Xb or both. Push the [SoloMid**Pan**] to PAN (battery side), press the [track-solo] button and [jog] the pan marker toward the left or right side of the circular screen (p.7). The value in dBFS of what is left to the other side is displayed on the rectangular screen. When a track pair is declared '**m-s**', its pan markers go to the middle, the M & S signals are recorded as they are but they are L/R decoded into the mixdown and the phones. For the line-out, foldback and digi-out, see *M/S monitoring*, p.18.

Faders

The pan-pots being set, each ISO track's contribution to the mix is adjusted with the faders. The maximum gain can be either +6dBu or 0dBu (see AUDIO/TC.07 'MixGain Max', p.31). `

Outputs

Recorded on T7T8 or not, Xa/Xb (left/right) can be sent to the external world by selecting the XX Out-Map in the **Ph, Lo**, **Fb** and **Do** positions of the [monitor] crown. Recorded on T7T8 or not, the Xa (center), Xb (center), Xa+Xb (center), Xa/Xb (left/right) mixer outputs can be phone monitored in TEST, REC and PLAY in the **So** position of the [monitor] crown; their level is displayed on the central circular screen.

note: when the Xa Xb mixer outputs are recorded on T7T8, their levels are displayed on the rectangular screen bargraphs (p.8).

Track (dis)arming

Monophonic multi-track file recording doesn't waste disk space by recording empty tracks as is the case with polyphonic. It is wise to momentarily disarm a track when there is no use for it. In TEST, press [shift] [track-solo] of the unwanted track. Its monitor is muted, its track icon blinks and its modulometer is dashed. Disarmed tracks can't be inadvertantly rearmed by going to PLAY or BROWSE, you must go to the ROUTING position and back (or turn 'OFF' the power).

M/S monitoring

The '**m-s**' declaration of a track pair (IN-GRIDS, p.27) causes them to be decoded as m+s/m–s, i.e. L/R stereo in the phones and mixdown. If on top of the phones, you want an M/S recorded track pair (say T5T6) to be sent as L/R stereo to the Lo, Fb, Do outputs, create an Out-Map in which T5 goes to the left and T6 to the right, Cantar will *automatically* decode these M/S tracks as L/R. This applies to the T1T2 and T3T4 pairs too, alone or together. ***Panning the M track to the left or right, makes it go there, and the S signal disappears from the mix. That is a way to mono monitor the M signal.***

Headphone level

Protected by [shift], the "Phone" level is displayed on the rectangular screen. Rotating the fader makes '**<**' and '**>**' appear. There is no level change if [shift] re-activation is done after the fader has been put back in its 'pipe' (I) position. The headphone amplifier can drive 8-ohm speakers; useful to send playback tracks to the stage.

Line-out and Foldback levels

In TEST, open LVL&DELAY with [shift] [silver]. The Line-out and Foldback levels are [jog] adjustable from 0 to -94dB.

```
LVL&DELAY 01
LineOut lvl
-20 dB
```

Line-out & foldback can be muted during PLAY and TEST, see AUDIO/TC.05 - 06 (p.31).

A –18dBFS tone delivers a –10dBu line-out level. A +12dBu two channel transformer is available (p.58). CantaRem faders can be assigned to line-out and foldback levels (p.53).

tip: *insert a 12k ohm resistor in the input path of the Sennheiser transmitters to avoid oscillation and noise generation.*

Check and select the routings

In TEST, PPR and REC, depending on the [SoloMidPan] slider position, the [routing] button activates the display of the *In-Grids* input routing templates, or the *Out-Maps* output routing templates. This is done by pressing the [routing] button or by a short click to open, another click to close; this later method liberates the thumb to better grip the crowns.

In-Grids

To check and select *In-Grids,* ***PUSH*** the [SoloMid**Pan**] slider to the battery side and press the [routing] button. The silver [config] crown gives sequential access to fifteen In-Grids, the last in use is displayed first.

To protect the recording's integrity, you can't change In-Grids while in REC, but you can do it with a trick: go to PPR, press the [routing] button, rotate the silver [config] crown to the desired In-Grid, release the [routing] button and go back to REC, the pre-record buffer gives you up to thirteen seconds to act... not one single audio sample will be lost between the two audio files.

Out-Maps

To check and select the *Out-Maps* for each **Ph**, **Lo**, **Fb** and **Do** outputs, ***PULL*** the [**Solo**MidPan] slider to the Operator's side, press the [routing] button and rotate the black [monitor] crown. To browse the preset *Out-Maps* and select one, rotate the silver [config] crown, the active map will be the one displayed when closing the [routing] command.

You can select different Out-Maps while recording, this doesn't affect the recorded signal.

note: in PLAY, the active *Out-Map* can't be displayed, verify it on the [MainSelector] ROUTING position.

Play&Rec rehearsal

(read p.48 & p.49)

In BLUE-TEST, the playback tracks Tp1 – Tp6 are internally sent to the digi1–6 inputs, then routed the standard way. By pressing [routing] with the SoloMidPan slider onto the adhoc position, select *In-Grids* and *Out-Maps* tailored to the job. Rehearse the BLUE-REC navigation with the analog faders, adjust the levels between the digital play-cards and the live (analog) inputs. The latest BLUE-TEST played card is the first to be called when going to BLUE-REC.

The **Pre-Post-Record [PPR]** position is unique to Cantar, it allows three important functions: pre-record buffer activation, metadata entering/editing, and last take erasure.

Pre-record buffer

While the [MainSelector] is on PPR, the pre-record buffer stores the audio in a First-In/First-Out (FIFO) buffer memory and dumps them to the HD as soon as REC is activated. The '•**rec**' icon blinks under the disk(s) selected for recording. Once the buffer is full, up to 13 sec. @ 48kHz, it starts discarding the First-In audio, the middle platter of the 'three-platter' icon disappears; this is a way to verify the selected buffer length (AUDIO/TC.08 'PreRec Dur', p.31).

Pre-Rec metadata entry: 'NEXT take'

While in PPR, enter/edit the scene ID, take #, commments, track-names and Audio-Ref of the NEXT take, then press [ok] to validate. *Two remarks:* 1– the use of Arcan, Tarkan or keyboard (p.58) considerably speeds up metadata entry; 2– [shift] [jog] accelerates letter scrolling 10x.

1 Scene and Take

The first screen displays '**Seq Scn Tak**'. Press [ok] to go down to the bottom line and use [>] or [<] to scroll along the characters and modify them with [jog.] Press [ok] to store and exit.

• The default template is **nnnA/nnA.nn** for 'sequence, scene, take-gender and take #'.

- ***Sequence:*** three digits, followed by one character*.
- ***Scene:*** two digits, followed by one character*.

*'space', 'A' to 'Z', 'a' to 'z', '0' to '9'.

- ***Take-gender:*** t = **t**ime synced, p = **p**ick-up, w = **w**ild track, a = **a**nnounce, n = **n**o good (keeps the take # for the next file). This **t-p-w-a-n** list is scrolled with the [red] button.
- ***Take #:*** two digits.

• An open **XXXXXXX.XX** template is also available, (see AUDIO/TC.12 'ScTk Templt', p.31).

At each new take, the sequence & scene is maintained and the take # is incremented by one. Modifying the sequence or scene ID causes the take # to reset to '1', and the take-gender to 't'. The rectangular screen displays the filetag of the NEXT recording.

2 Comments

[jog] to '**Tk Comment**' and press [ok] to activate the bottom line where the former comment appears. Characters (200 max.) can be entered with [<], [>] and [jog] but it is much easier to use a keyboard or a remote PDA with Arcan.

Depending upon the keyboard [insert] key toggle status, a flickering square (insert) or a flickering pipe (overwrite) is displayed. Enter your comments. and press [ok] to validate.

note: *to erase the comment line inherited from the preceding take, press [shift] [esc].*

3 Track-names

[jog] to '**TrackName 1**', [ok] to go to the bottom row. [shift] [jog] or keyboard's [shift] [up/down] arrows show the available list of track-names.

Track-name completion relies upon a library of the last thirty track-names in use. This automatic process speeds up track-naming by letting you pre-store the names of the film's main actors and swiftly recall them by their first two letters. Press [ok] or [enter], and [jog] to '**TrackName 2**', etc.

Track-names are modifiable at all times and are stored in each and every audio file, this means that ***an ISO file carries its own track-names***.

Library cleaning

By [jog]-ing past '**TrackName 8**' you reach '**Del TrkName**', [ok], select the track-name to be erased, [ok]. If you decide not to erase it, press [esc]. In a bind and no time to name the tracks of the next take, it is better to remove the former take's track-names than to carry incorrect ones in the next take.

Go to the track-name editing line (any track will do), and press [shift] [esc]; the following generic names will replace them : **T1** to **T8** on native monophonics; **ms-M** and **ms-S** on M/S tracks ; **MixRight** and **MixLeft** on mixdown tracks.

Press a [track-solo] button to display that track's name in the rectangular screen.

note1: to allow for a possible entry from a PDA, the generic track-names above are only recorded upon completion of the take.

note2: the default entry mode is 'overwrite', if you change it by selecting 'insert' on the keyboard, it will revert to 'overwrite' on the tenth character since track-names are limited to this number.

4 User's Tape Ref

By [jog]-ing past '**Del TrkName**', you can overwrite the automatic Cantar generated MMDD ***Usr TapeRef***' with a project's "Shoot Day Number", or a Tape ID, later called "Roll Number" on the Avid (p.47). (cf [Tape Ref] at the bottom right of the Majax screen).

Only use BCD characters if you want to clone the TapeRef into the LTC-out user bits (see AUDIO/TC.18[3] p.32)

Post-Record metadata entry: 'PREVIOUS take'

After REC, stay on PPR, the metadata to be used for the next take is displayed. If you want to modify the just recorded take's metadata, press [shift] [silver].

The rectangular screen displays EDIT, press [ok] then [>], [<] or [jog] to edit the PREVious scene ID, take # and take-gender ([red] button) of the previous file as explained in 1 - 4 (above).

Press [ok] to confirm, then [shift] [silver] to close.

Pazienza! paciencia! patience!

When editing metadata entries, you are modifying the native files stored in the internal HD. If you are working in simultaneous (mirroring) mode, these modifications are immediately applied to the external drive files as well. But if you are working in **Idle Bckp** mode, they will only be applied later when Cantar is in TEST position.

So, at the end of the session, do not unplug the backup media in haste. Wait until Idle Bckp finishes its revamping work!

Automatic file splitting

If you need to record audio during very long periods without interruption but you don't want files larger than 4GB, Cantar automatically closes the file and starts a new one: four settings are available: **260MB** (e.g.1 track for 30 min @24-bit/48kHz), **690MB** (700MB CD-R capacity), **2GB** (default setting), **4GB** (FAT32 max. filesize). The filetag number is incremented but the scene and take IDs remain the same.

Manual file splitting

To divide a file into short segments, quickly go from REC to PPR and back to REC. A new file is created; it carries the same scene ID and the take # is incremented. You will not lose a single audio sample. An up to one second of pre-silence is added at the head of the new file to ease the splicing work in Post.

By setting the PPR buffer to a long enough duration you can even enter new scene and take IDs and comments.

Last take erasure

To save disk space, Cantar lets you *erase* the last take, e.g. a ***false start*** or ***aborted remix***. In PPR, press [shift] [silver], to open 'Edit prev.', [ok]; select 'Erase Take'; toggle from 'No' to 'Yes', [ok]. Since THERE IS NO WAY to retrieve such an erased take, for your protection, the latest position must have been REC, and the power must not have been turned 'OFF'.

The next take will carry the same take # as the erased one.

False start

If you are under pressure, and not willing to risk an unforgiveable mistake, do not erase a false start as described above, ***stay in REC***, press the [red] button until 'n' (**n**o good) is selected in the t-p-w-a-n take-gender list, then go to PPR.

The next take will carry the same take # as the ignored one.

Takes with a take-gender of '**n**' are grayed in the PDF sound report and carry an '*aborted/false start*' header in the 'comment' line but they can nevertheless be used.

See BROWSE p.25 for another way to trash a take by hiding it. This lets you change your mind later.

Record by LTC

This function is also called 'Remote Roll', 'Auto-load' or 'Remote record' depending on the country and manufacturer.

Select AUDIO/TC.14 'Rec by Ltc' (p.32):. In PPR position, Cantar starts recording upon receiving **running LTC-in** and stops recording upon receiving **frozen LTC-in** generated by a video camera or an Aaton GMT (see *Remote roll*, p.56).

note: the source for timecode stamped in each audio file is either the Cantar's master TC (**int c**), or the remote master clock's TC (**ext c**).

The remote LTC can carry a continuous Record-Run TC or a discontinuous Free-Run time-of-day TC. No time overlaps are created on the breaks since Cantar waits for three seconds to validate the new LTC then goes to REC while splicing the preceding three second audio stored in the pre-record buffer.

If you want to continue the recording knowing the video camera is about to stop, swiftly switch from PPR to REC.

Remote by Aaton accessories

Tarkan Ethernet connected Mac or PC, Cantar-X2 (p.51),
CantaRem eight linear fader surface (p.53),
Arcan-w Bluetooth connected PDA (p.55).

Remote by keyboard

In PPR, Cantar can be controlled by a PS2 **keyboard** through a *USB-PS2 to SubD 15* converter (p.58).

Simultaneously press [crtl] [alt] and one of the following:

[r] = REC	[g] = IN-GRIDS
[p] = PPR,	[m] = OUT-MAPS
[t] = TEST,	[a] = AUDIO/TC
[s] = STOP	[k] = TECHSET
[l] = PLAY	[c] = BACKUP (Copy)
[b] = BROWSE	[J] = SESSION

Use the vertical arrows or the numeric pad to scroll the parameters, use the horizontal arrows to select the parameter value, press [enter] for 'ok', [escape] for 'esc'.

Recording

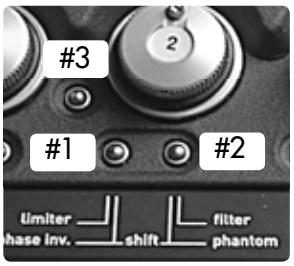
In REC, '● **rec**' is displayed under the active drive icon and a red LED lights up underneath. While in REC, both batteries are paralleled for additional safety.

ISO Track modulos

In REC, PPR, TEST, the modulometers display the level of the signals to the tracks. The circular modulometers' resolution is 1dB in the -35dBFS to -12dBFS working zone The rectangular screen modulometers' resolution is 2dB in the same zone. The ballistics emulate needle modulometers. The decay time can be adjusted in TECHSET.12 'Meter Speed' from '**1 (fast)**' to '**5 (slow)**'. The peak-meters 'hold' period can be adjusted from one-half to five seconds in TECHSET.13.

Soloing inputs

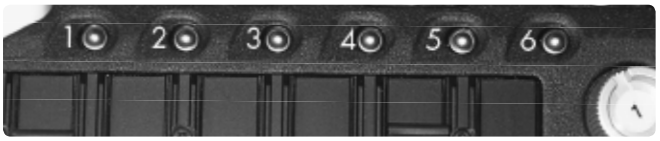
To monitor any input, rotate the [monitor] crown to **So** and select the desired input. You can directly solo a mic by pressing its [fil-tom] #2 button or make a short click to toggle it ON/OFF. While soloing a mic, its high-pass filter can be [jog] modified; the locked balance action of slaved mics is unlocked. Soloing the master of a linked pair causes the master to be sent to the left and the slave to the right channel.



To directly solo Line-in1 to Line-in4, push the Solo**Mid**Pan slider in its middle position and press [track-solo] buttons 1 – 4.

Soloing tracks

To solo tracks T1 to T6 in both ears, pull the [**Solo**MidPan] slider to the Operator. Press [track-solo] buttons 1 – 6.



To solo tracks T7 or T8, move the Solo**Mid**Pan slider to its middle position and press [track-solo] buttons 5 or 6.

note: while maintaining pressure on a [track-solo] button, press another one. You will hear the first soloed signal in the left ear, and the second in the right ear. Use this feature to compare levels, phasing and differential delays.

Locking the Fader Surface

Press the [link-lock] #3 button between mic 1 & 2 faders to (dis)able the mixer's linear faders; press the button between mic 3 & 4 to (dis)able all rotary faders. To prevent inadvertent locking, you must press the button for a full second. Any action on a disabled fader causes the rectangular screen to display '**Locked Fader**' instead of its gain value.

Reference Tone generator

In TEST, PPR or REC, [shift] [red] sends a 1kHz tone to the tracks, modulometers and mixdown. '**-18dBFS**' or '**-20dBFS**' is selected in AUDIO/TC.03 'Tone Level'. Releasing [shift] before [red] locks the tone 'ON'; pressing [shift] turns it 'OFF'.

Talkback mic

In TEST, PPR or REC, press and hold the [black] button to send the talkback to the left channel (AUDIO/TC.04 'TalkbckMic'). Quickly press [black], release then press and hold to send the talkback to the right channel. Press [shift] [black] to send the talkback to all tracks.

Warning beeps

One beep: record start (TECHSET.07), saturation (clip) detection (.08). **Two beeps**: record stop or low priority problem such as low battery voltage. 'Lack of external clock' (.09) is automatically disabled on 'w' (wild track) takes. **Three beeps**: high priority problem, e.g. unplugged external HD. The beep level is set in TECHSET.11 'Beep Level'.

Take-gender

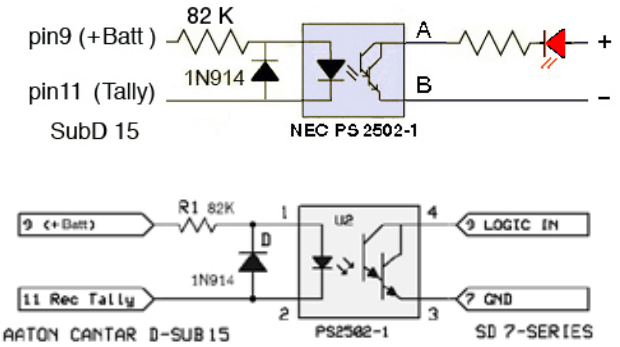
Press the [red] button to scroll the **t-p-w-a-n** take-gender list:
t = **t**ime synced, p = **p**ick-up, w = **w**ild track, a = **a**nnounce, n = **n**o good (keeps the take # for the next file and grays-out the take in the PDF sound report, "*false start*" appears in the comment line.

note: in case of false-start, stay in REC, press [red], select '***n***' in the tpwan list, *then and only then*, go to PPR; the next take will carry the same take # as the 'ignored' one.

Going to PPR (p.20), you could open the PREVious edit process to do the same, and even erase the take to save disk space, but this takes more time, and this is not recommended in the high pressure short time interval following a false-start.

Tally & other recorders REC remote

In REC, the SubD 15 pin-11 is grounded by an open collector transistor (40mA max.). *Do NOT use a coil activated device on pin 11, the flyback voltage would kill the transistor.* Use an opto-coupler (see drawing) to avoid ground loops.



AutoSlate

This is the most precise and simplest method ever invented to sync images and sounds (p.46).

In AUDIO/TC.13, select the slate detection channel.

While in REC, press [shift] [silver] *within six seconds* after a clapstick; the most plosive event preceding [shift] [silver] creates a Slate Mark. The successive slates generated by a multi-camera shoot are labeled SA, SB... SG, the slate TC is displayed in roman characters in the Sound-Report.

The clapstick quality is displayed in the rectangular screen, 25% should be a minimum; at 75% score, you can congratulate the slateman!

If you forget to press [shift] [silver], AutoSlate detects the most plosive sound of the take with a 95% chance of selecting the clapstick; in this case the Sound-Report's Slate-TC appears in '*Italic*' to show it must be either confirmed or ignored.

While in PLAY, [shift] [silver] starts the playback two seconds before the slate-mark. Majax displays an upright slate icon on start-slates and a bottom-up icon on tail-slates; click the icon to listen to the slate announce.

User's markers

Press the [silver] button to create tabs labeled UM1, UM2... UM10 on wind clicks, boom noise, dialogue slip, etc.. While in PLAY they are accessible with the [silver] button.

BLUE-REC Live

p.48

'Playback' and ADR1

Route the digital inputs carrying the playback tracks; the analog inputs are recorded in the standard way. To reach the play-cards, three methods: • **Standalone**, [shift] [>] browses the play-files, [>] browses the play-cards. • **Keyboard**, type the card ID (B12, F45, A08) and [enter]. • **Tarkan,** see p.51.

To launch the first play-card, press [ok], ([space] on a keyboard). To stop before reaching the cue-out, press [ok]. To replay from the cue-in, press [ok]. To pause, press [esc], to resume, press [esc].

BLUE-REC Clone

p.48

Remix, ADR-2, and Re-Rec

Route the digital inputs carrying the playback tracks, go to BLUE-REC, the last selected play-card of the Clone-X Play-file starts playing. To abort the on-going 'cloning', go to PPR, erase the file (*Last take erasure,* p.20) and return to BLUE-REC.

Continuing to record live audio after the end point of the cloned take generates a file which is longer than the original mother file at the risk of overlapping timecode with the next take. To get a clone of the same length as the original, i.e. same start and stop TCs: go to BLUE-PPR and trigger the cloning with the keyboard [crtl] [alt] [r]; the recording will stop on the original file's end.

You can hide unsatisfactory remixes as well as the original file, and only store the good ones onto the back-up media: go to BROWSE, 'edit' and 'trash'. If need be, you can rescue them later from the day's folder stored on the internal drive.

Play&Rec sample-rate

Play&Rec only works at 48kHz ±0.1%. If there is a discrepancy between the play-file sample rate and Cantar's recording sample rate, a message, e.g. '**PF-47952Hz/Rec-48000Hz**' is displayed. You can nevertheless proceed to BLUE-REC: the playback files will be played at the 'Live' recording sample rate, inducing a speed change which can be useful on filmed music shows transferred to NTSC.

Play commands

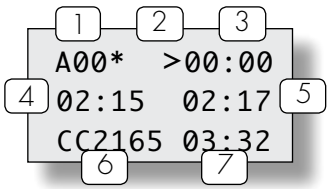
[ok]	starts/stops & sends to cue-in
[shift] [ok]	*displays digitization parameters and TC fps*
[<] [>]	go to prev/next play-card (or file if no card)
[shift] [<] [>]	*go to prev/next play-file*
[esc]	pause/resume
[shift] [esc]	*toggles continuous file-to-file play, in PLAY only*
[black]	cue-in in BLUE-PLAY (volatile in PLAY)
[shift] [black]	*sends player to start of take*
[red]	cue-out in BLUE-PLAY; erases cues [jog]-ed to 00:00
[shift] [red]	*hides play-card from Play&Rec list*
[silver]	sends player to record-entered markers
[shift] [silver]	*sends player to AutoSlate marks*
[jog]	scrubs audio
[shift] [jog]	*accelerates scrub 10 x*
[eye]	displays tracks 5/6 or 7/8 on right screen
[shift] [eye]	*toggles filetag-duration/scene-take (pref. stored until Cantar is turned 'OFF'). N.A. in BLUE-PLAY.*
[TC jam]	displays elapsed-time or absolute-TC

Rectangular screen

1 A01 play-card label; ***** hidden from Play&Rec list.

2 **>** normal speed; **▮▮>** pause; **–>** non-stop play; '**m1**' user record marker; '**sA**' AutoSlate marker; **▮▮▮** stop (end of file).

3 cue-in (volatile in PLAY).



4 scrub position [jog].

5 player pos. (or absolute time [TC jam]).

6 filetag (or scene [shift][eye]).

7 cue-out (or take [shift][eye]).

notes:

• the displayed mm:ss time is relative to the start of file, the file absolute TC appears by pressing [**TC jam**].

• in PLAY and X00 (1), the cue-in (3) is volatile, i.e. not stored when exiting; the out-point (7) is the end of file, i.e. the duration.

• in scrub, each [jog] tick moves the player by one second, delivering very intelligible forward and reverse dialogue.

• to edit 'scene & take' entries, scrub over the AutoSlate mark, listen to the announce, then go to BROWSE.

• to read the size of *one* track of a group, go to BROWSE.

• the LTC output carries the TC & fps of the play-file, not the project TC, it can be used to slave a chasing VTR.

Reminder: when going to PLAY or BLUE-PLAY, take your time while passing over STOP; if the message '**you were too fast**' appears, go back to STOP for one second.

Play-card creation

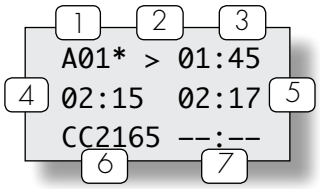
read p.48 & p.49

1 Go to BLUE-PLAY (note1), then [shift] [>] to choose a Play-file among indexes ***A*** to ***L***, the file index is displayed in (1).

2 With [<] or [>], select a card, e.g. **A01**, among the fifty-one cards per file.

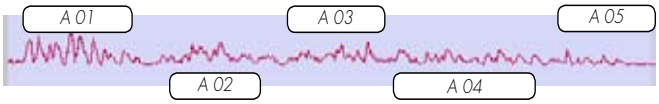
note: the A**00** factory card contains the entire play-file; it can't store Operator's entered cues. Its cue-out (7) is the duration of the take.

3 To fill an empty card, scrub the audio with the [jog] (4), press the [black] button to set a cue-in (3), scrub further and press the [red] button to set a cue-out (7); a half second silence is inserted at the cue-out to let you detect and fine tune its position. The last entered cue points replace the former ones.



Once a cue-in has been entered (a cue-out is not necessary), an empty card becomes a ***play-card***. The cue points are stored in the iXML chunk of the file and will only be removed if you erase the play-card; to do so, [jog] to 00:00 and press [red].

To ***hide*** a play-card without erasing its cues, press [shift] [red]. Tagged with a '*' character, the card is no longer visible in the BLUE-TEST/BLUE-REC play list, shortening it .



Play-file 'A' from the current project containing five play-cards. Note their chronological placement, suitable for an ADR session.

Play-file 'E' from the archives, containing six play-cards. Note their free and overlaping placement, suitable for playback.

4 With [>] select a play-card and press [ok] to play it from its cue-in. If there is no cue-out in this card or if you want to stop the playback before reaching the cue-out, press [ok]. Press [ok] again to restart from the cue-in. Press [esc] to pause, press [esc] to resume play (there is *NO delay* between 'play' and the audio output).

note1: to get access to the BLUE-PLAY position, press and hold the blue [shift] button while rotating the [MainSelector] to PLAY.

Find a file BROWSE opens access to the internal drive and to the current project files. To find a file located elsewhere, first select '**Ext. only**' in SESSION.03, then a Project in SESSION.01. Select a Day by [jog] [ok], the last take's filetag is displayed; search other filetags by [jog].
note: the displayed 'MB' is the size of *one* track only.
reminder: [shift] [eye] toggles 'filetag' and 'scene & take'.

Edit metadata Like in PPR (p.20), scene, take-gender, take #, comments, track-names and tape-ref can be edited with [shift] [silver]. An individual file can be ***trashed***, its .wav extension becomes .rip (*requiescat in pace*). Removed from the backup list it nevertheless remains in its folder, where it can be individually or batch revived in BROWSE (or with a computer), by changing .rip to .wav.
A future version will toggle the t or p gender into T or P and insert a 'Circled Take' flag in the long file names and sound-report.

BLUE BROWSE

Press & hold the blue [shift] button while rotating the [MainSelector] to BROWSE, release it when BLUE-BRWS appears.

Create indexed 'play-files'

To ***Play&Rec*** an audio file, it must have been selected and 'indexed' in BLUE-BRWS.01 to .20

1- file from the current Project

- AB indexes are used for the ***current Project/current Day***.
- CDEF indexes are used for the ***current Project/any Day***.

2- file from Archives

- GHIJKL indexes are used for ***one Drive, one Project, one Day*** folder containing music, songs, wild tracks.

note1: to be Cantar playable, a file must contain iXML v1.50a headers. Majax can update iXML headers of files recorded with a pre v2.11 version.
note2: To Cantarize files coming from any other WAV professional recorder, read Majax manual page 4.
note3: to convert 44.1kHz MP3 or FLAC into 48kHz .WAV files, use '*Sound Converter*' http://www.dekorte.com/projects/shareware/SoundConverter/.

Live / Clone

(Play&*Rec tutorial p.48).*

Go to BLUE-BRWS.21 'TC mode':

- **Live** gives access to all available play-files. The recording session uses the date, time and metadata of the live action.

Current folders

		Archive folder
BLUE-BRWS 01 Drive Internal	Drive set in SESSION (not modifiable)	BLUE-BRWS 12 Arch Drive < External
BLUE-BRWS 02 Project Shadows	Project set in SESSION (not modifiable)	BLUE-BRWS 13 Arch Pject < NeuArchv
BLUE-BRWS 03 (AB)folder 2008-03-14	Current folder date (not modifiable)	BLUE-BRWS 14 Arch folder< 2000-01-01
BLUE-BRWS 04 Index A < SE1234 ok	**Select** a file in above folder [ok] gives it the A index	BLUE-BRWS 15 Arch Idx G < SE1234 ok
BLUE-BRWS 05 Index B < SE1205 ok	**Select** a file in above folder [ok] gives it the B index	BLUE-BRWS 16 Arch Idx H < SE1205 ok
BLUE-BRWS 06 (CD)folder < 2008-01-31	**Select a date** a day within the project	BLUE-BRWS 17 Arch Idx I < SE1206 ok
BLUE-BRWS 07 Index C < ------	**Select** a file in above folder [ok] gives it the C index	BLUE-BRWS 18 Arch Idx J < SE1104 n.a.
BLUE-BRWS 08 Index D < SE1104 ok	**Select** a file from the folder [ok] gives it the D index	BLUE-BRWS 19 Arch Idx K < ------ n.a
BLUE-BRWS 09 (EF)folder < 2007-12-24	**Select a date** a day within the project	BLUE-BRWS 20 Arch Idx L < SE0980 ok
BLUE-BRWS 10 Index E < SE0987 ok	**Select** a file in above folder [ok] gives it the E index	BLUE-BRWS 21 TC mode < Clone Idx A
BLUE-BRWS 11 Index F < SE0980 ok	**Select** a file in the folder [ok] gives it the F index	BLUE-BRWS 22 AES loop < Internal

- **Clone** opens access to ***one*** play-file; the recording will use the date, time and metadata of this file.

note: Cantar on STOP, the HD goes to sleep after a time interval set in TECHSET.16. Going to REC, the pre-record buffer compensates for the disk spin-up, but going directly to BLUE-BROWSE causes Cantar to display '**asleep, no disk**', and apply a 'hide' tag to all your unseen play-files! To avoid this mishap, first go to TEST, wait for the 'three-platter' icon to show up, then go to BLUE-BRWS.

MainSelector East positions

The MainSelector, easy to manipulate even with heavy winter gloves, gives direct access to all essential functions.
The OPERAND positions establish Cantar's operating parameters with no deep diving into sub-menus.

BACKUP	archiving audio files.	1h
SESSION	projects, media and sound report.	2h
TECHSET	day-in day-out use.	3h
AUDIO/TC	audio parameters/TC management	4h
IN-GRIDS	inputs to tracks routing	5h
OUT-MAPS	outputs to monitors routing	6h

MainSelector buttons

Routings: [black] creates, [red] removes links.

Rectangular screen rows

Operands are displayed in a way which always indicates their path-tree. Parameters' labels and values are browsed by [jog] and/or [>] [<] arrows.

```
AUDIO/TC  01
SampleRate
48048
```

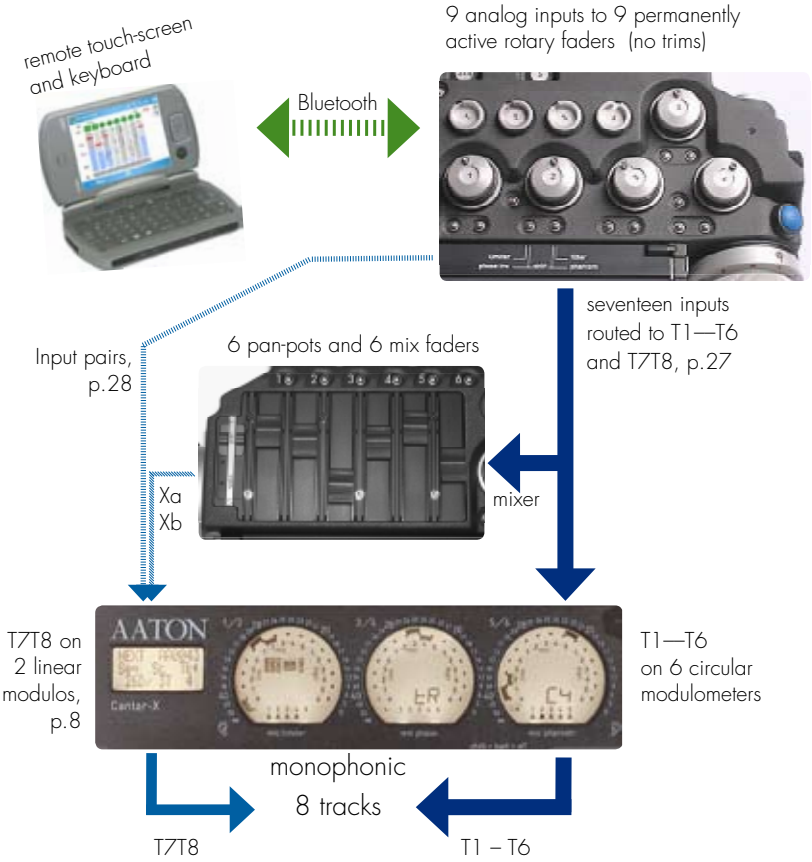
- Top row : **Operand, Parameter #**
- Middle row : **Parameter Label**
- Bottom row : **Parameter Value**

ROUTING	p.27	01 In-Grids	02 Out-Maps
AUDIO/TC	p.31	08 Pre-record duration	16 LTC rate
01 Sample rate		09 Balance fader access	17 LTC gen. output
02 Bit-depth		10 Mic fader links	18/19 LTC User-bits
03 Ref. tone selection		11 Line fader links	20 Rec-Run TC init
04 Talkback mic routing		12 Sc&Take template	21 Operator TC init
05 Play Mute		13 AutoSlate channel	22 Digi1–8 Out
06 Test Mute		14 Record by LTC	23 CantaRem com
07 Mixer gain max.		15 TC source	24–39 CantaRem-1 & 2 assign
TECHSET	p.33	08 Clip detection beep	17 Serial Com. port
01 Disk (un)mount		09 Lack of ext. clock beep	18 Factory Reset
02 Digi in/out AES power		10/11 Beep routing/level	19 Max File Size
03/04 Save / Load Setup		12 Meter speed	20 Temperature Control
05 Backlight		13 Peak hold duration	*21/22 System Time/Date*
06 View Fader dB		14/15 BatL/BatR alert	23/24 Equipmt IDs/License key
07 Record beeps		16 HD Power Down	25/26 Software version/Load
SESSION	p.36	04/05/06 Format Media	09–15 Sound-Report headers
01/02 Select/Create Project		07 Scan HD	16 Column layout selection
03 HD in Use		08 Erase Access	17–31 A-Columns 02 to 16
BACKUP	p.39	04/05 T1—T8 T7T8 treatment	09/10 File name/Media label
01 Backup mode		06 Media type	11/12 Snap/Idle Sound-Report
02 Day to copy		07 Burn and check	13 Clean poly files
03 Track selection		08 Files to copy	14 Run Backup

The eight Cantar recorded monophonic tracks are separated into two groups: T1–T6 and T7T8.

• T1–T6 track routings are set by the Operator; their levels are diplayed on the three circular screens.

• T7 T8 track routings are selected in a list of 49 factory presets Originally devoted to the mixdown recording only, their signal levels are roughly displayed on the rectangular screen bargraphs but they can be accurately displayed on the right side circular screen by pressing the [eye] button.



Create T1–T6 In-Grids

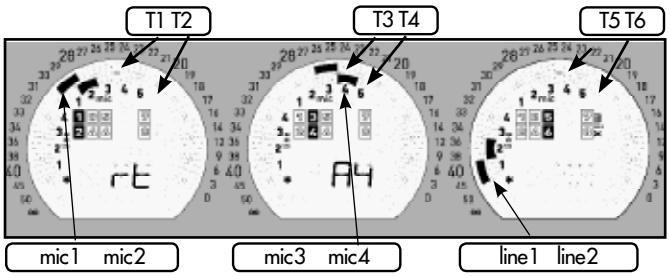
Rotate the [MainSelector] to five o'clock.

T1–T6 can receive any one of the inputs: mic1–5, line1–4, and digi1–6. Fifteen In-Grids are stored in three groups: A1–A5, B1–B5, C1–C5; their ID# is displayed on the central screen.

note1: *To learn the process, create an In-Grid from scratch: erase an existing one by pressing the [red] button while [jog]-ing through the three circular screens.*

Example:

Select the in-grid ID# to be created, a blinking cursor awaits your orders near the '✱' on the left circular screen. To route mic1 to T1, [jog] five positions and put the blinking cursor facing **mic 1,** link with the [black] button, ... to route line1 to T5, [jog] the cursor through T2, T3, and T4 until you land on T5 (odd tracks are on the outer circle, even tracks on the inner circle), put the blinking cursor facing **line 1**, link with the [black] button or clear with the [red] button.



–M/S Declaration

If two tracks carry an M/S pair entered on say mic 3 and mic 4, use the [black] button to activate the '**m-s**' icon attached to these two tracks while passing over it.

Being '**m-s**' declared, these files are monitored as L/R stereo tracks in the outputs and the mix (see *Pan-pots*, p.17).

Aaton Majax (p.57) can decode and replace M/S pairs with L/R pairs for editing machines which can't decode M/S stereo.

The suffix of the files carrying M/S tracks carry a hyphen '**–**' instead of an underscore '**_**'.

note: *The auto-conforming tool Titan3 (p.57) must contain the* ***cantar.tsc*** *file to handle these hyphen flagged suffixes.*

Select T7T8 In-Grids

without Cantarem

[MainSelector] to five o'clock. Pressing the [ok] button allows the [jog] wheel to scroll through forty nine T7T8 factory preset In-Grids.

```
IN-GRID  #12
T7  T8
 m5  Xb+   <
```

• **No** & **No** (01) T7T8 are disarmed to save disk space.

• **Xa** & **Xb** (02) the T1 – T6 mixer outputs are sent to T7T8; the **mix** icon appears in the left circular screen.

• **in** & **Xb** (03 to 35) a mic (e.g. boom), line or digi-in directly goes to T7. The mix of T1 – T6 goes to Xb (T8).

• **in** & **Xb+** (04 to 36). '**in**' (T7) is added into Xb (T8). *Don't* select Xb+ if Cantarem inserts its own modulated T7.

• **in** & **in** (37 to 44) mic, line or digi pairs go to T7T8.

• **digi7** & **mic5** (45) last track recording of an eight-track re-recording session (see RR8, opposite column).

• **Xa** & **mic** (46, 48). Later applying Rotate2 backup treatment (p.39, p.45), Xa mix (T7) & mic (T8) are sent to T1 and T2.

• **Xa+** & **mic** (47, 49). **mic** (T8) is directly added into Xa (T7). *Don't* select Xa+ if Cantarem inserts its own modulated T8.

01 No No	13 lin1 Xb	25 dig3 Xb	37 mic1 mic2
02 Xa Xb	14 lin1 Xb+	26 dig3 Xb+	38 mic3 mic4
	15 lin2 Xb	27 dig4 Xb	39 lin1 lin2
03 mic1 Xb	16 lin2 Xb+	28 dig4 Xb+	40 lin3 lin4
04 mic1 Xb+	17 lin3 Xb	29 dig5 Xb	41 dig1 dig2
05 mic2 Xb	18 lin3 Xb+	30 dig5 Xb+	42 dig3 dig4
06 mic2 Xb+	19 lin4 Xb	31 dig6 Xb	43 dig5 dig6
07 mic3 Xb	20 lin4 Xb+	32 dig6 Xb+	44 dig7 dig8
08 mic3 Xb+		33 dig7 Xb	45 dig7 mic5
09 mic4 Xb	21 dig1 Xb	34 dig7 Xb+	46 Xa mic1
10 mic4 Xb+	22 dig1 Xb+	35 dig8 Xb	47 Xa+ mic1
11 mic5 Xb	23 dig2 Xb	36 dig8 Xb+	48 Xa mic5
12 mic5 Xb+	24 dig2 Xb+		49 Xa+ mic5

with Cantarem

Cantarem's sliders can modulate channel 7 & 8's contribution to the mix. Two possibilities:

• Select an 'in & Xb' setting (e.g. 03, 05, ...35), and devote Cantarem's slider #7 to the 'in' recorded on T7 while the dynamic mix of T1—T7 (Xb) is recorded on T8.

• Select an 'in & in' pair (e.g., 37 to 44), and devote Cantarem's #7 and #8 sliders to this pair recorded on T7 & T8.; The mix of T1—T8 is not recorded, it is sent directly to the Phones, Line-out, Digi-out or Foldback.

note1: pressing the Cantarem solo button, the pan-pot of T7 or T8 is displayed on the rectangular screen.

note2: T7T8 can't be '**m-s**' declared.

AES power

As soon as an AES digi-in is selected, the digi 1-6 input icons start flashing as a reminder to turn the AES power 'ON'. AES converters consume 110mA at 48kHz and 200mA at 96kHz; if they are not in use, turn them 'OFF' in TECHSET.02 'Digi power'. The AES converters translate any incoming AES sample rate, e.g. 44.1kHz, to Cantar's selected sampling rate, e.g. 48000Hz.

More tracks by 'wordclock'

Cantar-X2 only

To impose a sampling rate & phase to Cantar(s), connect an external **wordclock** generator to the SubD 15 pin-4 input (p.58). Select a 'WK' value in AUDIO/TC.01 'Sample Rate' (p.31). In case you select the wrong value, '**Wordclock Sample Rate mismatch**' is displayed on the screen. If there is no wordclock signal on pin-4, '**Wordclock input missing**' is displayed. Linking two Cantars to the same WK generator is the way to 'build' a 'sample accurate' sixteen-track recorder.

note: *Cantar CAN'T be used as a wordclock generator*).

In-Grids for Play&Rec

see Play&Rec, p.49

List of 'frequent' T1 – T6 & T7T8 In-Grids for Play&Rec:

• to perform a 'Remix':, select **RPM** = B2 (see (*) below) & 02 (see opposite table).

• to perform an 'Archive file update': **RPA** = B2* & 44.

• to perform an 'eight-track Re-recording': **RR1** = A1* & 01, **RR2** = A2* & 01, **RR3** = A3* & 01, **RR4** = A4* & 01, **RR5** = A5* & 01, **RR6** = B1* & 01, **RR7** = B2* & 11, **RR8**= B2* & 45.

**T1 – T6 setups (p.27)*

A1 mic5/T1 **A2** mic5/T2 digi1/T1 **A3** mic5/T3 digi1/T1 digi2/T2 **A4** mic5/T4 digi1/T1 digi2/T2, digi3/T3 **A5** mic5/T5 digi1/T1 digi2/T2 digi3/T3 digi4/T4 **B1** mic5/T6 digi1/T1 digi2/T2 digi3/T3 digi4/T4 digi5/T5 **B2** digi1/T1 digi2/T2 digi3/T3 digi4/T4 digi5/T5 digi6/T6.

With 'TECHSET.03 (p.33), save these A1, ...B2 setups, and name them 'Clone1'. Loading them for your next session will be a great time saver.

The 3 Screen paradigm

Here is where the Cantar screen lay-out is at its best: signals going to the left ear are displayed on the left, signals to be listened to in mono are displayed on the middle, and those going to the right ear are displayed on the right. The middle screen does not represent a wired output but the 'mono' effect resulting from the routing to both the left and right ears.

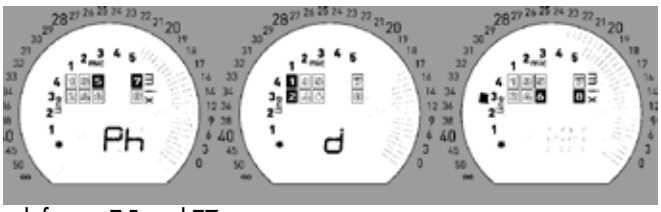
Create Out-Maps

[MainSelector] to six o'clock. Out-Maps are grouped in banks accessible from the black [monitor] crown:

nine are shared by digi-out **Do**, foldback **Fb** and line-out **Lo**.

eleven are devoted to the phones **Ph**.

The T1–T6 and T7/T8 tracks, the Xa & Xb mixer outputs, the nine analog and the six digital inputs (recorded or not) are routed to eight independent outputs (**Do, Fb, Lo** and **Ph**) each w/. a left and a right arm.



• left ear: T5 and T7

• both ears (mono): T1 and T2

• right ear: Line 3 and T8

This "**Ph d**" example (several tracks plus one input directly sent to the phones) is applicable to any other Out-Map.

1 tracks to outputs

Rotate the [monitor] crown to **Ph**, the left circular screen displays **Ph**. Rotate the [config] crown to get **d** on the central screen.

left ear: [jog] the blinking cursor to the Track 5 square, press the [black] button to link it to the left ear (press the [red] button to unlink), the blinking frequency increases to acknowledge the link (same for T7); **both ears:** [jog] the blinking cursor to T1, press the [black] button to link it to the left and right ears (same for T2); **right ear:** [jog] to T6, press the [black] button to link it (same for T8).

2 Inputs directly to Outputs

Any input (mic1 to mic5, line1 to line4, digi1 to digi 6), can be sent to the outputs. While the blinking cursor jogs on the inner ring of the circular screen, it points out the input to be possibly routed to the left/both/right ears. To link the desired input press the [black] button.

The M/S case

For an '**m–s**' recorded track pair (say T5 T6) to be sent as L/R stereo to the **Lo**, **Fb**, **Do** outputs, create an Out-Map in which T5 goes to the left and T6 to the right, Cantar will *automatically* decode these M/S tracks as L/R. This applies to the T1 T2 and T3 T4 pairs too, alone or together.

Out-Map banks

Rotate the black [monitor] crown over the **Do**, **Fb**, **Lo**, **Ph, So** positions, then the silver [config] crown to display the Out-Maps.

Do **AES 7&8 out**

Nine user created **R** to **Z** maps and **XX** (miXa/miXb).
Two digital signals go to the AES-7&8 ports (p.58).

Fb **Foldback**

Nine user created **R** to **Z** maps and **XX** (miXa/miXb).
Two analog signals go to a TA-3 socket (p.58).
(Foldback level, p.18)

Lo **Line-out**

Nine user created **R** to **Z** maps and **XX** (miXa/miXb).
Two analog signals go to an XLR5 socket (p.58).
(Line-out level, p.18)

Ph **Phones**

Fifteen user created **A** to **Q** maps and **XX** (miXa/miXb).
Two phones signals go to a 1/4" jack (p.58).
(Headphone level, p.18)

So **Solos**

Solos connect the headphones to each of Cantar's ins and outs: **M1... M5, L1... L4, T1... T8,** and to the mixdown outputs: **XA** (miXa center), **XB** (miXb center), **XC** (miXa+miXb center), **XX** (miXa/miXb left-right).
The modulos of Xa and Xb appear on the rectangular screen, or the right side circular screen by [eye].

So is close to the **Ph** position for a good reason: the last activated solo map is kept in memory and immediately sent to the phones when toggling between **Ph** and **So**. Here is a tip: the **So** position monitoring the *dynamic* mix of the PLAYed file, you can compare your recorded mixdown "**Ph A: T7T8 center**" and "**So: XC**" by toggling between the two, this allows you to evaluate the necessity of a remix with Canttar's Play&Rec.

As an alternative to the **So** positions, *Mic-inputs* can be instantly solo-ed by pressing their [fil-tom] buttons; *Line-inputs 1–4* by pressing [track-solo] buttons 1–4 while the Solo**Mid**Pan switch is moved to its middle position; *Tracks T1-T6* by pressing [track-solo] buttons the 1–6 while the **Solo**MidPan switch is pulled Operator side (p.22).

note1: the **XX** selection lets you output miXa and miXb whether or not they are recorded on T7T8.

note2: **Ph Q** adds miXa and miXb to the Operator's selected Out-Map, e.g. the L/R decoded miXa/miXb of M/S pairs recorded on T1T2, T3T4, T5T6 can be added to the T7T8 Out-Map.

AES outputs

The use of the AES outputs (no interference prone cables) is recommended to send audio signals to the external world. Connect them to a video camera featuring AES inputs or to a Lectrosonics D4 transmitter, or to a video camera equipped with an AES-to-Analog converter.

The eight AES outputs are separated into two groups:

• The **Digi 1–6** outputs either transmit the ***T1–T6*** recorded ISO tracks or the "***mic 1–5 & line1***" A to D converted inputs.

See AUDIO/TC.22, 'Digi 1–6 Out',

T1–6 Do **M1–5+L1 Do** (p.32)

The later position lets you use Cantar's high quality analog preamplifiers/limiters to feed an external digital mixer and re-enter the signals through the Digi 1–6 inputs.

note: *when in BLUE Play&Rec mode, the Digi 1–6 outputs are internally redirected to the Digi 1–6 inputs, unless in BLUE-BRWS.22, 'AES loop' is set to 'external'.*

• The **Digi 7–8** outputs transmit the ***Do*** selected signals (p.29).

AES power reminder

As soon as you select an Out-Map with digi-out, the track icons start flashing in the circular screens to remind you to turn the AES interface 'ON'. This interface consumes 110mA at 48kHz and 200mA at 96kHz, if it is not in use, turn it 'OFF' in TECHSET.02 'Digi Power'.

01 Sample Rate

44100 47952 48000 48048 *WK 48000... etc.*
88200 95904* 96000 96096 (*N.A.)
X2 only: select WK prefixed rates for 'wordclock slaving' (see *More tracks by wordclock*, p.28).

02 Bit Depth

16 Bits 24 Bits
If requested by post you will dither or truncate to 16-bit from the native 24-bit tracks when backing-up the mixdown, see BACKUP.05 'T7T8 trtmt', p.40.

03 Tone Level

See *Ref. Tone generator*, p.22.
Off -18dBFS -20dBFS

04 Talkbck mic

Off Lin-o Flb Flb+Lin-o Flb+Do 7-8
On top of these routing choices, left/right selection is made with the [MainSelector] black button.
in ***TEST*** or ***PPR***: [black] continuous: talkback mic goes to *left* channel(s), e.g. the Boom Operator.
[black] short, then [black] continuous: mic goes to the *right* channel(s), e.g. the Director and Script Supervisor.
[shift] [black] continuous, mic goes to both left and right, for talking to both Boom Operator and Director.
in ***REC***: [shift] [black] continuous, mic goes to all tracks.

05 PlayOutMute

No Mute Mute line Mute fldbk Mute Lo+Fb
In PLAY, you can mute the outputs to Video Village while playing the last take into the Director's headphones. The [routing] button instantly cancels the Play Mute action.

06 TestOutMute

No Mute Mute line Mute fldbk Mute Lo+Fb
Video Village does not listen to your input gain adjustments.

07 MixGain Max

0dB +6dB
Mixer's faders top position gain. In +6dB mode, the 0dB mark is the indentation in the linear faders' guide rails.

08 PreRec Dur(ation)

1 to 35 sec.
Up to 35s. @8 tracks, 24-bit, 48k (17s. @96k).

09 Bal. Access

Unlocked Locked
Slaved fader balance action, see *Mic links*, p.17.

10 Mic Links

1>2 and 3>4 1>2.3 1>2.3.4 1>2.3.4.5 1>2 3>4.5
The 'sleeping' mic-links selected here will be activated with the button between faders mic1 & 2, and mic3 & 4. The 'master' is to the left, the 'linked' controls the ±12dBu balance.

11 Line Links

Off 1>2 3>4 1>2 and 3>4 1>2.3 1>2.3.4
Contrary to mic-links, line-links are immediately activated from this menu. Slaved faders have no balance function, their gain is set by the master. The **1>2.3** choice is made for the Soundfield ST350 line-outs (*Soundfield B-Format*, p.44).

```
AUDIO/TC  11
Line links
1>2 & 3>4
```

12 ScTk Templt

XXXXXXXX.XX nnnA/nnA.nn
The **nnnA/nnA.nn** template fits the mostly used Sequence/Scene system. The 'all **x**' template is totally open, giving the Operator maximum flexibility (see *Scene and Take*, p.19).

13 Slate Chanl

Mic 1 to **Mic 5** **Off** (CantarX1 & X2)
Line 1 to **Line 4** **Track 1** to **Track 8** (CantarX2 only).
Selects the AutoSlate detection channel (p.23).

14 Rec by Ltc

see Remote Control, p.21

Non active Active

In PPR, LTC input running, Cantar checks the TC coherence for three seconds then goes to record. While checking the LTC signal, the audio goes to a buffer, the file begins right on the running LTC. If the LTC input disappears, recording is maintained, no risk of interruption caused by radio transmission drop-outs. Only a frozen LTC input can stop the recording.

15 Tc Source

Int. Clock Ext. Clock Int. Fudge Ext. Fudge

Internal: Cantar is the master-clock.

External: Cantar is slaved to a TC source (p.14).

Fudge: the audio-file time stamps correct the TC flaw of some HD cameras*. Atc, Etc, Stc flags become Atc+, Etc+, Stc+. To prevent trouble this choice is not saved at power off.

note: to avoid autoconformation difficulties, ISO tracks and backups are both fudged.

** Their preroll must be set to 5sec to get a consistent but not compensated 60ms latency: an image shot at 12h05m01s00ms is unduly TCed as 12h05m01s+60ms.*

16 Ltc Rate

24.00fps 25.00fps 29.97df 30.00fps 23.98nd* 29.97nd*

*in the non-drop-frame –0.1% slow-second world, a -.1A, -.1B or -.1C stamping method must be selected (p.15).

17 Ltc Gen Out

Off On

In PLAY, LTC-out carries 'TC+fps' of the played files, not the project's one. It can drive a chasing VTR while Play&Rec is used for 'Remix' and 'ADR type2'.

18 LtcUbit-Out

SndDate BCD [1] Manual HEX [2] TapeRef HEX [3] TapeRef ASC [4]

1 Sound Date displayed as *DD MM YY 00*

2 Manually entered user-bits in Audio/TC.19.

3 Copy of the PPR's keyed 'TapeRef'. *Reminder:* you must only key Hex characters in the TapeRef, e.g. E89A displayed as *00 00 **E8 9A*** on standard LTC readers and smart-slates.

```
AUDIO/TC  18
LtcUbit-Out
TapeRef HEX
```

4 Copy of the PPR's ASCII characters keyed in 'TapeRef' (0-9, A-Z), e.g. XR89. *Warning:* these characters can only be displayed on special readers, not on current smart-slates.

19 Manual Ubit

Operator's keyed user bits in HEX characters only, i.e. 0 to 9 and A to F.

20 RecRun Init 01h00m00s

The Record-Run clock jumps one hour at each rectangular screen bottom line opening. 'Rtc' (Record-Run) is activated for the full session until another TC Source is selected; in this case the clock goes back to its default Free-Run mode.

21 OperTc Init 01h00m00s

The Operator entered TC becomes the next recording session reference. 'Otc' is displayed. It is disabled as soon as a Free-Run TC from an external source jams the internal clock.

22 AES1-6 out

T1–T6 Mic1-5 L1

The AES 1–6 outputs either transmit the ***T1–T6*** recorded ISO tracks or the ***Mic 1–5 + line1*** signals (p.30).

When in BLUE Play&Rec mode, the Digi 1–6 outputs are internally redirected to the AES-in 1-6, unless in BLUE-BRWS.22, 'AES loop' is set to 'external'.

(The AES 7&8 out transmit **Do** selected signals (p.29).

23 CantaremCom

Non active Auto-select (Forced)

'Auto-select' makes CantaRem (p.53) control Cantar until its cable is disconnected from the SubD15 ASCII port.

The 'Forced' option allows CantaRem to control the STOP, TEST, PPR and REC functions when the [MainSelector] is physically set to the PPR position.

24 (31) RemFader A1 (A8)

```
AUDIO/TC  31
RemFader A8
line 4
```

The assignment of the CantaRem RemFaders to the mic and line-in rotary faders, to the mixer linear faders, to the line-out and fold-back levels can be performed from either the CantaRem keys or from the AUDIO/TC.24 – 31 menus.

32 (39) RemFader B1 (B8)

Available when two CantaRems are connected.

01 Disk (un)mount
02 Digi in/out power
03/04 Save/Load Setup
05 Backlight
06 View Fader dB
07 Record beeps
08 Clip detection beep
09 Lack of ext. clock beep
10/11 Beep routing/level
12 Meter ballistics
13 Peak hold duration
14/15 Bat L/Bat R alert
16 HD Power Down
17 Serial Com. port
18 Factory Reset
19 Max File Size
20 Temperature Control
21/22 System Time/Date
23 Equipement IDs
24 License key
25 Software version info
26 Software install

01 DriveStatus

Mount Unmount

Two CPUs can't simultaneously control Cantar's drives. Unmounting the internal HD and DVD-RAM puts them out of the control of Cantar's CPU while keeping them powered. A FireWire connected PC or Mac can then see internal drives as standard devices on which to dump and erase a project, edit audio files and transfer software updates.

To gain access to the internal HD from a PC or Mac laptop, an alternative method is to unpower Cantar totally (the PC power supply directly feeds the HD through the 6pin FireWire cable). ***Reminder:*** never connect MAC Gx desktops which instantly fry the Cantar FireWire interface.

MAC OS-X Ejecting the Cantar internal drive *WINDOWS*

Before disconnecting the FireWire cable, FIRST, eliminate the 'disc' icon from the PC or Mac desktop, THEN disconnect the cable. Ignoring this rule will trigger a warning message, but it will be too late; the audio files may already be corrupted.

note: to modify the metadata on a DVD-RAM disk from a Mac laptop, you must install 'WriteUDF' (see *Majax,* p.57).

02 Digi Power

Off On

'Off' saves 110mA@48kHz, 200mA@96kHz. The digi 1 to digi 6 icons of the circular screens blink as a reminder to turn 'On' the digital sample rate converters of the AES inputs that have been routed but not powered up.

03 Save Setup

all user settings

No Yes

All of Cantar's physical settings (IN-GRIDS, OUT-MAPS, TECHSET and AUDIO/TC parameters, mic filters, etc.) can be saved in up to twenty User's Setups xml files on the external HD (or the internal HD if there is no external drive connected). To ensure a unique name for each User's Setup, it is named by the last recorded filetag, e.g. AB1234+A.xml. Since you can use them in another Cantar, copy your favorite User's Setups onto a laptop before returning a rented machine, re-importing them for your next assignement will be a great time saver; just think about the time you spent setting the RR1–RR8 *re-recording p.28 In-Grids!*

Using an internet browser, and provided you keep the .xml extension, you can replace the eight char. **AB1234+A**.xml filetag name with a descriptive one, e.g. **Custom01**.xml or **Kitchen4**.xml.

note: in case of an operational problem, perform a 'Save Setup', attach it to your mail to cantar-support@aaton.com explaining the problem. This will help Aaton engineers provide you with a solution.

04 Load Setup

No Yes

Opening '**Load Setup**' makes Cantar look for .xml suffixed files in the external and internal HDs. Select the setup to load, e.g. Custom01, [ok]. Press [shift] to reboot.

05 Backlight

Off 1% to 100%

In bright sunlight, save power by turning 'OFF' the backlight. To insure visibility whatever the startup lighting environment, the rectangular screen doesn't go down to 0%, this offset is maintained throughout the adjustment range.

06 Display dB

Off On

While adjusting a fader, its dBFS value is displayed with the other faders found in the same mic, line or mixer bank.

07 Record Beep
No Beep Start Beep Start+Stop
Single beep on 'start', double beep on 'stop'. The double beep is useful to warn you when the video camera stops, while recording in Remote Roll by LTC.
It is also a means for your Boom Operator to know you are still recording the background noise after the Director calls 'CUT'.

08 Clip Beep
Beep Off Beep On

09 No Ext Tc
Beep Off Beep On
Activated if the external clock is missing while in External Clock mode. The beep is automatically disabled while recording 'w' (wild track) takes.

10 BeepRouting
Phones Ph+L0 Ph+FLB Ph+FLB+L0

11 Beep Level
0 dB to –60 dB

12 Meter Speed
1 (fast) 2 3 4 5 (slow)
Default is 3, select 5 in low temperature conditions.
See TECHSET.20 'Temperature' opposite column: screens should not go under +4°C.

13 Peak Hold (duration)
0.5s to 5.0s

14 Bat L Alert 15 Bat R Alert
10.8 Volts to 15.0 Volts
Each battery socket can be set to its own alert level, automatic switch-over occurs 300mV below this level. Once a battery drops below its alert level, a two beep alarm is sent to the headphones.
Aaton Li-Ion 4.2Ah batteries are 16.5V 'no load', and deliver 14.8V under load, it is safe to set the alert *@14.2V* (13.9V switch-over) to be sure not to get into the steep power end zone. NiMH battery alert should be set *@10.8V* (10.5V switch-over).

16 HD Pwr Dwn
After 1min to After 255min
To save power let the HD go to sleep in the STOP position; the 'three-platter' icon blinks. To wake it up, go to TEST, it will be up to speed within three to ten seconds, the pre-record buffer hides the drive's spin-up.
If there is an external drive connected to the FireWire socket, e.g. a CF card, it is wise to select 255min; this will avoid most 'Bus hungs' when the internal HD wakes-up.
note: during Idle Bckp the HD doesn't go to sleep.

17 Serial Com
Bluetooth Factory
'Factory' for maintenance techs, 'Bluetooth' for PDAs only.
note: on Cantar-X2, the Ethernet is permanently active.

18 FactryReset
No Yes
All menu parameters are reset to their factory default.

19 MaxFileSize
250MB Max 690MB Max 2GB Max 4GB Max
The current file is closed and the next one opened when the set limit is reached, without losing a single sample. Four lengths are available: 250MB *(to make 8 polyphonic tracks @ 24-bit/48kHz fit within 2GB)*, 690MB *(for 700MB CD-R)*, 2GB *(basic FAT32 limit)*, 4GB *(absolute FAT32 limit)*.
You also have the choice of triggering the jump by swiftly changing from REC to PPR and back to REC.

20 Temperature
An optional internal heater is available. Temperatures are displayed until exiting this position.
• Lcd +04°C Temperature of the LCD circular screens. In a –15°C environment, the heater takes about fifteen minutes to bring the screens to +4°C. To save power, Cantar should be in a carrying bag, preferably with insulation.
Set TECHSET.12 to '5 (slow)'.
• Hdd – 05°C Temperature within the mother board compartment. Below -5°C it is recommended to replace the standard HD with a low temperature 80GB Hitachi Endurastar, or a SSD (p.43).

21 System Time

00h32m24s

Enter the time from your watch (± five minutes), especially if you just started working in a new time zone. The system's date (which relies upon hour and minutes around midnight) is used to sort the workdays, it should not be confused with the timecode which is used for syncing picture and audio.

22 System Date

11y02m27d

The system date is used to create the folder name (YYYYMMDD) containing the files for that workday. Note that the workday folder can contain hours past midnight, if the recording session is not interrupted (e.g. turning 'OFF' the Cantar). The workday is also used to fill the default MMDD name of the TapeRef field.

23 Hardware ID

SN: 724, MotherB: CM5 (CM3), **Preamp: SL1** (SL0), **Ether: None** (ET1*), **Conv: AD5** (AD3)

Cantar's Serial number, Motherboard, Preamps, Ethernet interface, A/D converter versions. Keep these labels in mind when contacting Aaton's technicians. (* = optional)

24 License Key

Unlimited 24 Days

Protection against unauthorized use: Cantar goes to 'general freeze' after a given number of calendar days. The key can be activated or deactivated by a CMU software key emailed by Aaton. If 'Unlimited' appears, go no further, your Cantar is set to work forever.

25 Softwr Ver.

2.44

Displays the current version. Loaded with TECHSET.26 below it is stored in Cantar's non volatile EEPROM.

26 Softwr Load

Software installation through the internal HD.

"A" steps

Download from the internet and store the software version.

A1 Get the latest software version from http://soft.aaton.com/swcantar/ (only if you are a registered Cantar owner).

A2 Store the <can-xxx.flb> file on your laptop.

A3 Connect a FireWire cable to the Cantar FW socket while it is ***unpowered*** (p.5), then power 'on'.

A4 Unmount the internal HD in TECHSET.01 then connect the FireWire cable to the laptop. The Cantar HD icon is displayed on the laptop's screen.

A5 Copy <can-xxx.flb> file to the root of the Cantar HD.

note: *less than ten versions can be stored; use your laptop to erase former versions from the Int. HD.*

A6 Dump the Cantar HD icon from your laptop and disconnect the FireWire cable. (See TECHSET.01, p.33).

A7 Set TECHSET.01 to '**Mount**' the internal HD. It is done when the 'three-platter' icon is no longer blinking.

"B" steps

The 'A' steps being completed, it is now possible to copy the new software from the internal HD to the EEPROM where it is permanently stored.

B1 To avoid a destructive power interruption, *ACTiVATE BOTH ONBOARD FULLY CHARGED BATTERiES* by simultaneously pressing the [batt L] and [batt R] buttons for three seconds. *A loss of power would kill the bios installation; 'ERROR Num 1B XILINX' would be displayed, meaning 'Return Cantar to the factory'.*

B2 Set TECHSET.26 'Softwr Load' to '**Yes**'.

B3 Select the desired software version, [ok]. All controls are disabled during this one minute operation. **Do NOT touch** anything until 'Success Press Shift' is displayed.

B4 Press [shift] to finish the installation and shut down Cantar. Set the [MainSelector] to STOP, and restart.

B5 Cantar is protected from the installation of corrupted software files. As a verification, go to TECHSET.25 'Softwr Ver.', if the new version doesn't show up, re-download the software from the Aaton download site and re-install it.

Software Installation through an external HD.

Perform *A1 A2* as above and copy <can-xxx.flb> to a go-between HD, then hook it up to the Cantar FireWire port and follow the *B* steps above.

This method works because Cantar first looks for <can-xxx.flb> files in the external HD, if any.

01 Select Project Name
02 Create New Project
03 HD in Use
04 Format Ext. HD
05 Format CF
06 Format DVD-RAM
07 Scan HD
08 Erase Access
09–15 Sound-Report headers
16 Column layout selection
17–31 A-Columns 02 to 16

01 ProjectName

AACANTAR EDENWEST

The bottom line displays the last activated project. Press [ok] then [>] or [<], [ok] to select another stored one. If the HD has been erased, '**No Project**' is displayed. If you are in a bind and have no time to type a new project, go directly to REC; this will create the default project and folder "AACANTAR" (p.12).

02 New Project

SHADOWS2

To create a new project (eight alpha/numeric characters max.), press [ok], the position to be set is blinking; [jog] to select a character then [>] or [<] to go to the next one. Project name entered, press [ok] then go to REC for one second to record a confirmation file.

03 HD in Use

Int only Ext only Int & Ext

Audio files can be recorded on internal or external drives or both. If '**Int & Ext**' is selected, recording at 24bit 96kHz is limited to six tracks.

When listening to recorded files, only the internal drive plays. To listen to files on the external drive, switch to '**Ext only**' and don't forget to switch back afterward.

note: the message panel displays the lowest remaining drive space in Mega Bytes.

FAQ: *I select SESSION.03 'Int & Ext', then connect an external HD but its activity LED doesn't turn green.*

Wait for the 'three-platter' icon to stop blinking in the middle screen, then go to **Int & Ext**. If Cantar still doesn't see the drive, most probably it is not 'FAT32 One Primary Partition' formatted.

04 Format HD

Ext. HD/SSD

FAT32 One Primary Partition. Connected through the FireWire socket, Cantar formats HDs and CF cards (in Sandisk/Lexar readers) up to 127GB, the Microsoft's commercial limit for FAT32.

To format the **internal** HD, open the drive compartment and unscrew the shuttle. Connect it to Cantar as an external drive. *This is a strong protection from accidental erasure of the internal drive by idle fingers.*

To format larger than 127 GB drives, read 'Tutorial Drives & Media' (p.43).

1– No external HD/SSD/CF plugged-in, press [ok], **'Format, Shift+Red'** is displayed.

2– Press and hold [shift] [red] buttons together while connecting the drive to Cantar; keep them pressed until '**Formatting**' appears, then release both. **Done**' is displayed when finished.

3– The 'three-platter' icon appears on the middle circular screen. Press [ok] or go to STOP.

note1: *to avoid destructive connections, plug the FireWire cable into the rear socket while Cantar is not powered; hold it with the retaining screw (p.5). Later* – while the [shift] [red] buttons are pressed –, *connect the other end of the cable to the external drive.*

note2: hard drives are consumer products, their life span ranges from one to three years. Formatting a drive doesn't protect you from dead clusters; regularly ***scan*** your drives, see below SESSION.07 'Scan Drive'. Even if there is only ***one*** defective cluster, ***discard the drive***.

05 Frmat Cdy-A

```
SESSION   05
Frmat Cdy-A
CF card
```

CF card (FAT32)

1– First insert the CF card, press [ok], 'CF Format, Shift+Red' is displayed. The caddy is not powered, the red LED is 'OFF'.

2– Press and hold [shift] [red] buttons together, keep them pressed until '**Formatting**' appears. '**Done**' is displayed when finished.

3– The 'one-platter' icon appears on the right circular screen to indicate the CF card is ready for use. Press [ok] or go to STOP.

note: as opposed to DVD-RAM formatting, power is applied to the caddy ***after*** CF introduction by the [shift] [red] activation.

06 Frmat Cdy-B

DVD-RAM

UDF 1.5 format for Mac/PC interchangability.

1– Press [ok], '**D-RAM Format, Shift+Red**' is displayed. Power is sent to the DVD internal burner: green LED 'ON'.

2– Insert the disk, then press and hold [shift] [red] together, keep them pressed until '**Formatting**' appears. '**Done**' is displayed when formatting is finished (up to 60sec.).

3– The 'one-platter' icon appears on the right circular screen to indicate the DVD-RAM is ready for use. Press [ok] or go to STOP.

note: a FAT32 pre-formatted DVD-RAM is Cantar recordable too. (See p.43 for DVD-RAM & Mac)

07 Scan Drive

Int drive Ext drive

Scanning a 120GB HD may require two hours to complete. At the end of the scan, the message should be '**No error**'. If '**One error**' appears, immediately copy all of your files and discard the drive. Remember that a hard jolt can force the heads to crash and scratch the surface resulting in one or more dead clusters.

If for some reason you must perform an urgent REC while scanning the internal drive, abort the scan by pressing [esc] for a few seconds until '**aborted**' is displayed.

08 EraseAccess

No Yes

To reduce drive fragmentation, file erasure is performed on full workday folders only. '**Select Day**' , [ok]; [jog] to select a day, [ok]; the bottom line displays '**ScanningDay**' then the cursor jumps to '**Day Eraser**'.

[jog] to select '**Int. HD**' or '**Ext. HD**', [ok]; [jog] to '**Yes nnnMB**', [ok]. Once the day's files have been erased '**No Files Found**' is momentarily displayed, then the bottom line changes to '**No 0.0MB**'.

[ok] returns to '**Select Day**', [esc] goes back to SESSION.01 'ProjectName' where another project can be selected.

Reminder: when *trashing* an individual file its .wav extension becomes .rip. It is hidden but not erased from the workday folder (p.25).

Sound-Report – Headers

Eight header items – **FileType, TapeRef, ToneLevel, Sample rate, Bit-depth, FPS, Date and Media** – are automatically filled with the recording parameters, while seven others (see 07 to 13 below) carry Operator entered data.

Multiple changes to each header item are allowed per workday. If one header item changes, a new PDF and ALE page is started with this information.

09 Full Title

For consistency the 8 character Project name is automatically inserted in the header before the Operator entered Full Title. (39 characters max.). All of the header entries below are automatically recalled when re-opening the project.

note: [shift+esc] clears each of these fields individually.

10 Production (30 char. max.)

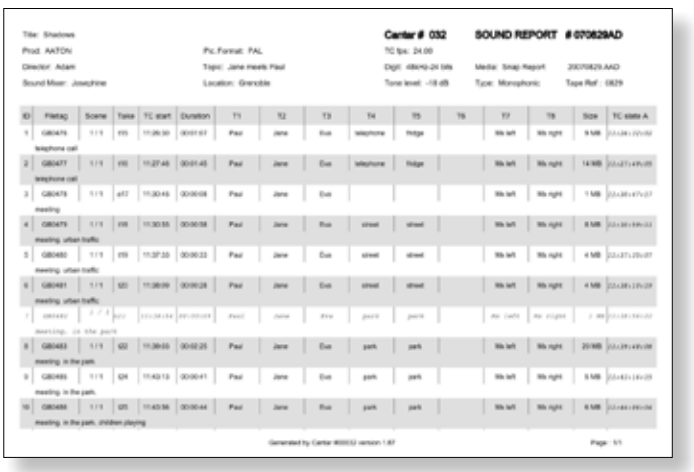
11 Director (25 char. max.)

12 Sound Mixer (25 char. max.)

13 Locations (25 char. max.)

14 Day's Topic (19 char. max.)

15 Pic Format (Pal, Ntsc, 1080, HD2)


Cantar # 032 SOUND REPORT # 070829AD

Built-in easy to read and print PDF report

Sound-Report – Columns

User configurable columns carry the take specific data.

16 Col Templ.

Layout A Layout B Layout C

Three custom Operator maintained layouts are available, they are stored in Cantar's memory and can be modified by [jog]-ing through the column/field linking positions (see SESSION.15 below). The first letter identifies which layout (A, B or C) the selected column is modifying (e.g., A Col.12, B Col.12, C Col.12).

17 £ Col.02 to 31 £ Col.16 (£=A, B or C)

[INS field] [DEL field] Blank Filetag
Scene Take Tc Start Tc End Duration
Tc Slate A Tc Slate B Tc Slate C Track 1 to 8
Tracks used File Size User bits

Column '01' displays the recording order; it is not modifiable. To assign a different field to columns 02 to 16, press [ok] and with [>] [<] select one from the available list (above).

[DEL field] eliminates the field assigned to the selected column and shuffles the fields on the rightside to the left; '**none**' is displayed on the last column. If you want to activate a '**none**' column press [ok] to change it to '**blank**', then select any field for it.

[INS field] inserts an empty placeholder ('**blank**') that can be filled with a specified field; other fields are pushed to the right... provided there is at least one '**none**' column on the far right.

Sound-Report – Files

PDF (Portable Document Format)

Three independent PDFs are created: '**All**' contains all of the t-p-w-a-n take-genders, '**Wild**' extracts the 'w' takes, '**Trio**' displays the takes carrying one or more Linking-Trios (see p.48).

The PDF files are named using: the calendar date, followed by the take selection **A**, **W** or **T** (All/Wild/Trio) and the file treatment **D**, **N**, **R** or **X** (Direct multi-mono/Native poly/Rotated poly/miX poly), e.g. 081224AR.pdf, 081224TD.pdf. The 'comment' field (200 char. max.) is used as the take separator. Disarmed tracks carry no track-name.

Paper size is unified @ 21x27.2 cm to fit both 'A4' and 'Letter' formats.

note: on some Mac firmware, you must open the PDFs with 'Preview' (Aperçu), since Adobe Reader or Acrobat can't directly print them properly.

CSV & ALE (Avid Log Exchange)*

A CSV tab-delimited table for spreadsheet applications, as well as an ALE list for editing machines are systematically generated with the PDF.

These files are named using: the month and day numbers, followed by the treatment D, N, R or X, and the page number, e.g. MMDD_R##.ale. A new page ## is opened each time a new parameter value (fps, sample-rate, etc.) appears in the sound-report header.

note: not yet reading the iXML chunk embedded in the BWF files, Avid MCs only have access to the first 40 characters of the comments stored in the '*aNote*' of the BWF descriptor.

* Originally CSV stood for 'Comma Separated Values, they are now, most of the time using tabs instead.

Sound-Report – Generation

For the latest entries of the day to be taken into account, the last report overwrites the former one. It takes a little more than one minute to build a twelve page sound-report.

• **Any time**

Go to **BACKUP.11 'Snap Report',** select the **Dir, Nat, Rot, miX** status of your choice. Press [ok] to send the Sound-Report to a YYYYMMDD.AA# folder on the drive(s) in use as selected in SESSION.03.

note: *to redo a Sound-Report for a preceding day (e.g. edited with Majax or Cantar), set BACKUP.01 'Bckp Mode' to At Call, then BACKUP.02 'Day to Copy' to (the date), then BACKUP.11 'Snap Report', etc.*

• **After Idle Bckp**

Before removing the backup media, set **BACKUP.12 'Idle Report'** to '**Yes**'. The Sound-Report is sent to the YYYYMMDD.AA# folder where it carries the same Dir, Nat, Rot, miX status as the backup files.

• **After At Call**

Set **BACKUP.14 'Run Bckp'** to '**Yes**'. The Sound-Report is created when the backup is completed, it is sent to the YYYYMMDD.AA# folder where it carries the same Dir, Nat, Rot, miX status as the backup files. (# = D, N, R or X).

01 Bckp Mode

At Call Idle Bckp Prep Polys

• At Call

This mode opens access to the parameters which will be requested in BACKUP.14 'Run Bckp'. Preferably trigger this operation at the end of the day. Once started during a session, any modifification to archived metadata will not be re-copied with the next Run Bckp.

• Idle Bckp

This mode can be activated any time, the earlier in the day, the better. Parameters excluded by previous Operator's choice(s) are flagged as 'N.A.'. In TEST position, while the internal HD is not on duty, Cantar incrementally backs up the audio files onto CF, DVD-RAM or external drive.

Idle Bckp is a better method than simultaneous recording onto two media because it updates the backuped files; if you modify the metadata of a take, it is re-saved.

Archived as Monophonic files (smaller than Poly) on a CF card, all your work will be copied and ready at wrap.

To interrupt the process, press [esc] until 'IdleOp Stop' is displayed, the unfinished copy is erased, it will resume upon entering TEST. Note that a five second delay lets you go to PLAY through TEST without triggering the process. Once Idle Bckp has completed, the backup media goes back to sleep. Toggling between TEST and PPR displays the remaining backup space in GigaBytes. If at the end of a take the files are too large to be copied within this space, 'Idle Bckp Full' will appear. Go to STOP, insert another media and Idle Bckp will continue from where it previously stopped.

WARNING: UNDER NO CIRCUMSTANCES remove a DVD-RAM until the activity LED is 'OFF',
Conversely ***do not plug*** nor unplug a CF card while the caddy's red LED is 'ON'.

• Prep Polys

To speed-up Run Bckp at the end of the session, Prep Polys take advantage of the idle periods to perform polyphonic treatments and to store the resulting poly files onto the internal HD. From time to time, these files must be flushed out (see BACKUP.13 'Clean Polys').

02 Day to Copy

2007-02-18

The current day is the default, but other days can be selected. To simplify archiving the audio and metadata, Cantar copies a day per DVD. Several days can be copied onto an external HD, each day in turn.

```
BACKUP   03
TrackSelect
T1-T8 T7T8
```

03 TrackSelect

T1–T8, T1–T8.T7T8*, T7T8*, T1–T6, T8T8**, T1–T8.T8T8**

**of interest if T7 or T8 carry a mixdown track. **the Director will not complain one of his TV monitor loudspeakers is dead.*

04 T1–T8 trtmt (treatment)

for T7T8, see BACKUP.05

Native Mono Rotat2 Mono Rotat1 Mono
Native Poly Rotat2 Poly Rotat1 Poly

A- Native Mono

keeps the track rank (stored in *.AAD* folders).

B- the 'Rotate' case

Rotate1 pushes the tracks by one position: e.g. Xb recorded on T8 is renamed T1*, and T1 – T7 are renamed T2 – T8* (stored into *.AAL* folders). See tutorial p.45.

```
BACKUP    04
T1–T8 trtmt
Rotat2 Mono
```

Rotate2 pushes the tracks by two positions: T7T8 are renamed T1T2*, and T1–T6, T3–T8* (stored into *.AAM* folders).

Why is this treatment recommended? When importing Xa & Xb proxies, NLEs put them on the A1A2 timelines; thanks to 'Rotate' if later on the editor imports the full group, the ISOs of Xa & Xb (Xa & boom) will gracefully replace the provisional tracks, while the six other tracks will fall naturally into place.

'Rotate' adds no delay to backup operations, don't go without it.

C- the 'Poly' vs 'Mono' case

On top of faster Idle Backup, Monophonic files offer the advantage of never reaching the FAT32 4GB limit. But because vintage NLEs (pre-Avid MC v4) can't create auto-links between Monophonic tracks of a take, the Polyphonic filing system is still in use.

- *Native Poly* AB1234.PN (stored in .AAN folders).
- *Rotate1 Poly* AB1234PS (stored in .AAR folders).
- *Rotate2 Poly* AB1234PR (stored in .AAR folders).

05 T7T8 trtmt (treatment)

Native Poly 16Trnc Poly 16Dith Poly

Applicable if T7T8 or T8T8 appear in BACKUP.03, this treatment reduces 96kHz to 48kHz and converts the file pair into a Polyphonic file stored in an .AAX folder.

Native Poly 16 or 24-bit, interleaves T7T8 at native bit-depth.

16Trnc Poly truncates 24-bit to 16-bit, interleaves T7T8.

```
BACKUP    05
T7T8 Trtmt
16dith poly
```

16Dith Poly dithers 24-bit to 16-bit, interleaves T7T8. (Dither offers a better quality than truncate but requires twice as much time).

note: 'treatments' (04 & 05) and 'track select' (03) are recalled from one recording session to the next, they are erased when the (03) menu bottom row is opened.

06 Media Type

Ext. HD/CF Int. CF DVD–RAM CD–R 700MB
DVD±R 4.7GB DVD+R 8.5GB

Ext. HD/CF, when working with an external CF burner, power Cantar without the card, wait for the internal HD three-platter icon to appear, then insert the card.

Int. CF selected, the [eye] button displays the available space in MBytes (p.54). *DVD* can take up to 20sec to be checked before its 'one-platter' icon appears in the right circular screen. About DVD-RAM MAC/PC compatibility, see SESSION.04 (p.36), and Tutorial (p.43).

07 Burn Mode

Burn Only Burn+Check (Check Only)

Checking a DVD takes just as much time as burning it.

08 FilesToCopy

All Unarchived

Select '*All*' to make a second batch of DVDs with all files, previously copied or not. Select '*Unarchived*' before starting a DVD mid-day copy, this causes the software to look at the 'Archive' flag on the files. Previously copied/archived files flagged as such will not be copied again.

09 File Name

W/. Sc&Tk FiletagOnly

W/. Sc&Tk brings long filetags such as "BA1234==123A 12R w14==_1.wav", to editors. Select this option for CD/ and DVD backups since long names are supported by ISO and UDF1.5 formats.

'*FileTagOnly*' such as "BA1234_1.wav" for HD, DVD-RAM and CF since long names are not supported by the basic FAT32 format. Note that Majax can extract the Sc/Tk ID from the iXML chunk and add it to the file names en route to Post on FAT32 or exFAT64 formatted drives.

10 Media Label

DVD 1/N CD 1/N MD* 1/N

* for CF & DVD-RAM

'*N*' gives the number of media needed for the backup. Press [ok] and select the media # to burn.

[shift] [eye] displays the Media Label given to a disk, e.g., CD_MXD_2/5 means CD-R – Mixdown – Disk #2 of a 5 disk group. The remaining data volume to be burned is displayed too.

The large file case

The length of a take can make it impossible to copy it entirely onto one CD. For instance if a 200MB file comes in with its five brothers (a six-track take), 1.2GB media is required. In this case, Cantar separates the take into its individual tracks while minimizing the number of media. The label becomes CD_2_D072, where [CD] is the media, [_2] is the track rank, and [D072] the last four characters of the filename.

Example of a CD/DVD label

An ISO volume label is limited to 31 characters

Cantar#	*Project*	*Date*	*Archiv**	*Tag type 1 or 2*
099	AAAAAAAA	YYYYMMDD	#	CD_T1-6_001

* The archive flag is either a (space) or a (#) to show if only unarchived files have been burned; a way to know why some files, probably burned on another media, are missing.

Tag type1: general mode for DVD burning (CD_T1-6_001). T1-6: six mono tracks, T1-8: eight mono tracks from the AAD folder. MXDN: monophonic stereo mixdown from the AAD folder. MXBN: poly stereo mixdown from AAX folder. MXBC: poly stereo mixdown with 24-bit to 16-bit reduction. 001 to 999: the media rank.

Tag type2: CD_TK-1_001 used if the files must be separated because their group is too large to be burned on a single 690MB CD. TK-1 is the track number and 001 the media name rank.

11 Snap Report (*)

None IntHD Dir IntHD DirR2 IntHD DirR1
IntHD Nat IntHD Rot IntHD miX

Snap immediately stores the day's Sound-Report into a YYYYMMDD.AA# folder (#= Dir, Nat, Rot, miX) which carries the same status as the backup files (p.38).

(*) based on the SESSION.03 selection, the report is sent to the internal drive, external drive or both.

12 Idle Report

No ->Bckp Disk

Since Cantar has no means to know when you are about to remove the backup media, you must manually trigger *'Idle Report' before removing the media*.

Idle Report copies the Sound-Report to a YYYYMMDD.AA# folder (#= Dir, Nat, Rot, miX) which carries the same treatment as the backup files (p.38).

13 Clean Polys

Yes nnnnMB No nnnnMB

This operation erases all of the previous day's Poly files resulting from 'Idle Polys' treatments stored in the internal HD. Obviously if you later have to deliver a second backup copy containing Poly files, 'Run Bckp' will take longer since it will have to recreate the erased files. As a precaution, only the Poly files of preceding workdays should be erased.

14 Run Bckp

No nnnnMB Yes nnnnMB

The default is No, it lets you see the size of the files to be copied... then you leave with [ok]. 'Run Backup' writes three forms of Sound-Report once the backup is completed: (1) ready to print PDF, (2) tab delimited CSV, and (3) Avid ALE (p.38).

```
BACKUP    14
Run Bckp
Yes  360MB <
```

Example of a standard backup

Select 'T1-T8 (7/8)' in BACKUP.03, 'Native Mono' in .04, '16Trnc Poly' in .05, 'Ext. HD' or 'CF card' in .06. You get a Poly16-bit mixdown plus the 24-bit Monophonic ISO tracks.

The several disk case

Go to BACKUP.10 'Media Label', select the media you wish to burn, [ok], BACKUP.14 'Run Bckp', [ok], 'Yes', [ok]. Go back to 'Media Label', choose the next one and so on. You can interrupt the process between two disks and return to it later. Don't forget to write Cantar ID, Project name, Date, and Media label onto the CD/DVD as it comes out, so as not to waste time looking for the ones you haven't done yet! Upon completion of writing, the disk will have to be manually ejected. When the green indicator starts blinking, press the burner's [eject] button.

Direct backup from a Mac or PC

Once TECHSET.01 has 'Unmount'-ed, the internal HD is no longer under Cantar's control but is still powered; a FireWire connected MAC/PC sees the Cantar HD as any other HD, and can copy the files, perform selective erasure, and edit the metadata with Majax.

Warning: to prevent the destruction of the FireWire input (16.6V max.) by Mac GXs (33V), take out the internal HD shuttle and connect it to the GX; its FW input handles up to 40V. (Mac/PC laptops supply a safe 12V).

FILE RETRIEVAL the disc's FAT is saved every ten seconds. In case of power interruption, the audio is playable but TC and comments are not saved; use Majax to reconform it (see p.57).
In case of disk crash or accidental erasure, do not continue to record, do not try any recovery program, this will destroy any audio that could have been otherwise saved. Contact Aaton.

Three ways to generate a SoundReport.

1 At call

• BACKUP.14 'Run Bckp' completed, the SoundReport is stored with the audio files on the media selected in BACKUP.06 (DVD-RAM, CF, DVD, CD, Ext.HD).

• it carries the treatment selected in BACKUP.04/05 (Native Mono/Poly, Rotate Mono/Poly, etc.).

2 Snap

• triggered by BACKUP.11 'Snap report', it is stored on the media used for ISO recording (internal, external or both), as selected in SESSION.03. It can't go to the backup media.

• the SoundReport treatment can be different from the one selected for other purposes.

3 Idle

• triggered by BACKUP.12 'Idle Report', it is stored (while in TEST) on the media selected in SESSION.06.

• Idle report adopts the BACKUP.04/05 'treatment' selected for the audio files.

***REMINDER**: You must manually execute BACKUP.12 'Idle Report' BEFORE removing the backup media.*

Backup 'at call' being done, metadata correction

If your backup is on CD or DVD±R, you can't insert any corrections; redo the burning on virgin media. If your backup is on a rewritable media (Ext.HD, CF card, DVD-RAM), you can.

• *FIRST* go to BACKUP.01 'Idle Bckp' and select the media, go to BROWSE and modify the metadata stored on the internal drive. Once done, go to TEST, the Idle Bckp process transfers your corrections to the backup media.

• *THEN* go to BACKUP.12 'Idle Report' to trigger the new sound reports (pdf, csv...), ***don't forget it !***

***notes:** If you forgot to select 'Idle Bckp' before your corrections, a rescue works for DVD-RAM and CF cards only. Go to BACKUP.01 'Idle Bckp', select the backup media, and go to TEST. The corrections are transferred as soon as the drive icon appears in the modulometer's center (it can take up to 20sec for a DVD-RAM).*

Meaning of AAD, AAR, AAN, AAX folders' suffixes.

• while recording the ISO tracks on the int. and ext. HD selected in SESSION.03, they are stored as monophonic files in AAD folders.

• when backing up files, depending on their 'treatment', they are stored in different folders: Direct(mono) go to AAD, Native(poly) go to AAN, Rotate(poly) go to AAR, and miX go to AAX (p.39 & p.40).

Idle Bckp completed, make a second backup of the day

• DVD: go to BACKUP.06 'Media type' and select DVD, then in BACKUP.08 'File to copy' select 'All' to allow Cantar to burn already archived files again. Then go to BACKUP.14 'Run Bckp'.

• Ext.HDD: go to BACKUP.06 'Media type', select Ext. HD. Then go to BACKUP.14 'Run Bckp'.

"No Poly" appears in the rectangular screen.

This reminds you that BACKUP.01 'Prep Poly' has been activated but you forgot to select a poly treatment in BACKUP.04/05.

notes: "End Stor trtmt" tells you the 'Poly' treatment has been successfully stored in a folder of the internal drive, waiting for your end of day 'Run Backup'.

From time to time, flush out these provisional files from the drive (see BACKUP.13 'Clean Polys').

Export track metadata to Avid MC and ProTools.

• Import BWF-Mono into Avid with the 'Autodetect monophonic groups' option turned OFF • Import the ALE generated by Cantar into an Avid bin • Relink the clips in the ALE bin • Edit • Export to ProTools

[Job Ter Burg] this way, each channel is first turned into Avid media, preserving the channel information **inside** the actual resulting mediafile. If you import BWF-Poly or autodetect the -M groups, a lot of info will be discarded because of how Avid MC treats a multichannel clip and the lack of metadata that ProTools accepts from an AAF (both products are together causing the issue).

Using the ALE generated with single multichannel clips per recording (take) make things a lot easier inside Avid, without sacrificing as much metadata.

I also export external (linked) AAF's from MC, supplying sound post with a copy of all Avid MediaFiles. Furthermore, I hand them a copy of all source BWAVs for them to access. You can even use the Field Recorder Matches function in PT to link the edit back to the original BWAVs and metadata if you like. If you use this method, channel metadata (mostly the channel's content description) will come across to PT.

Preliminary notes: FAT32 can handle up to 2TB, but Microsoft lets it be 'universal' below 120GB, Cantar formats the drives up to this value only.
To install a SATA drive, replace the internal Cantar FireWire-to-PATA bridge with a FireWire-to-SATA bridge.

Primary Storage

HD

PATA • Seagate EE25.2 [ST980818AM] 80GB.
SATA • Hitachi Endurastar J4K100 100GB, 4200RPM • Hitachi Travelstar 5K320 [HTS543216L9A300] 120GB, 5400RPM.
When replacing a HD, verify the static electricity ground connection between the disk housing and the Cantar chassis is within factory specs (120k ohm ±20%).

SSD

PATA • Transcend TS128G PSD320 128GB.
SATA • Crucial C300 128GB.
Some SSDs don't work with the Cantar FireWire–>SATA Oxford bridge, contact Aaton before buying!

Backup Storage

Internal CF card

Run 'Idle Bckp' or 'At Call' on CF cards; faster than DVD-RAMs they help you be ready at wrap (p.54).
One thing physical to check: when the Cantar is on, does the CF Tray's LED stay on at all times? If so, then that will keep the Cantar from formatting the CF. The red LED should only come on when the Cantar is accessing the CF tray (read/write/format).
note: contrary to a suggestion found in former manuals, ***do not backup on SD cards***, CF to SD converters are not reliable.

Internal CD DVD DVD-RAM

ATAPI connected Panasonic UJ-85J. When switching from TEST to PPR, the unfinished Idle Bckp is closed but the motor generates magnetic interference for five seconds; that is the mu-metal shield raison d'être in Cantars #001 to #240 (p.58).
To edit the DVD-RAM from a FireWire connected Majax, put the Cantar CPU in its TECHSET.01 '**Unmount**'-ed state.

External DVD

If an external DVD burner containing a blank disk is FireWire connected, and if there is no media in the internal burner, Cantar creates the backup on the external burner.

External HD

Use a well ventilated enclosure such as the **Cantar-Cellar** (picture above) made of a Cantar HD shuttle and a protective housing. The shuttle can be separated in a wink to be immediately used as the Cantar internal HD.
With a large HD (e.g. 250GB), *use Partition-Magic* http://www.symantec.com/norton/partitionmagic. Format a 40GB FAT32 primary partition and the rest under NTFS. The workday is recorded on the FAT32 partition, and off hours you transfer it to the NTFS partition.
Some good advice: Oil bearings of a unused HD Disk become stiff, imagine the fate of your archives if you don't run your disks once a year.

Media

CF cards

Select 30 or 60MB/s Sandisk or Lexar cards (64GB max. capacity). To erase the data, ***do not delete*** the files, re-format the card (p.37).

Optical Disks

Never use supermarket branded media.
CD-R: Made by Taiyo Yuden, select Maxell 'Pros'.
DVD±R: Ask the Post Production supervisor what is his preferred flavor (+ or –). Taiyo Yuden 8x are the best. For better lifespan Cantar only burns DVDs at 4x.
DVD-RAM: Panasonic 3x LM-AF-120LE.

Optical Disk Handling

98% of all media failures are caused by poor handling. A fingerprinted DVD can still be played but is unuseable for recording. Open your thumb and index-finger in a U-shape and hold the blank disk by its opposite edges. Do NOT clean it with a cloth in a rotary motion (best way to destroy a complete track) but by successive radial strokes.

DVD-RAM & Mac

DVD-RAMs are read-only on Macs. To edit metadata install '**WriteUDF**' http://www.softarch.com , see Majax, p.57.

Surround 5.1

For **Schoeps x2 M/S** mics or **SoundField**, there is no need for decoding accessories. The onboard mixer has it all.

Double M/S

By Fr. Musy and Gab. Hafner, Switzerland

Microphone wiring The Schoeps double M/S (L-C-R-SL-SR) head is made of two cardioid and one figure-of-eight microphones, it comes with an XLR*7* cable to which a home-made XLR*7* to XLR*5*/XLR*3* Y cable should be connected.

- ***XLR7*** (F) 1 = gnd 2 = +M front 3 = –M front 4 = +S front 5 = –S front 6 = +M rear 7 = –M rear
- ***XLR5*** (M) 1 = gnd 2 = +M front 3 = –M front 4= +S front 5 = –S front (yellow, red labels)
- ***XLR3*** (M) 1 = gnd 2 = +M rear 3 = –M rear (gray)

Routing The ***XLR5*** goes to mic 3/4 routed to T3 and T4; '**m-s**' declared, their monitoring output is automatically left/right decoded. The ***XLR3*** goes to mic 5 routed to T5, panned to center. (See Mic Links 3>4-5, p.31).

Monitoring T3 and T4 mixer faders at 100%, you listen to the front stereo. T3 mixer fader at 0% and T5 fader at 100%, the monitor output becomes the sum of the 'S' figure-of-eight on T4 (a+ a–) and of the 'M' rear mic on T5: you listen to the rear stereo.

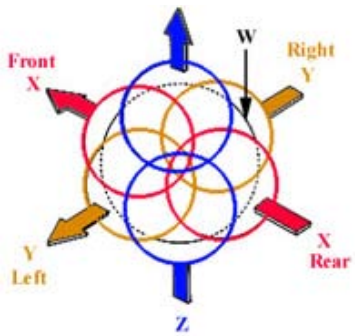
It is thus easy to alternately listen to the front or rear M/S, or both, with 5.1 double capsule headphones.

Mixing Launch Pyramix and make two M/S strips, one for the front, one for the rear. Lay down the three track media on the M/S tracks (the Pyramix CW), copy track2 'S front' to track4 which becomes 'S rear', reinject 'M front' onto the surround of the M/S front. You can also make an extraction for the 'sub': here is your 5.1 sound!

Soundfield B-Format

By Phil. Vandendriessche

Four channels: **X** front/back figure-of-eight; **Y** left/right figure-of-eight; **W** omnidirectional; **Z** top/bottom figure-of-eight (seldom used for now since 5.1 is 'horizontal' only).



The Cantar onboard mixer handles the B-Format stereo monitoring with adjustment of the pattern and width.

Routing Connect the Soundfield ST350: **X** output to line1->T5, **Y** to lin2->T6 (T5 & T6 '**m-s**' declared), and **W** to line3->T4 (panned to center). The Mic or Line-in gains (**1>2.3** ganged) are adjusted to the half dB (p.17).

Monitoring Faders T5 (**X**) and T6 (**Y**) at 100% level, makes for a ***Blumlein*** "stereo pair" (two coincident figure-of-eight microphones angled 90°); adding some T4 (**W**) to the mix transforms the figure-of-eight components to cardioid (coincident "XY stereo pair". Faders T5 (**X**) and T4 (**W**) panned to center at 100% level, and T6 (**Y**) at 0%, you listen to the left component of the stereo pair. T6 (**Y**) and T4 (**W**) at 100% and T5 (**X**) at 0%, you listen to the right component.

http://www.soundfield.com/soundfield/technology.php

The head rotation stereo simulation proposed by Phil VDD will appear in a future version. Rotate the monitoring black crown to 'B', to listen to the front, select the 'Fs' config; to turn the head 90° to the right, select 'Rs' (inverted **Y** in the mix); to turn the head 90° to the left, select 'Ls' (inverted **X**); to turn the head to the back, select 'Bs' (inverted **X Y**).

Mixdown with decoded M/S (or not)

The mixer faders and pan-pots feed the mixdown (Xa Xb) tracks. The inputs are routed to the six tracks; an M/S pair is connected to mic3 & mic4 and routed to track 5 & track 6 ('**m-s**' declared). The M and S signals are recorded as metered on the T5T6 modulometers and stereo decoded into the mixdown output. If the editor prefers not to get stereo signals in his reference sound, pan the M track to one side or the other: the S track will disappear from the mix.

Documentary style with M/S background

The boom-mic on M5 in its island naturally falls under the right hand. The 'active' RF mics go to M1, M2 on the front row, and the peaceful RF mic goes to L1. The M/S pair on M3 & M4, routed to T5T6, is displayed on the right screen shared with the T7T8 mixdown.

Boom –> M5 –> T1; RF calm mic –> L1 –> T2

RF1 active –> M1 –> T3; RF2 active –> M2 –> T4

L or 'M'-mic –> M3 –> T5; R or 'S'-mic –> M4 –> T6

The boom and RF mics

The boom, connected to M5, is directly routed to T8 (see *Create T7T8 IN-GRIDS*, p.28). The RF-mics, routed to T1–T6 (auto-panned to the left), go to mix Xa on T7.

Proper Mixing

Mark Weber to Cantar Users' Group, May 3, 2008

Are you all saying that we should not be mixing just because we are providing ISO tracks on mono files? As a mixer it is my assumption that my job is to mix so that phase anomalies are not occurring and mixing out unwanted open mics so that a useful production mix is always present and if post wants ISO mic tracks then that is what I deliver on top of the mix.What am I missing here?

Phase interferences are only audible at specific relationships between pairs of microphones and at a specific balance between them, usually a 50/50 balance as with boom and radio mic. If three mics are open, the phase interference is a result of only one of those mics in reference to the other two. Assuming I am mixing to a mono track with one boom and one radio and at a certain point there is phasing, I would be rocking the mix back and forth favoring either the boom or radio. If the phasing occurs when both mics are at unity then I never allow unity to occur. As a wired actor walks into a room and comes forward approaching a boom mic, I would be favoring the radio until the actor steps into the sweet spot of the boom at which point I would crossfade, potting down the radio as I pot up the boom. This does not necessarily mean that I completely turn off either mic at any time but only prevent the 50/50 balance of the two from occurring, or maybe once the actor reaches the boom sweet spot and stays there for the rest of the take then perhaps I slowly fade out the radio mic completely, to prevent clothing rustle or some other physical noise.

Same thing if mixing two actors on radios with no boom and as they turn to face each other there is a phasing taking place between them, then I would be crossfading the balance between them back and forth favoring the mic of the actor that is speaking, again never allowing the 50/50 balance to occur but always keeping both mics open unless some action creates a problem like someone pounding themselves on the chest where the mic is placed. Always 60/40 or 75/25 or whatever works. Maybe as the two actors stand very close to each other one of their mics may work to cover both of them.

Now if mixing to two tracks and splitting boom away from the radios then I monitor the split track mix in mono and do all the same things as mentioned above so that if the two tracks are summed together by telecine for dailies or elsewhere in post the resulting mono mix works perfectly.

I hate to allow post the opportunity to screw up my mixes so I always try not to give them the option. If there is no reason to split tracks then I do not do it.

Mark Weber C.A.S. / Sound Specialist Inc. Miami, Florida

Mixdown on track one and two

The track renumbring during Idle Bckp backup lets you put the mixdown on the lower rank filetags, thee examples below

***#1* Single-mix on TR1**, select *Input/Xb+* in T7T8 InGrids,

```
inputs          Mic1  Mic2  Lin1  Lin2  Digi1  Mic4  Mic5
                  /     /     /     /     /     /     /
tracks          T1    T2    T3    T4    T5    T6    T7     T8 > modulo
                /     /     /     /     /     /     /      @
sliders        #1    #2    #3    #4    #5    #6     /(#7)* /
                \     \     \     \     \     \     /      /
auto-pan R   .   \_____\_____\_____\_____\_____\___/_____>Xb+
             .     .     .     .     .     .     .      .
renamed      .     .     .     .     .     .     .      .
filetags _2     _3    _4    _5    _6    _7    _8     _1
```

Recommended settings for this example:

BACKUP 01 'mode', select ***Idle Bckp***

BACKUP 03 'Track Select', select ***T1_T8 + T8T8***

BACKUP 04 'Treatment', select ***MonoRotate1***

BACKUP 05 'T7T8 treatment', select ***Poly Native***

You get Monophonics ABC123_N.wav in AAL folders for NLEs.

_1 (Xa) _2 (.) _3 (..) _4 (.) _5 (.) _6 (.) _7 (.) _8 (.) and a Polyphonic ABC123PX.wav in AAX folders for FOSTEX-824s.

Q: Why this T8T8 duplication?

A: the Director will not complain one of his TV monitor loudspeakers is dead.

***#2* Mix & Boom on TR1 TR2**, select *Xa+/Mic5* in T7T8 InGrids.

```
inputs         Mic1  Mic2 Lin1 Lin2 Digi1  Mic4      Mic5 (boom)
                 /     /    /    /    /     /          \
tracks         T1    T2    T3   T4    T5    T6    T7     T8 > modulos
                /     /    /    /     /     /     @      /
sliders       #1    #2    #3   #4    #5    #6     /     /(#8)*
                \     \    \    \     \     \     /     /
auto-pan L   .   \_____\____\____\____\_____\__>Xa+<__/
             .     .    .    .    .     .     .     .
renamed      .     .    .    .    .     .     .     .
filetags _3     _4    _5   _6   _7    _8     _1    _2
```

***#3* MixL & MixR on TR1 TR2**, select *Xa/Xb* in T7T8 InGrids.

```
inputs          Mic1  Mic2  Lin1  Lin2  Digi1  Mic4
                  /     /     /     /     /     /
tracks          T1    T2    T3    T4    T5    T6    T7     T8 > modulo
                /     /     /     /     /     /     @      @
sliders        #1    #2    #3    #4    #5    #6     /      /
                \     \     \     \     \     \     /      /
pan L/R      .   \_____\_____\_____\_____\_____\__>Xa __>Xb
             .     .     .     .     .     .     .      .
renamed      .     .     .     .     .     .     .      .
filetags _3     _4    _5    _6    _7    _8     _1     _2
```

Recommended settings for these examples:

BACKUP 01 'mode', select ***Idle Bckp***

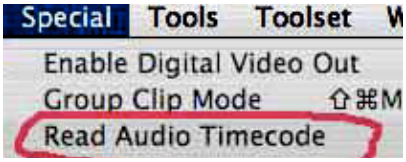
BACKUP 03 'Track Select', select ***T1--T8 + T7T8***

BACKUP 04 'Treatment', select ***MonoRotate2***

BACKUP 05 'T7T8 treatment', select ***PolyNative***.

You get Monophonics ABC123_N.wav in AAL folders for NLEs _1 (Xa) _2 (Xb or boom) _3 (.) _4 (.) _5 (.) _6 (.) _7 (.) _8 (.), and a Polyphonic ABC123PX.wav two track mix in AAX folders for FOSTEX-824s.

* Cantarem option, see p.28 for Xa/Xa+, Xb/Xb+ selection.



On location

To later reunite images and sounds, ***a common TC must be stamped*** on both:

1 Select an **AutoSlate** channel in AUDIO/TC.13, the clap-stick sound is detected and the matching TC is inserted into the sound report; this TC, keyed by the editor on the image of the clapstick, will then be used as if the camera was timecoded. This is the simplest and most accurate method ever invented. You can also use a Smart-Slate (the recorder sends its TC to a display filmed at the head or tail of each take), but this is not as accurate as the AutoSlate.

2 Send the camera's 'Video-TC' to the recorder set in 'Ext. Clock' mode and 'record-slaved' by LTC breaks (p.21). This method can't work on multi-camera shoots, and relies upon a cable or radio transmitter.

3 Install an Audio-TC generator (Ambient or Denecke) with tri-level sync to replace the camera's internal Video-TC with an external Free-Run Audio-TC identical to the recorder's TC. This method is not applicable to all video cameras; it doesn't let the camera generate a continuous Video-TC, something necessary to some editing systems. It will work perfectly the day all video-cameras and NLEs are designed for it.

4 Record the TC of the audio recorder on one audio track of the camera(s), preferably "A3" (on a two-track consumer camera, record audio on A1 and TC on A2, listen to the A1 audio with a mono-jack). The TC can be sent by cable (clumsy but cheap), by radio (beware the interferences) or locally delivered by a generator such as a GMT (p.56) attached to each camera (use a line input; turn 'OFF' the automatic-gain if you use a mic-input). *Method-4 works on all kinds of cameras, gives total freedom of movement for multi-camera shooting, and leaves the continuous Record-Run Video-TC (different in each camera) untouched. This is of great value when it comes to batch digitize videotapes under the 'Optimize for Speed' mode.*

In the edit suite

This tutorial is dealing with on-location 'Method-4' only.

When using a multi-track recorder, the common practice is to deliver six ISO tracks and a mixdown on two extra tracks. This mixdown is also sent through Line-out or Digi-out to the camera's A1 A2 audio tracks to let the Director immediately verify the last take and to later look at the day's rushes.

Because of a MediaComposer limitation which forces the editor to make a preliminary choice between using or not the camera recorded mixdown, the successive states of the post-chain must constantly deal with this duality.

A- Import audio

• *editing with the Cantar ISO tracks*

Demanding editors work with all of the ISO tracks (including the mixdown) to insert wild tracks or emphasize the presence of an audio event left unheard within the mixdown. In this case the video material should be imported under the **V A3** mode, not V A1 A2 A3 which would import the camera recorded mixdown, thus preventing later import and Autosync of the ISO tracks.

Once editing is done, the Audio-EDL 'TC sorting' will be done with ***Filetags***, the assistant editor must put them in the Avid 'soundroll' column prior to the import.

• *editing with the camera recorded mixdown*

If the editor prefers to work with the camera recorded mix-down, the import must be done under **V A1 A2 A3**: the audio is coming from A1 A2 and the Audio-TC from A3. Once editing is done, the Audio-EDL 'TC sorting' will be done with '***TapeIDs***', the assistant editor must put them in the Avid 'soundroll' column prior to the import.

B- Extract TC

During the import digitization, Avid MediaComposer/ XPressPro and Apple FCP w/ AUX-TC-FCP can extract the Audio-TC from A3 (or from A2 on a two-track only consumer camera). The Audio-TC, correlated to the Video-TC, doesn't occupy an audio track of the NLE system. It will be used to 'Autosync' imported ISO tracks and to construct the Audio-EDL (Edit Decision List). Read the 'PostChain':
http://www.aaton.com/documentation/

C- Differentiate TCs

• *editing with the Cantar ISO tracks*

No problem here: each audio file carries its own ***filetag*** in which it is impossible to find two identical TC(h).

• *editing with the camera mixdown*

There are no 'filetags' in the camera recorded mixdown, the only link with the Cantar ISO tracks is the Audio-TC. But because the CMX Audio-EDLs generated by NLE systems don't carry the Audio-TC(d) date, the Audio-TC(h) every day shows the same working hours: it can't offer a solid 'auto-conform' path from the edited mixdown to the original Cantar ISO tracks; the only way is the 'TapeRef solution'.

The 'TapeRef' solution

The trick invented by video people is to differentiate identical TC(h)' by manually entering the camera's 'VideoTapeID' into the editing databases... To avoid this old 'video cassette minded' system (note1), Cantar uses the date (that CMX's EDLs killed), by replacing the arbitrary 'VideoTapeID' entries with the MMDD in the 'TapeRef' field; no longer bothering the sound recordist with video cassette, P2 or SxS IDs it takes care of multi-camera shooting too.

User's TapeRef, Cantar side

Using the workday which gives a name to the Cantar folders, the MMDD (month/day) is automatically stored in the 'User's TapeRef' metadata field of each audio file. As an alternative to the absolute date, some productions do prefer to enter manually incremented shooting days (note2).

User's TapeRef, Camera side

The Camera Operator writes the 'VideoTape #' six characters on his media, but instead of an arbitrary name he writes "MMDD/CamID/Cassette#". examples:
Date: *April 18*, Camera: A, Cassette: *9* –> *0418A9*
Date: *April 18*, Camera: *B*, Cassette: *1* –> *0418B1*.
The 1 – 9 & A – F characters identify 15 cassettes per camera per day... long working hours!

User's TapeRef, NLE side

The assistant-editor keys-in the six characters of the standard 'VideoTapeID' when preping the digitization of the cassette, they will appear in the 'TapeID' (or SoundRoll) column of the bin. Note that if the 'VideoTapeID' sticker is lost or not exixting, it is easy for the assistant to replace it by writing the MMDD of the shooting day followed with an arbitrarily incremented import #.

User's TapeRef, final mix side

• To perform the auto-conforming of the Cantar ISO files to the edited mixdown, **Titan-3** (p.57) first sorts them by comparing the leading MMDD four characters (0418) of the EDL's 'TapeID' (or SoundRoll) column with the 'User's TapeRef' found in the audio files metadata, then uses the timecode in- and out-points to finish the job (with **Pyramix** you don't even need to use Titan).

D- Autosync

• *editing with the Cantar ISO tracks*

Correlated to the Video-TC of the images, the Audio-TC is used to 'Autosync' the imported Cantar ISO tracks and the video pictures. Both TC(h) and TC(d) must match.

• *editing with the camera mixdown*

'Autosync' is not applicable since the mixdown has already been linked to the images during their import.

E- EDL generation

• *editing with the Cantar ISO tracks*

Once editing is done, before triggering the Audio-EDL generation, the editor selects ***Filetags*** (file-names) as the file sorting mode.

• *editing with the camera mixdown*

Once editing is done, before triggering the Audio-EDL generation, the editor selects the classic 'TapeID' (or SoundRoll) as the file sorting mode.

note1: **A demand to be resisted,** some producers ask sound recordists to enter the camera/cassette IDs in the 'TapeRef' field, this is no good: **1-** quite often the sound recordist is warned too late of the camera cassette change-over. **2-** with video cassettes being replaced by cards, it becomes almost impossible to keep track of them. **3-** on a multi-camera shoot, there is no provision to enter double or triple camera cassette IDs into the metadata. **4-** like any manual operation done in a hurry, it is error prone.

note2: *The 'Shooting Day Rank' manual entry increases the risk of human error, if* you nevertheless use it instead of the absolute date, go to the Tape-Ref field following Comments in PPR 'edit'. First thing in the morning, right after accepting a 'new day', go there and overwrite the MMDD month/day with the 'day rank', e.g. day twenty-five = D025. On the camera side, the assistant writes D025(B1) instead of 0418(B1) on the video cassette.

note3: With Majax, you can batch modify the 'TapeRef' by highlighting the concerned files and entering the new value in the bottom-right field. It is recorded in the iXML metadata and insures that whatever happens to your files, e.g. mono to poly, mixdown, gathering in a different folder, copy to DVD..., they will keep their 'TapeRef'.

To activate the Play&Rec BLUE functions, press the [shift] button while transitioning to a new [MainSelector] position, hold it for one second after the position has been reached.
Reminder: the BLUE status is stiky, i.e. coming from Blue-TEST you don't have to press [shift] while going to PPR and REC.
Cantar ***plays*** up to eight tracks from the internal or external drive while it ***records*** a selection of these tracks routed through the digital inputs, along with the 'live' audio coming through the analog inputs (p.23). Two different modes are available.

Live mode

Selected for:

• **Classic playback.** Telephone call, background music or wild sounds stored in *play-cards* (p.24) are played and re-recorded (or not) during the 'live' recording.

• **ADR-1.** Known as 'hear it/say it' ADR-1 lets the actor record his replacement dialog *right after* listening to his former lines followed by a 'say it' buzz.

In this mode, the TC, scene & take IDs, comments, and track-names are those of the 'live' take (the one being recorded). Since the playback files carry their own TC, a link called '**Linking-Trio**' must be created between the two files. Recorded in the iXML of the live file, it stores the TC and file-tag of the play-back file along with the TC of the live file. Linking-Trios are used later in the Avid MC to link & sync the playback sounds with the live ones.
A message, '**Played filetag(s) AB1234, XY9753**', appears in the comment line of the PDF Sound-Report; it helps the editor find the original tracks by supplying the filetags to be used in the file search (don't forget to send your original files to the editor!).
Because of the Linking-Trios sub-frame accuracy, and the 'command-to-play' zero delay, Cantar outperforms the External Player/Music-Slate couple.

Clone mode

Selected for:

• **Remix.** Makes a copy of the original ISO tracks and lets you perform a new mixdown with the onboard mixer or Cantarem. Remix also lets you insert a simultaneous translation of the dialog.

• **ADR-2.** While listening to the guide track (text or prerecorded music), the performers record their dialog or song (alongside the guide track) on the other tracks. The TC of the played file can be sent through LTC-out to a camera or chasing video player.

• **Re-recording**. Thanks to its short 0.4 msec 'Mic to Phones' latency, Cantar is good at incremental recording, i.e. adding one track while listening to the previous track(s) to produce 'packs' of eight tracks which are easy to stack later because of their identical TCs.
In this mode a new filetag is created for the new files (you will never run the risk of erasing the masters). The played file and the new file will carry the same TC and metadata.

Play&Rec, steps to perform

1- choose the HDD (internal or external) and the project folder containing the files to be played.
2- attach an index (A to L) to your selected playback files.
3- create play-cards (up to 51) in each indexed file (play-cards are sections of the playback file).
4- prepare the Routing: route your analog inputs to the tracks, as well as the playback sounds which are internally sent to the Digi-inputs and routed as such (see Play&Rec In-Grids, p.28).
5- test each routing and play-card selection by going to BLUE-TEST before the real Play&Rec, performed in BLUE-REC.

Playback-file indexing *Cantar-X1 & X2*

Go to BLUE-BRWS (p.25), select audio files needed for Play&Rec operation, and convert them into ***Playback-files*** by putting them under indexes ***A*** to ***L*** .
A B C D E F indexes are reserved for the ***current project***,
G H I J K L are reserved for ***archives***, e.g. wild tracks, music, etc., stored on external or internal HD.

```
BLUE-BRWS 08
Index D    <
SE1104 n.a.
```

Note that archive audio files must be grouped (e.g. with Majax) in the same drive (e.g. external drive), under the same project name, and same arbitrary date.
Play-files which are no longer available, e.g. files stored on a disconnected external drive, carry an '**n.a.**' instead of an '**ok**' suffix.

```
BLUE-BRWS 21
TC mode    <
Clone (A)
```

Go to BLUE-BRWS.21 'TC mode', select **Live** or **Clone** depending on the kind of session you are about to perform.

Play-card creation

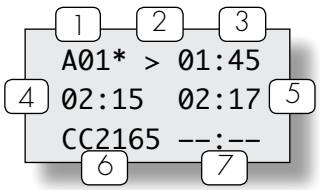
Cantar-X1 & X2

1- Go to BLUE-PLAY (see p.10), then with [shift] [>], choose a Play-file among the **A to L** (1) displayed top-left of the rectangular screen.

2- With [<] or [>], select an empty card among the **A00**.. **A51** (1) cards.

The factory A00 card contains the entire play-file; ***it does not store*** *cues-in entered for test purpose; the non-modifiable cue-out is the take duration.*

3- To fill an empty card, e.g. A01, scrub the audio time-line (4) by [jog], press the [black] button to set a cue-in (3), scrub further and press the [red] button to set a cue-out (7); a **half second mute** is inserted at the cue-out to let you fine tune its position. The last entered cue-in or cue-out points replace the former ones.



Once a cue-in is entered (cue-out not necessary), an empty card becomes a ***play-card***. The cue points are stored in the iXML of the file and will only be removed by erasing the play-card; to do so, [jog] to 00:00 and press [red]. To ***hide*** a play-card without erasing its cues, press [shift] [red]; tagged with a '*' the card is no longer visible in the BLUE-TEST/BLUE-REC play list, shortening it.

4- With [>] select a play-card and press [ok] to play it from its cue-in. If there is no cue-out or if you want to stop the playback before reaching it, press [ok]. Press [ok] again to restart from cue-in. Press [esc] to pause, press [esc] to resume play.

Play-file 'E' from the archives, six play-cards (E34 hidden). Note their overlaping placement, suitable for 'classic playback'

note1: when going to BLUE-PLAY, take your time while passing over STOP! If the message '**you were too fast**' appears, go back to STOP for one second.

note2: The Play&Rec metadata is stored in an iXML v1.50a chunk compliant with Cantar v2.11 or later. To ***update*** old style files, see p.25.

Rehearsal

As soon as BLUE-TEST is activated, the playback tracks (Tp1 to Tp6), are internally sent to the digi1–8 inputs from where they are routed the standard way (see *Play&Rec In-Grids,* p.28). Adjust the relative levels of the digital inputs (Tp tracks) and analog inputs, then rehearse your intended BLUE-REC navigation (see *Playback* below); the last BLUE-TEST selected play-card is the first to be played.

TIP: in BLUE-TEST you can go swiftly from one play-card to the next to let the Director verify the 'hilited' segments of a take without scrubbing through the entire file.

note: Play&Rec works at 48kHz (±0.1%). The play-files are played at the 'Live' recording sample rate, this is quite useful on filmed music shows transferred to NTSC.

To import MP3s into your archives, see p.25.

Live recording

Select 'Live (all)' in BLUE-BRWS.21

Playback

In BLUE-REC, the analog inputs are recorded the standard way. To play the first play-card, press [ok] (or [space] on a keyboard). To stop before reaching the card's cue-out, press [ok]. To replay from the cue-in, press [ok]. To pause, press [esc], to resume, press [esc].

To reach the next card, two possibilities:

1 browse the '**view**' tagged play-files with [shift] [>], then select the desired '*' tagged play-card with [>];

2 connect a PS2 keyboard (p.58) and type the successive card IDs (B12, F45, A08), then [enter]. Tarkan (p.51) can be of tremendous help here.

ADR-1

(same as above). The actor listens to the play-card containing the lines to be replaced. A buzz is heard in the headphones at the play-card's end to warn him to start talking. Without stopping the live recording, the operation can be repeated again and again to satisfaction.

Clone recording

Select 'Clone' in BLUE-BRWS.21

Copy, Remix & Translate

To copy an audio file with an updated iXML chunk for the archives, select In-Grid **RPA** (p.28). To redo a mixdown with the onboard mixer, select In-Grid **RPM** (p.28) in which the Xa Xb mixdown goes to T7T8.

You can add a simultaneous translation of a scene by either routing two digi-ins to the same track and sending the translation mic to the 'freed' track, or selecting **RR7** in which 'mic5 Xb' records the translator's mic on T7 and the mono-mix on T8.

The selected play-card plays at BLUE-REC start, **Ptc** (Playback TC) replaces **Stc** on the control screen. There can be only one TC stamp per filetag, if you want to Remix a portion of the original file, go to BLUE-PLAY, create a play-card then return to BLUE-REC which creates a new filetag. To abort the cloning, go to PPR and erase the file (see *Last take erasure,* p.20).

You can continue to record after the end point of the cloned file but there is a risk that this 'tail' generates a timecode overlap with the next original take. To get a clone of the same exact length as the original (same srart and stop TC)*, go to BLUE-PPR and trigger the recording with the keyboard [crtl] [alt] [r]; it will stop on the original file's end point.

** To avoid later 'Autosync' confusion between an original recording and its remixed clones (they all share the same TC&Date), go to BROWSE and trash them all but the best remix to be sent to the editing room. Since they are kept hidden in the day's folder, you can revive them later.*

ADR-2

While listening to the cloned guide track(s), and watching the images of the original shoot (Ptc 'Play TC' is used to sync a chasing VTR by LTC), the performers re-record their dialog on a new set of tracks.

Re-Recording

Under In-Grid **RR1** (see *In-Grids,* p.28), record your first track in normal REC. Go to BLUE-BRWS.04 and put the filetag of your best 'track1' recording (not always the latest one) under '**Index A**'. Select '**Clone A**' in BLUE-BRWS.21, then under In-Grid **RR2** go to BLUE-REC and record 'track2' (as many times as needed); then go to BLUE-BRWS.04, and put the filetag of the best recording under '**Index A**'... and so on, up to **RR8.** You get an eight-track incremental recording in the last recorded filetag.

Cantar full remote

Cantar-X2 only

Installed in a netbook (minimum 1024*600 pixels), Tarkan controls all of the Cantar's audio flow, edits metadata, and generates PDF & CSV sound-reports. Get TAW (Windows) or TAM (OS-X) on http://www.soft.aaton.com/swcantar/.

starting-up

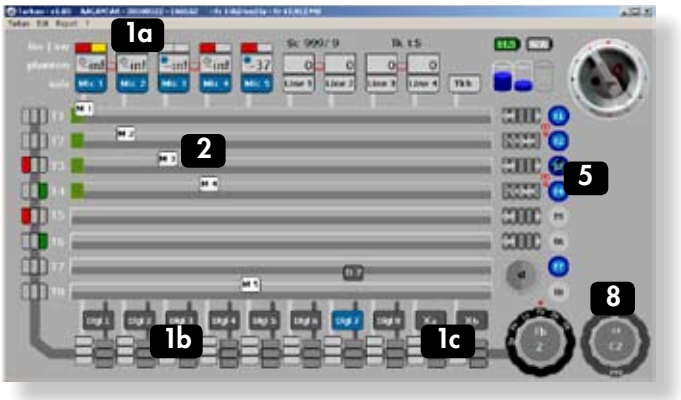
Cantar side: Turn 'OFF' Cantar, plug a straight or cross-wired CAT-5 cable into the RJ45 socket, hold the cable in the canyon shaped clamp.

Laptop side: Connect the CAT-5 cable (no TCP/IP activity but Cantar's is tolerated, see TCP/IP next page). Turn 'ON' Cantar. Launch the Tarkan application and ***wait*** for the connection (see tips next page). Click the upper/left 'start' icon.

Main screen

The screen is made of three layers: the first one displays the audio flow from the digi/mic/line inputs (with their settings), to the tracks (IN-GRIDS) and to the monitors (OUT-MAPS), the second layer handles the mixer with its faders (carrying the track-names) and panpots, the third layer (not represented here) displays the modulometers over the tracks.

In-Grids



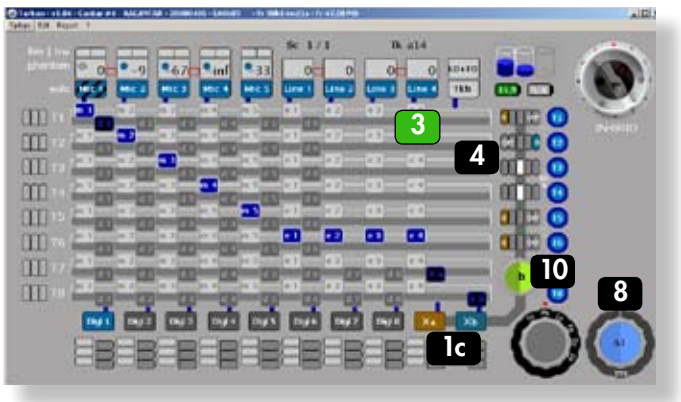
The analog inputs (1a) go down, the digital and mixer inputs (1b/1c) go up to the track cross points (2). To set the inputs for T1––T6, go to ROUTING IN-GRIDS (8), click on the desired cross point, it turns blue; double click to deactivate. To set the inputs for T7T8, first click the desired T7 cross point, it turns yellow as well as the other possible choice(s), click the other one: they both turn blue.

To turn 'OFF' T7T8, double click the cross point routed to T7. Armed tracks (5) are high-lighted in deep blue.

Out-Maps

The tracks go to the 'Left-Center-Right' *track monitoring* switches (6). Analog and digital inputs go directly to the "*input monitoring*" switches (*7*). Both (6) and (*7*) go to the monitoring crown (9).

Mixer



The mixer's faders (3) and pan-pots (4) generate the mix-down input (1c); In PPR, TEST and ROUTING (IN-GRIDS), twenty-six pan-pot configurations can be stored in Tarkan.

• During the creation of a pan-pot config, either on Cantar the usual way, or on Tarkan with successive clicks on the colored beans (100% left/right with [ctrl] [click]), the background of the pan-pot 'crown' (10) becomes ***red***. Once done, a [ctrl] [click] in the middle of the crown stores the config in Tarkan's memory and pushes it into Cantar where it becomes the active mixer pan-pot, as indicated by the crown background which turns ***gray***.

• Labeled from a to z, all the pan-pot configurations are stored in Tarkan memory where they are displayed against a ***green*** background. Browse them by cliking the left or right half-moon. A [ctrl] [click] in the middle of the crown pushes the selected config into Cantar: becoming 'active', it turns from green to gray.

Remote

To get access to all of Cantar's functions, physically set the [MainSelector] to PPR, then click on the desired position of the VirtualSelector (yellow circle turns red) (11).

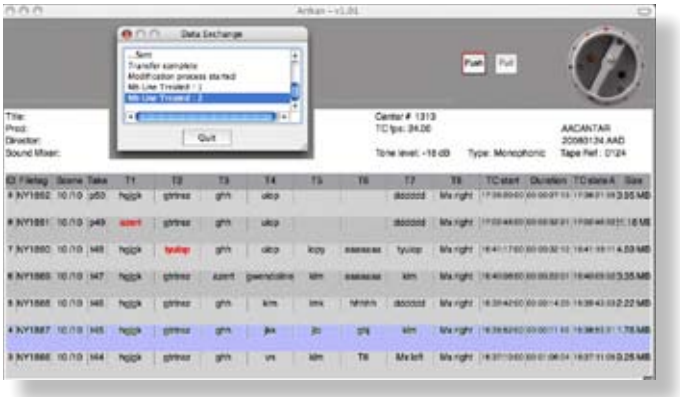
Play&Rec

The VirtualSelector turns blue when a Play&Rec 'BLUE' function is called by pressing the keyboard or Cantar [shift] button. The panel (12) is used to select and activate the play-cards.

Metadata screen

For consistency, metadata is presented in the Cantar Sound-Report lay-out (except that the most recent takes are on top of the page). It is either immediately written in the open

audio file (in REC, yellow background: in PPR, orange background), or stored in a buffer if the file is closed or inaccessible (red characters, gray background), waiting to be 'pushed' to the connected Cantar in BROWSE position.



Access to the 'Metadata' screen is allowed on the positions where the MainSelector becomes dark gray; double click on the selector itself.

Operands screen

This screen gives access to the AUDIO/TC, TECHSET, SESSION and BACKUP parameters. TECHSET 'Save Setup' stores the saved parameters in the Cantar memory.

Sound report

A PDF/CSV sound-report builder is implemented. PDFs from Tarkan save time at wrap.

TCP/IP

Disable the firewall; on a Mac consult the manual, the procedure is different for OS-X 10.4 (Tiger) and 10.6 (Leopard). Either 'allow all connections' or 'allow specific' i.e. Tarkan.

Make sure that no other TCP/IP activity is occurring. Turn 'OFF' Bluetooth and WiFi, quit Skype, your e-mail client, all widgets and anything else that is scanning the internet.

A tip by T. White: If you are using your usual laptop for Tarkan, instead of turning off internet scanning apps, set up another user which you log in as just for a Tarkan session with all the correct parameters and log back in as the usual user for normal use.

It takes from 10 sec (Mac) to 60 sec (Win) for Tarkan to assign a dynamic IP address to Cantar.

A tip by J. Casanova: Every time your laptop wakes-up, it takes agonizing seconds to find a dynamic IP, to avoid this, assign it a fixed IP. Open the local network properties, enter 'Tarkan Connection' instead of 'Default Local Connection', double-click "Internet Protocol', set address to 169.254.213.29, network mask to 255.255.0.0, leave the rest blank. It now takes 4 seconds for Tarkan to talk to Cantar.

Connections

If the Cantar motherboard is CM2.6+ (the ID appears under the white sheet in the HD housing, and in TECHSET.23 'Hardware ID'), CantaRem is connected to Cantar through its SubD15 pin-2. Use a 'SubD15 to Lemo8' cable (Aaton ref. 594 4090).

If the motherboard is earlier than CM2.6, the SubD15 pin-2 is not internally connected to the ASCII port; you must use a 'SubD 15 to Lemo 8+Lemo 5' Y cable (ref. 594 4191), and connect the Lemo 5 plug to the Cantar timecode-in Lemo5 socket.

• To gang two CantaRems, use the Fischer4-Lemo8 cable (ref. 594 4092). Fischer4 to the first, Lemo8 to the second (read 'With Cantarem' p.28, 'RemFaders' below and p.32).

A Lemo 5 TC In/Out (by LTC and ASCII)

B USB PS2 keyboard

C Fischer 4 PDA power & CantaRem #1 to #2

D Lemo 8 Connection to Cantar & CantaRem #2 to #1

• The CantaRem ***USB socket*** (80mA max. @5V) can't power a PDA; it can feed a PS2 keyboard only. But you can use the +Batt delivered by the Fischer4 socket: terminate the PDA delivered car-lighter converter (Batt –>5V) cable with a ***Fischer4M plug*** (pin1=Gnd, pin4= +Batt [100mA max.]).

RemFaders' assignment

• If AUDIO/TC.23 'CantaremCom' is set to '**Non active**', AUDIO/TC.24–39 assignments (p.32) are not accessible; to modify them before hand, set AUDIO/TC.23 to '**Auto-select**'. To modify assignments with CantaRem, press one of the [ctrl] keys, '***Assign***' appears on the top row of the Cantar rectangular screen, press and hold a RemFader key (1 to 8), the RemFader's number is displayed on the middle row; use the [jog] or [>] to browse the Cantar faders displayed on the bottom row: **unused, mic1, mic2, mic3, mic4, mic5, line1, line2, line3, line4, track1, track2, track3, track4, track5, track6, line-out, foldback.** The assigned fader is the one displayed just before releasing the key.

note: Cantarem no longer links lines1-2 or lines3-4; a greater choice is offered in AUDIO/TC.11.

• To control several mic or line input faders from the same actuator, link them in the usual AUDIO/TC.10 – 11 way and assign the actuator to the master only. The slaved *mic faders* can be used for the 'balance', whereas the slaved *line faders*, totally deactivated, duplicate the gain of the master.

• The last assignment of a CantaRem RemFader previously linked to another Cantar fader cancels the former link. All Cantar physical faders are re-enabled as soon as CantaRem is disabled by setting AUDIO/TC.23 'CantaremCom' to '**Inactive**', or by unplugging the cable. Stored assignments are displayed on AUDIO/TC.24 – 39.

• To activate the solo monitoring of a mic, line or track, press the key of the RemFader controlling it

• The 0.6 second delay of Cantar's line faders is more apparent when they are driven by linear actuators which, unlike the Cantar onboard faders, can be swept from 0 to -60dBFS in a wink.

• Put Cantar's [MainSelector] on STOP to initialize its clock by ASCII from an OriginC.

• Cantar remote: [MainSelector] on **PPR**, set AUDIO/TC.23 'CantaremCom' to '**Auto-select**'. Press both [ctrl] keys, and press [2] Cantar goes to **TEST**, [3] to **PPR**, [4] to **REC**. When 'CantaremCom' is set to '**Forced**', press [1] to **STOP** is also available.

Design considerations

• CantaRem's Penny+Gilles faders are feather-smooth, but not as resistant to the elements as Cantar's magnetically driven faders. That is why CantaRem is built with structural transparency, allowing sand and water to freely flow through.

• The precise gain value of each fader is displayed on Cantar's rectangular screen, the actuators' 0 to 9 scale is only a quick positioning aid.

CF caddy ref. 20 120 70 V1
black faceplate for CF type-1 only (3.3mm opening)
white faceplate for CF type-1 & type-2 (5mm opening).

CF caddy ref. 20 120 70 V2 (with retaining screw)
white faceplate for CF type-1 & type-2 (5mm opening).

Faster than DVD-RAM disks, CF cards help you get your backup at wrap, even more so if you activate the 'Idle Bckp' mode at the beginning of the session. Select 30MB/s Sandisk, Transcend or Lexar cards (64GB max.).
*Cantar firmware **v2.44** or newer must be installed.*

CF caddy installation

Extract the DVD caddy (if any), remove retaining screw 'A' *(see p.5)*, introduce a ballpoint pen into hole 'B' and push the caddy toward the front opening where you can grab it. Introduce the CF caddy and (if V2) tighten the retaining screw.
note: V1 is held in-place by spring tension only.

CF card handling

Don't (un)plug a CF card while the caddy's LED is 'ON'.
To extract the card, grab it by its sides with your thumb and index as levers taking support on the caddy faceplate.
Useful tip:
once a CF has been duplicated and re-formatted, i.e. available for backup again, stick a 'Ready to Record' tape stamp over its connector. To insert it into the caddy, the tape must be pulled off, the card becomes 'exposed' and should not be used in any other device on set.

FAT 32 formatting (FAT32, the MS ubiquitous format !)
First insert the CF card, go to SESSION.05 'Frmat Cdy-A' (UM p.36). press [ok], '**CF Format, Shift+Red**' is displayed, the caddy is not powered, the red LED is 'OFF'.
Then press and hold [shift] [red] buttons together, keep them pressed until '**Formatting**' appears. '**Done**' is displayed when finished. The 'one-platter' icon appears on the right circular screen to indicate the CF card is ready for use. Press [ok] or go to [STOP].

```
SESSION   05
Frmat Cdy-A
CF card
```

note: *to display the card capacity in MB, go to BACKUP.06 'Media Type', select CF card [ok], and press [EYE].*

One thing physical to check: when the Cantar is on, does the CF Tray's LED stay on at all times? If so, then that will keep the Cantar from formatting the CF. The red LED should only come on when the Cantar is accessing the CF tray (read/write/format).
Michael Paul Technical Director Location Sound Corp USA

backup At Call

Go to BACKUP.10 'Media Label', depending on the volume of the files to be copied, the number of requested cards of the *same capacity** as the one inserted into the caddy is displayed, e.g., if 6GB of data are to be copied, and you insert a 4GB CF, the screen will show **1/2**. Activate BACKUP.14 'Run Bckp'. Once done, go to SESSION to power off the CF caddy, then remove card #1 and insert card #2. Go back to BACKUP.10, select **2/2**, go to BACKUP.14 'Run Bckp'.
* If you need several cards to perform the backup 'At Call', it is recommended to use the same capacity cards.
note: *go to BACKUP.06 or BACKUP.14, and press the [EYE] button to activate the caterpillar displaying the remaining space.*

Idle Backup

TEST position. Upon successful completion of each take copy, an '**Idle Bckp OK**' message is displayed. If there is insufficient space to record a file, the process stops and '**Card full**' is displayed. Go to [STOP], remove the card and insert a new one. Idle Bckp will resume upon going to [TEST].
note: to display the free space go to [PPR] and back to [TEST]; after a few seconds the 'I.Free' message displays the card available space in MegaBytes.

Functions

• Remotely controls Bluetooth equipped Cantars • Sets input and output routings • Displays modulometers and fader gains • Edits scene ID, take-gender, take#, comments and track-names.

Arcan-W runs under Windows Mobile 5 and 6. Arcan-P for Palm-OS is no longer available.

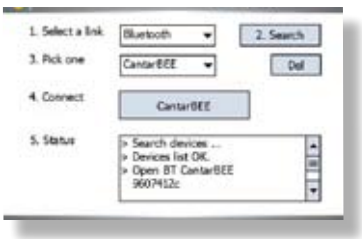
Installation

The Win-Mobile 5/6 PDA must feature a 640*480 VGA screen and an MS Bluetooth stack, not a Broadcom stack. *e.g. HTC Universal i.e. HTC X7500 / Qtek 9000 / iMate Jasjar / O2 XDA Exec / Orange M5000. DELL Axim-51v, Fujitsu Loox N560.*

Download '**rcan_214.cab**' from the Aaton web site, copy it into a folder of the PDA, and execute.

Connection to Cantar

Cantar side Set TECHSET.17 'Serial Com' to '**Bluetooth**'. The 3m range Cantar transmitter is low power (Idle: 0.1mA, Connecting: 4mA) and may remain active at all times.

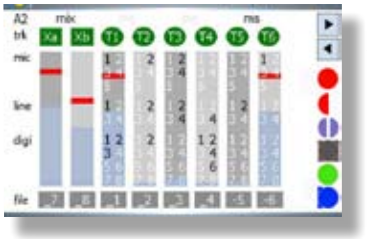


PDA side Click Arcan's icon in the PDA 'programs' screen. **1. Select a Link:** Bluetooth. **2. Search:** found Bluetooth devices are shown in the '**Pick one**' pulldown menu; click the ID for the Cantar you want to store in the PDA memory. **3. Pick one:** the list of Cantar IDs in memory is shown; click the desired one. **4. Connect:** the latest Cantar ID will show at next connection.

5. Status: for maintenance engineers.

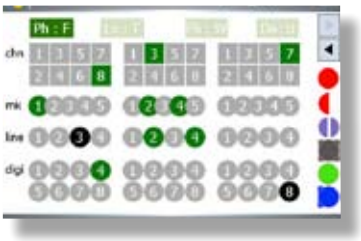
Working Screens

See the complete Arcan-w user's instructions on http://www.aaton.com/products/sound/arcan/index.php



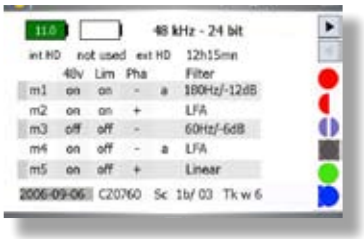
1 In-Grids

track (dis)-arming (file rank becomes light gray), m-s status, inputs to tracks routings can be modified in STOP position.



2 Out-Maps

Left/center/right. Recorded inputs appear in green circles; the non-recorded, sent directly to outputs, appear in black. Outputs mapping can be modified in STOP position.

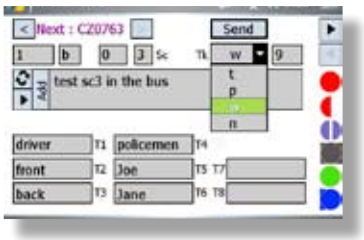


3 Physical parameters

•***top:*** battery voltage, sample rate, bit-depth, internal/external disk recording time.

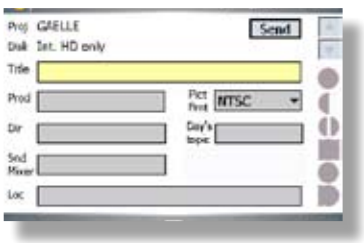
•***middle*** on STOP position: phantom, limiter, phase, high-pass filter; on TEST, PPR, REC: fader gains.

•***bottom:*** date, filetag, scene ID, take-gender, take#.



4 Metadata editing

Scene, take, take-gender, comments, and track-names with auto completion and memorized text insertion are edited in REC, PPR and BROWSE. To erase older comments, go to the bottom-left field, toggle from 'Pen' to 'Trash', your stored comments appear over a red background; click to erase.



5 Sound-Report editing

Arcan-w is a great helper to enter and modify the Sound-Report's headers. Several entries per day are allowed. A new .ALE page, a new .CSV page and a new Sound-Report page is opened anytime a header item is modified.

OriginC+ master-clock

To switch-on press [#]. Enter *all of* the Prod ID digits, Date and Time. Press [#] to scan the display. All fields being set, press [*] to start counting.

Plug the Lemo 5 into the TC socket of the cameras or recorders to set.

To shut-down, press [#] for five seconds until 'Stopped' appears.

ASCII comm

To initialize a machine with the 'fps agnostic' Ascii protocol, press [#]. The answer back should be "good 00.0".

To later check a machine, press [#], the answer back is "good" "fair" "bad" or "diff-time", followed by the amount of drift in frame tenths.

SMPTE LTC comm

To select 24, 25, 30fps SMPTE LTC out, press [*] [4], then [#] to confirm.

To initialize a machine with the LTC output, simultaneously press [#] [0].

To get/check an LTC signal, press [*] [2].

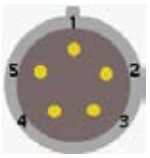
To generate a continuous LTC, e.g.,to record timecode on an audio track of a non-TC recorder, press [*] [1].

Technical Specifications

•1 ppm TCXO, ±1/2 frame in 4 hours •6 hour auto-shutoff • 150 hours on a Li-Ion 9V battery. •180x90x20mm. 375gr.

Order an Aaton L5-XLR3-SCH extension cable for connection to LTC XLR-3 sockets.

.



Lemo 5 plug

1-Gnd 2-LTC out

3-ASCII in/out 4-NC

5-LTC in ref: PHG OB-305-CLLD42

GMT, low-power LTC generator

Momentarily initialized from an ASCII master-clock or any LTC source (whatever its frame-rate), and attached to a camera, its (internally adjustable level) LTC-out is sent to the A3 audio track. This bonds the Video-TC of the camera to the free-run Audio-TC also running in Cantar and other cameras on the set. During image import, the NLE extracts this Audio-TC to 'Autosync' images and audio (p.46).

Emergency master-clock

Turn 'ON' GMT, press the [white] button to initialize the clock from hour 01. The date generated by a brand new GMT starts at Y92/M01/D01, it is incremented by one day at each power 'ON' followed by a [white] button initialization. The "Year/Month/Day" is stored in non-volatile memory, resulting in a *never-twice-the-same date* from a given GMT.

Remote roll (GMT-u only)

• Whatever the initialization mode, pressing the GMT-u [white] button for more than three seconds makes the LTC output freeze on the last TC value (the four frame-rate LEDs blink). A short push on the [white] button unfreezes the LTC. Sent by wire or radio, this signal stops and starts the Cantar recording (p.21).

Technical Specifications

• 150 gr • 63x123x26mm • 9V battery (150 hours working) • 7 to 18 VDC ext. supply • 6mA consumption • 1 ppm clock • LTC-out: -20 to -60dBu & TTL

Fps selection

REAL TIME: 1 = 24, 2 = 25, 3 = 29.97DF, 4 = 30; selected fps LED flashes.

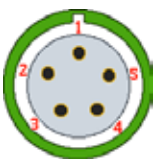
DRIFT TIME: 5 = 23.98NDF [24 –0.1%], 6 = 29.97NDF [30 –0.1%]; three LEDs, other than the selected fps, flash.

Connections

- Momentary initialization is done through the Lemo5 socket. *GMTs delivered Lemo5 cable: Gnd blue, LTCadj. white, LTC TTL red.*

- Permanent LTC generation to a video camera should preferably go through the Fischer4 which lets the camera +7/+12V be used instead of the internal 9V battery.

GMT-u delivered Fischer4 cable: Gnd blue, LTCadj. white, Power-in red.



Lemo 5

1-Gnd 2-LTC in

3-ASCII in/out

4-LTC out, adj. level

5-LTC out, TTL level

Fischer 4 (GMT-u only)

1-Gnd 2-[White] button

3-LTC-out adj. 4-Power in

(Fischer 4 plug ref: S102A053130

Majax

A free Aaton application devoted to the treatment of Cantar files. Works under Mac-OS and Windows XP.
http://www.aaton.com/documentation/

Plays ten tracks, edits metadata, converts WAV to BWF.

- Through the laptop built-in audio card, Majax plays ten tracks with ±12dBu level and pan adjustments.
- Decodes M/S to L/R.
- Edits scene, take, take-gender, track-names, DayStamp (audio reference) and recordist's comments within the Broadcast Wave metadata (iXML) fields.
- Starts 'Play' from AutoSlate marks and user's tabs.
- Mixes eight monophonic tracks into two, rotates then interleaves them into polyphonic files.
- Converts any WAV file into a Cantar 'Play&Rec' compatible BWF file (see p.25).
- Corrects Cantar audio files which have been aborted by a power interruption.

Generates frame-accurate Sound-Reports

Gathering the iXML metadata generated by Cantar and edited by the Operator, Majax builds a Sound-Report saved in PDF format to be mailed to the Post Production team. It also builds an ALE (Avid Log Exchange) file which, when imported before the audio files, brings the metadata (e.g. track-names), into Avid MCs which can't read the iXML chunk.

note: to edit UDF formatted DVD-RAM discs with a Mac, install SoftArch's WriteUDF! http://www.softarch.com which works with OS-X 10.4 only. To get a v10.6 update, mail to support@softarch.com.

In a Mac equipped with an 'E' SuperDrive, replace it with a genuine Matshita UJ 875, or connect a standalone DVD-RAM burner, or use the TECHSET.01 '**Unmount**'-ed Cantar internal DVD burner itself.

IndawPass

Tell your Post Production manager that Aaton's IndawPass is the ***fastest Tape-to-Tape and Audio/Video Sync*** machine in the industry when it comes to syncing audio files to DPX, or video images.
http://www.aaton.com/products/post/indaw/index.php

Fps agnostic

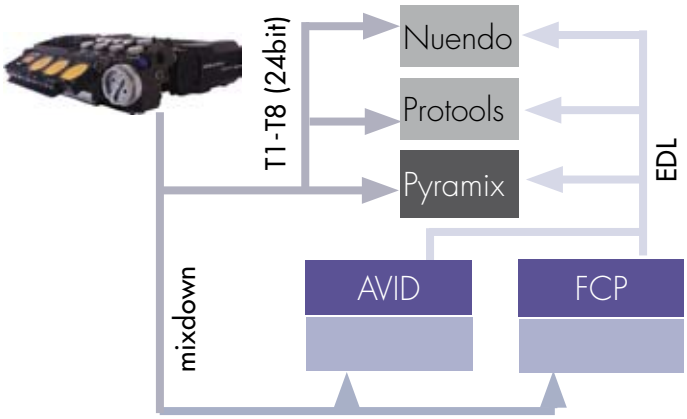
IndawPass solves all the problems post-production facilities may encounter in the maze of audio-video-film speeds and standards.

Transfer-list cleaner

IndawPass also rejuvenates the ALE transfer lists sent to the Avid with better Keycode matching than the telecine originals.

The PostChain

Distribute the '**Cantar-Post-Chain**' to the Post people; it will help them considerably.
http://www.aaton.com/documentation/



Titan-3

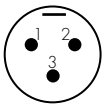
For autoconforming with Titan-3 ***FlashConform*** and FixSync using the Cantar filetags, get the cantar.tsc rules from Synchro Arts http://www.synchroarts.com or send an email to aaton-support@aaton.com.

By their very nature the Aaton filetags eliminate all TC overlaps, and this is a huge advantage over all other references!

note: Titan-3 does generate sample accurate audio conformation lists, provided the ***FixSync*** process is performed immediately after the EDL driven FlashConform operations.

Connectors

as seen from the outside (user's side)



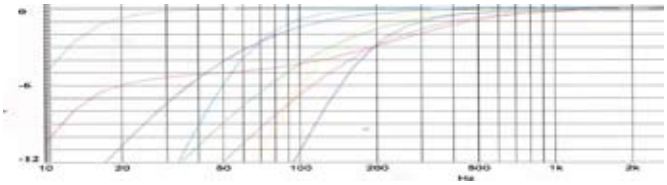
Mic XLR 3(F)

Symmetrical transformer (0dBu/+24dBu w/ pad) on mic.1, mic.2, mic.5 on XLR 3:
1 Gnd, 2 Hot, 3 Cold

Mic XLR 5(F)

Symmetrical transformer (0dBu/+24dBu w/ pad) on
mic.3 (Left or M): 1 Gnd, 2 Hot, 3 Cold
mic.4 (Right or S): 1 Gnd, 4 Hot, 5 Cold

Mic high-pass filter curves



Line-in XLR 5(F)

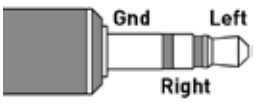
Asymmetrical (4.4k ohm, +10dBu)
line-in.1 & line-in.3: 1 Gnd, 2 Hot, 3 Cold
line-in.2 & line-in.4: 1 Gnd, 4 Hot, 5 Cold
The 'Cold' to 'GND' link is done at the line amplifier IC level and should not be duplicated anywhere else.

Line-out XLR 5(M)

Symmetrical, –10dBu out @ –18dBFS on track
(*most digi-cameras line-in level is –10dBu, not 0dBu).*
line-out.1: (stereo Left)
1 Gnd, 2 Hot, 3 Cold
line-out.2: (stereo Right)
1 Gnd, 4 Hot, 5 Cold

Foldback TA-3(M) Mini-XLR 3

Asymmetrical, –16dBu out @ –18dBFS on track.
1 Gnd, 2 Left, 3 Right [3.5mm Jack on earlier Cantars]



Phones 1/4" jack

Can drive 8 ohm speakers up to 2Vrms

Timecode-in/out LEMO 5(F)

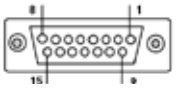
1 Gnd, 2 LTC-In, 3 ASCII, 4 nc, 5 LTC-Out

Power XLR 4(M) (+16.6V max.)

1 Gnd, 2 nc, 3 +Batt (Cantar#>268), 4 +Batt
note: Battery internal wiring:

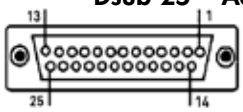
- Aaton **Li-Ion: 14.8V-out** to pin-3 and through a Schottky diode to pin-4 (protection against NiMH chargers).
- Aaton **NiMH: 12.5V-out** to pin-4.

Dsub-15 Remote & Sync



1 Batt –	general Gnd	7 Rx	and 14
2 ASCII–In	for Cantarem	8 Tx	and 15
on boards CM2.6+, p.53		9 Batt + out	250mA max.
3 LTC–Out	AUDIO/TC.17, p.32		beware ground loops!
4 Wordclock–In	p.28/31	10 LTC–In	
5, 6, 12, 13	reserved	11 Record Tally	p.23

Dsub-25 Aes-In/Out Tascam TD88 standard



AES inputs				AES outputs			
CHANNEL PAIR	HOT +	COLD -	GND	CHANNEL PAIR	HOT +	COLD -	GND
1-2	24	12	25	1-2	18	6	19
3-4	10	23	11	3-4	4	17	5
5-6	21	9	22	5-6	15	3	16
7-8	7	20	8	7-8	1	14	2

AES42 Mode-1 (on special order) 9V, 100mA power for Schoeps CMD-2U digitizer, or170mA for CMIT-5U mic.
AES–in 1 & 2: 25 Gnd, 24 Hot, 12 Cold
AES–in 3 & 4: 11 Gnd, 10 Hot, 23 Cold
XLR-3 digital: 1 Gnd, 2 Hot, 3 Cold
note: never apply phantom power to unbalanced I/Os, this can result in IC damage.
AES42 Mode-2 is not supported.

Accessories

12dB Line–Out Booster

Aaton ref. 20-270-50: two 12dB gain transformers make the XLR-5 Cantar line-out deliver 0dBu at -18dBFS track level.

Dsub-15 to keyboard

Aaton ref. 59-681-91:
5V @ 60mA max. power supply and RS232 <-> PS2 translator in a Dsub-15(M) housing terminated by a USB plug.
note: only use *PS2-protocol compatible* QWERTY keyboards connected through USB-like connectors (current under 60mA), such as Keysonic ACK-595 C+ (quieter than Cherry G84-4100 PTM EU), or an L3 wrist keyboard http://www.l3sys.com/wristpc/wristpc.html.

DVD-RAM shield

A mu-metal shield must be fastened to DVD-RAM drives installed in pre #240 Cantars.

NiMH, black

[1]
ref. 04
280 10
w/. lug &
Lemo6 for
XTR, 35-III

[2]
ref. 20
110 50
w/. rear post
(no Lemo6) for
Cantar.

Li-Ion, gray

[3]
ref. 04
280 20
w/. lug &
Lemo6* for
Penelope

[4]
ref. 20
110 55
w/. rear post
(no Lemo6) for
Cantar.

NiMH 12.5V for XTR, Xtera, and Aaton 35-III cameras which can't handle the 16.5V start up voltage of Li-Ion batteries.

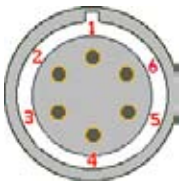
The **Camera battery** housing [1] carries a retaining lug and a 10A fuse protected Lemo6 socket for high peak current accessories, e.g. follow focus motors.
The **Cantar battery** housing [2] carries a rear post which holds the battery flush to the Cantar case, ensuring EMC shield continuity.

Technical specs
- 12.5V, 3.8Ah
- thermal sensor warns charger if cells reach 60°C
- size 145*73*38mm • weight 720gr
- metallic case, user recellable

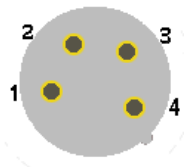
Li-Ion 14.8V, lighter and more powerful than NiMH batteries (62Wh vs 45Wh), a *must* to drive Penelope cameras with 14.2V low batt. warning.

The **Camera battery** housing [3] carries a retaining lug and a 10A fuse protected Lemo6 socket for high peak current accessories, e.g. follow focus motors.
The **Cantar battery** housing [4] carries a rear post which holds the battery flush to the Cantar case, ensuring EMC shield continuity.

Technical specs
- 14.8V, 4.2Ah (6.4Ah blue case)
- pin4 power through protection diode against NiMH chargers
- size 145*73*38mm • weight 560gr
- metallic case, factory recellable

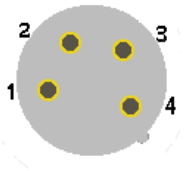


Lemo 6 socket
outside
1. – batt
4. + batt
6. start *



XLR4 plug, NiMH
1. – batt
2. thermal sensor
3. thermal sensor
4. + batt

** an engraved white dot reveals a **camera** battery wired to transmit a 'start' signal (short to ground).*



XLR4 plug, Li-Ion
1. – batt
2. start *
3. + batt, direct
4. + batt, thru diode

ref. 04 220 20

ChaScot can simultaneously charge two 14.8V, 4.2Ah Aaton Li-Ion batteries in five hours.

battery on the charger: ref. 20 110 55
(rear post, no Lemo6 socket) for *Cantar.*
battery on the floor: ref. 04 280 20
(lug and Lemo6 socket) for *Penelope.*

To trigger the charging cycle, press the square button for about four seconds until the control LED turns off, then release it.

Technical Specifications:

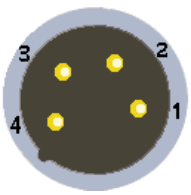
- power-in 110-220VAC, 50/60Hz
- power-out 16.8V 2A per channel
- no fan, totally silent
- size 160*94*90mm
- weight 805gr.

Battery charge LED status

2h charge to 85%	**reddish**
3h charge top-up	**amber**
fully charged	**green**

ChaScot XLR4 socket

1 – batt
2 nc
3 + batt (16.8V)
4 nc



ref. 04 220 10

Cha·Li simultaneously charges two 14.8V, 4.2Ah Aaton Li-Ion batteries.

On the floor: a *Penelope* battery, ref. 04 280 20 (lug and Lemo6 socket). Plugged into the charger: a *Cantar* battery ref. 20 110 55 (rear post, no Lemo6 socket).

Two hour charge to 90%, plus one hour top-up.

Battery charge status

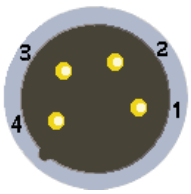
Green colored LED
Charging
Charged
Red colored LED
Faulty
No batt

Technical Specifications:

- power-in 110-220VAC, 50/60Hz
- power-out 16.8V 2A per channel
- fan activation @ internal 45°C (around 30dBA noise level)
- size 180*94*60mm
- weight 805gr

ChaLi XLR4 socket

1. – batt
2. nc
3. + batt (16.8V)
4. nc



This quick guide, originally compiled by Scott J. Farr, should be kept in the Cantar bag.

0 Terminology for New Cantarites "In", followed by STOP, TEST, PPR, REC, PLAY, BROWSE, OUT-MAPS, IN-GRIDS, AUDIO/TC, TECHSET, SESSION, or BACKUP, means to turn the [MainSelector] to that position (p.10 & p.26).

1 Power On Press either [batt] button for 3 seconds. To switch batteries, press a [batt] button for 3 seconds. To activate both batteries, press both [batt] buttons for 3 seconds.

2 Power Off In STOP, press the [shift] [batt] buttons for 3 seconds.

3 Check battery anytime Momentarily press the [batt] button for the battery you want to check.

4 Clear flashing 'int c' Press [shift] [TC jam] (p.13).

5 Jam to external TC Press [TC jam] (p.14).

6 False Start take erasure Don't rotate the [MainSelector] past PPR; while in PPR press [shift] [silver] then [jog] to 'Erase file'. Press [ok] then [jog] to 'Yes', and press [ok] (p.20).

7 No Good take While recording, repeatedly press the [red] button until 'n' (**n**o good) is displayed. This file is stored in the trashcan. The next take will have the same scene and take # (p.22).

8 Revive trashed files In BROWSE, [jog] to select 'TRASH'. [jog] to select the filetag (p.25).

9 Erase comment line Press [shift] [esc] (p.6).

10 Choosing take gender t = **t**ime synced, p = **p**ick-up, w = **w**ild track, a = **a**nnounce, n = **n**o good. Select choice in PPR or REC by pressing the [red] button (p.19).

11 Arm/Disarm a track In TEST, pull [SoloMidPan] to the Operator. Press [shift] + a [track-solo] button above the track fader you want to Arm/Disarm (p.18).

12 AutoSlate Press [shift] [silver] within six seconds after each slate clap. The slates generated by a multi-camera shoot are labeled SA, SB, SC, etc. (up to 7) (p.23).

13 Tone In TEST, PPR or REC, press [shift] [red] and release [shift] first. To cancel, press [shift] (p.22).

14 View 'Record Time' or 'Scene Info' while in REC, press [shift] [eye] to toggle rectangular screen bottom row (p.8).

15 Slate Mic In TEST, PPR or REC, press [black] for left channel, double press [black] for right channel, or press [shift] [black] for all armed tracks and outputs (p.22).

16 Line-out level In TEST, press [shift] [silver] to access the 'LVL&DELAY' menu. [ok] to access current value. [jog] to change. [ok] to accept new value. You can activate Tone or use the slate/talkback Mic while making adjustments (p.18).

17 Foldback level In TEST, press [shift] [silver] to access the 'LVL&DELAY' menu. [jog] to 'Foldback Lvl'. [ok] to access current value. [jog] to change. [ok] to accept new value. You can activate Tone or use the Slate Mic while making adjustments (p.18).

18 Lock/Unlock the faders For 5 seconds, press each [link-lock] button between the Mic-1 and Mic-2 faders and the Mic-3 and Mic-4 faders. Watch the rectangular screen. This will reset upon power down or rotating the [MainSelector] past the #6 position (p.22).

19 Pre-Record metadata entry In PPR, [jog] to each metadata item. [ok] to enter. [ok] when done to accept new data. [shift] [jog] accelerates letter scrolling x10 (p.19).

20 Post-Record metadata entry Don't rotate the [MainSelector] past PPR; while in PPR press [shift] [silver] to get to 'PREV' or 'EDIT'. [jog] to each metadata item. [ok] to enter. [ok] when done to accept new data. [shift] [jog] accelerates letter scrolling x10 (p.20).

21 Playback last take In PLAY, using [jog], you can fast forward and rewind through the take. [shift] [silver] starts the playback at the slate marks. [shift] [jog] accelerates speed x10 (p.24). (More commands on p.54)

22 Formatting HD (FAT32) In SESSION (2 o'clock), [jog] to '04 Disk Format'. [jog] to 'Yes'. Hold [shift] [red] and connect the FireWire cable to the HD. When 'Formatting' is displayed, release the two buttons. (p.36).

23a Formatting CF card (FAT32) In SESSION (2 o'clock), [jog] to '05 Frmat Cdy-A'. Insert the card, hold [shift] [red], when 'Formatting' is displayed, release the two buttons. (p.36).

23b Formatting DVD-RAM (UDF1.5) In SESSION (2 o'clock), [jog] to '06 Frmat Cdy-B'. [jog] to 'Yes'. Hold [shift] [red] and insert the DVD-RAM disc. When 'Formatting' is displayed, release the two buttons (p.37).

24 Tracks 7/8 In IN-GRIDS (5 o'clock), press [ok] to access routings. [jog] to select, [ok] to accept (p.28).

25 Sound Report on internal HD Before copying files from the Internal HD, go to BACKUP (1 o'clock). [jog] to '11 Snap Report'. Press [ok] (p.41).

26 Sound Report on Ext device Before ejecting the DVD-RAM or disconnecting the Ext HD, go to BACKUP (1 o'clock). [jog] to '12 IdleSndRpt'. Press [ok]. Select 'Yes'. then [ok] (p.41).

27 Right Modulometer source In TEST, PPR or REC, the [eye] button toggles between tracks 5/6 or tracks 7/8 for display (p.8).

28 Rectangular screen top line In TEST or REC, use the [jog] to select: battery levels, available recording time, remaining storage space or mixdown modulometers (p.8).

29 Input Grids In TEST or PPR, push the [SoloMidPan] slider toward the battery. Press [routing] then rotate the silver [config] crown (p.9) to select a preset. Press [routing] to retain the choice (p.18).

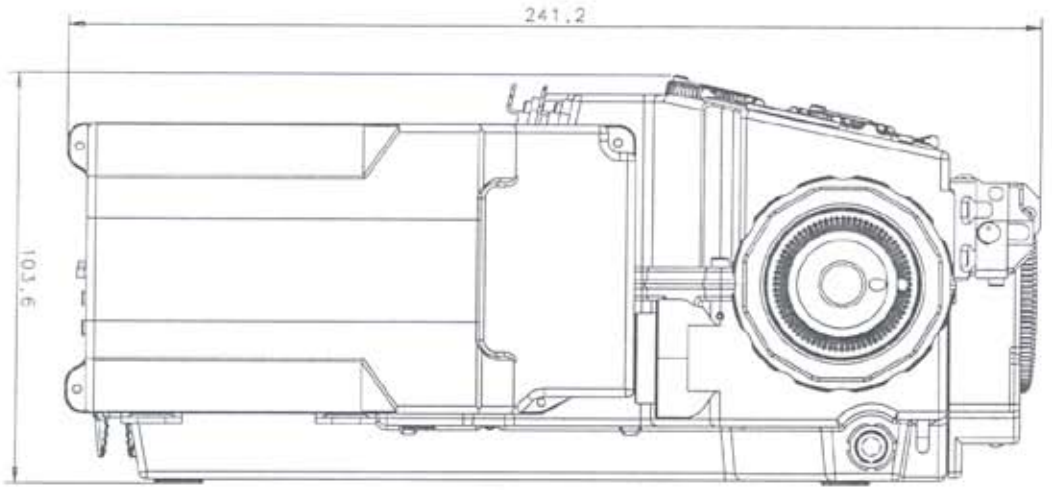
30 Output Maps In TEST or PPR, pull the [SoloMidPan] slider toward the Operator. Press [routing] then rotate the black [monitor] crown (p.9) to select which output to view. Rotate the silver [config] crown to select a preset. Press [routing] to retain the choice (p.18).

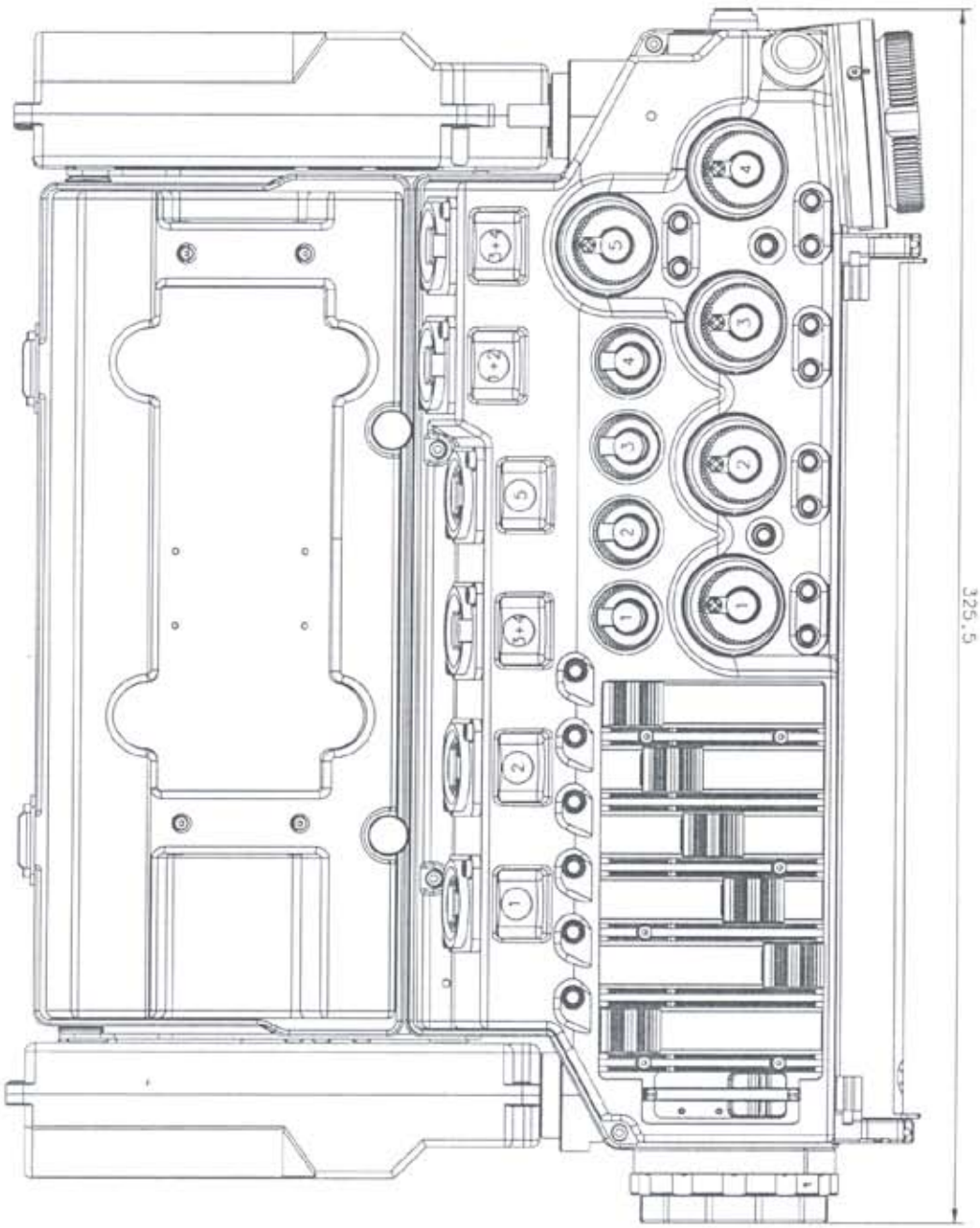
31 Setup files Save a configuration setup, on the HD, for each of your regular workflows (e.g. video, film, EFX, etc.). Go in and out 'REC' right after the setup saving to attach an auto-label to the file; you will re-label it when the HD is mounted to your Mac or PC. Setup files can be emailed and used in any Cantar (p.33).

32 Tarkan Turn off Bluetooth, WiFi and Firewall, quit Skype and Widgets on your PC (XP, Vista) or Mac (OSX 10.4+). In PPR, connect CAT-5 (RJ-45) cable and wait for up to 60 seconds on PC or 10 seconds on Mac before clicking the Tarkan 'connect' button (p.51).

33 Help Press the [eye] button while in any menu for a description of its features.

34 Playback commands (p.24)
[ok]: start/stop & send to cue-in.
[shift] [ok]: display digitization parameters and TC fps.
[<] or [>]: go to prev/next play-card (or file, if no card).
[shift] [<] or [>]: go to prev/next play-file.
[esc]: pause/resume.
[shift] [esc]: continuous file-to-file play (not in BLUE-PLAY).
[black]: cue-in (volatile in PLAY).
[shift] [black]: send player to start of take.
[red]: cue-out in BLUE-PLAY; erases cues [jog]-ed to 00:00.
[shift] [red]: hide play-card from Play&Rec list.
[silver]: send player to user-entered markers.
[shift] [silver]: send player to AutoSlate markers.
[jog]: scrub audio.
[shift] [jog]: accelerate scrub x10.
[shift] [eye]: toggle filetags&duration vs. scene&take (pref. stored until Cantar is turned 'OFF'). N/A in BLUE-PLAY.
[TC jam]: display player's relative-TC or absolute-TC.





CANTAR 30/09/03

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