









Appendix B - Therms and Symbols

Electrical Symbols

3~	Tree Phases
I	IN - Connected to Mains Power Supply
O	OUT - Disconnected to Mains power Supply
L1	Mains power Supply Phase 'R'
L2	Mains power Supply Phase 'S'
L3	Mains power Supply Phase 'T'
	High Voltage Hazard
	Touch Forbidden while the Equipment is connected to Mains Power Supply
	Protection Ground

General Symbols



CE	CE Mark
	Equipment Type B under IEC601regulation
	Warning, read annexed documentation before operating
	Radiographic Exposure
	Fluoroscopic Exposure
	Ionizing Radiation Emission

Other Symbols

REFER TO USER MANUAL

Appendix C - Identification Labels

Power Rack Type and Serial Identification Label

OEM LOGO	CONTINUOUS POWER		OEM PRODUCT	
	XX	800 VA	OEM ADDRESS OEM ADDRESS	
	INTERMITTENT POWER		MONTH	PRODUCTION MONTH
	XX	YYY kVA	YEAR	PRODUCTION YEAR
	Manufacturer as per 93/42/CEE Odel S.p.A Via Laboratori Autobianchi, 1 Lotto 24/B Desio (MB)-Italy-		CHARGE	
		MAINS	400±10%	
		FREQ.	50 - 60 Hz	
		PHASE	3 ~	
MODEL	R. 306.3X	S/N	NNNN MY	
				

The label is divided into different section:

Manufacturer as per 93/42/CEE
Odel S.p.A Via Laboratori Autobianchi,
1 Lotto 24/B Desio (MB)-Italy-

MANUFACTURER NAME and manufacturer's ADDRESS

MODEL	R. 306.3X
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Equipment MODEL (R306.34, R306.35, R306.36)

NOTE: **THIS IS the Registered and Certified Name of the equipment**, this identifier is always present even if the commercial name choose by customer is different from "Endeavour".

S/N	NNNN MY
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Equipment SERIAL NUMBER

MONTH	PRODUCTION MONTH
YEAR	PRODUCTION YEAR

DATE of PRODUCTION



Equipment Certifying Competent body, and Registered Type

CHARGE	
MAINS	400±10%
FREQ.	50 - 60 Hz
PHASE	3 ~

Mains POWER SUPPLY Characteristics

CONTINUOUS POWER	
XX	800 VA

Average Mains Load Characteristics in Stand-by Mode

INTERMITTENT POWER	
XX	YYY kVA

Peak Mains Load Characteristics in Emission Mode



OEM PRODUCT
OEM ADDRESS
OEM ADDRESS

Customer's Equipment COMMERCIAL NAME and CUSTOMER ADDRESS

NOTE: The Commercial name of the equipment written in this section **IS NOT** an identifier of the equipment.

Control Console Type and Serial Identification Label

If the Control Console C 306.36 used is provided by ODEL S.p.A., the label is the following:

<p>OEM LOGO</p> <p>Manufacturer as per 93/42/CEE Odel S.p.A Via Laboratori Autobianchi, 1 Lotto 24/B Desio (MB)-Italy-</p>	Virtual US OEM ADDRESS OEM ADDRESS	
	MONTH	PRODUCTION MONTH
	YEAR	PRODUCTION MONTH
	CHARGE	
	MAINS	24V=
	POWER	10 W
MODEL	C 306.XX	S/N YYM-NNN
		

The meanings of the field are exactly the same as described in previous paragraph.

Appendix D - Programmable Software Revisions

Operative software version and revision are shown present on the control console during start-up in the low-right box.

Actually the Software Version is unique.

Input Signals

Signal Name	Description	Sw Rev. Up to 16	Sw Rev. 17		
IRP	Potter Reply	Y	Y		
IPR	Preparation Radiography	Y	Y		
ISR	Start Radiography	Y	Y		
IFS	Start Fluoroscopy	Y	Y		
IDS	Door Safety	Y	Y		
ITS	Tomo Slow	Y	Y		
ITF	Tomo Fast	Y	Y		
ITA	Tomo 8 Degree	Y	Y		
ITB	Tomo 20 Degree	Y	Y		
ITC	Tomo 30 Degree	Y	Y		
ITD	Tomo 40 Degree	Y	Y		
IPE	External X-ray Stop	Y	IPF		
IST1	Tube 1 selected	Y	Y		
IS2	Input Spare 2	Y	Y		
IS3	Input Spare 3	Y	Y		
INS	Safety Normal Speed Rotation	Y	Y		
IHS	Safety High Speed Rotation	Y	Y		
IRM	High Voltage Present at 75% of kV	Y	Y		
IPW	DC-Rail Charged	Y	Y		
IUB	Unbalanced Power Bridge Inverter	Y	Y		
NONx	Inverter General Fault	Y	Y		
iec-	Minus Analog input for dose Adjust in Continuous Fluoroscopy	DEPENDING ON WORK WAY SELECTED IN CONFIGURATION OF THE ADJUSTMENT			
iec+	Plus Analog input for dose Adjust in Continuous Fluoroscopy				
icl	Fluoro Current 10V=10mA	RF	RF		
icm	Radio Current medium channel 10V=150mA				
ich	Radio Current high channel 10V=1500mA				
irsf	Small Focus Current Real Value 10V=10A				
irlf	Large Focus Current Value 10V=10A				

Appendix E Dose Area Product (DAP)

Configuration

To all ENDEAVOUR GENERATOR SERIES (40 - 50 - 65 - 65RF) is possible to connect VACUTEC DAP CHAMBER

Dose Area Product

DAP is a device that is measuring the dose exiting from the tube multiplied the collimator open Area, the unit measure is mGray* cmq.

This measuring system is composed by:

- 1) Measuring Chamber that is fitted in the collimator rail
- 2) The Link Cable from chamber to MCU 5906 PCB (Connector J9)
- 3) The Printer TM-U210B type is printing all the exposure data when the preparation button is released, and the fluoro data when the preparation pushbutton is pressed after the fluoro.
Printer is supplied by a transformer given with the printer that must be connected to the standard 230 Vac line.
- 4) The link cable between MCU and the printer; DB 15 MCU (J18) side and a DB25 printer side.

Every chamber is exiting from the factory with a Calibration number (from 0500 and 2000) that must be dialed in the MCU (via NAVIGATOR SOFTWARE) during configuration of the generator. This parameter is NAVIGATOR - Configuration - Tube - Manual menu, on the lower row under the Anode Cooling Curve data there's a parameter identified by the writing DAPk 1000.

The sticker coming out from the printer can be an adesive one and so can be applied on the radiography.

The information printed on the two line of the stikers are:

- 1) Job type FLUORO or PULSED or RADIO or CINE
- 2) tube under duty T1 or T2 or T3
- 3) date GG/MM/AA
- 4) hour HH:MM:SS
- 5) kV value
- 6) mA value
- 7) Radio time or sum of radio time under the same preparation in milliseconds
- 8) dose in mGray per cmq
- 9) Run total time or fluoro time in seconds
- 10) exposure number or exposure number in pulsed fluoro.

Anode heating status in kJ.

Is compulsory that, in EU, the heating is in kJ and not KHU.

For tubes loaded from the library the conversion is automatic, for manual load this parameter must be calculated the kJ measuring unit. If the chart is given in KHU unit, the covention factor is 1/1.33 so $kJ=KHU/1.33$.

Appendix F - Orthopedic Fluoroscopy (Only RF Versions)

Actually this kind of fluoro is present on 03.017 and 16.010 software. Is an intermittent fluoro for orthopedic purposes. mA and kV same as normal continuous fluoro.

This kind of fluoro can be active only with CCD TV chain or with all those chains having Last Image Hold facilities.

Programming is done on working place. So is possible to set the two different fluoroscopies using the same generator, same tube, same TV chain, by enabling one on one working place and the other on another working place. This kind of fluoro is not allowed when you're using a digital system.

By pushing fluoro footswitch a slice of 5 seconds of fluoro is delivered by the generator this is sincerely done to allow the ABS to stabilize the dose, so the generator, even if the fluoro footswitch is pressed, is stopping fluoro exposure for a fixed time (t_{OFF}), at the end of this time slice fluoro exposure is coming back (t_{ON}). Both t_{OFF} and t_{ON} are programmable via NAVIGATOR software.

t_{ON} is shown on the control console display, this number is moveable by its +/- keys. This is an integer number that multiplied by 100 is the fluoro on time plus 150 ms (time required to rise kV and to shot the camera).

t_{OFF} is shown on the control console display, this number is moveable by the +/- keys. This is an integer number that multiplied by 100 is the time with no exposure.

Following waveform show an orthopedic fluoro with:

t_{ON} is equal 2 (350 milliseconds)

t_{OFF} is equal 7 (700 milliseconds)

Channel 2 (upper trace) is fluoro time sent to the TV chain for the image hold.

