

HLS LASER TEST INSTRUCTIONS

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1. INTRODUCTION

These notes detail the optical assembly, alignment and testing of each laser in the HLS range, including the holocamera versions of the HLS2 and 3: the layouts of the various models are shown in Figs. 1-6. A basic knowledge of JKL Series II laser hardware, how to fit flashlamps, etc. is assumed, but further details on such procedures are given in the operator's and the maintenance manuals.

When taking burn spots, care should be taken to avoid contamination of optical surfaces: this is particularly important in the amplifier train where the beam intensities are greater and where a single small speck of dirt can cause a ring pattern of interference fringes on the beam. Tilted microscope slides should always be used in front of the burnpaper, to contain the debris ejected from its surface.

At various stages of this procedure, measurements have to be made and these are detailed in the Test Data Sheets, where there is space for the measurements to be recorded. These sheets must be completed as appropriate for each laser, and then filed under the laser order number, for future reference as needed. The specifications for each laser are detailed in Appendix A.

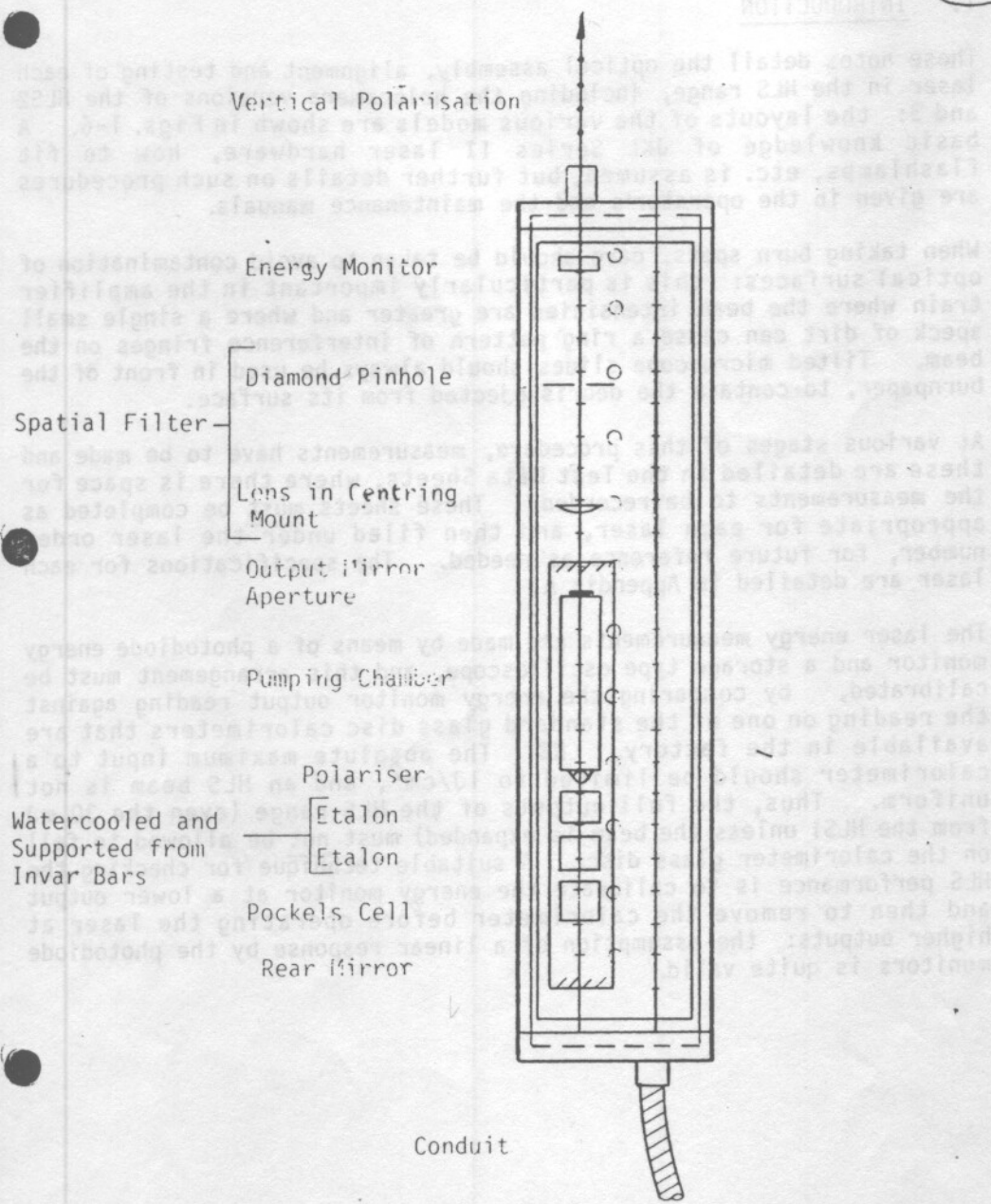
The laser energy measurements are made by means of a photodiode energy monitor and a storage type oscilloscope, and this arrangement must be calibrated, by comparing the energy monitor output reading against the reading on one of the standard glass disc calorimeters that are available in the factory. NB: The absolute maximum input to a calorimeter should be limited to $1\text{J}/\text{cm}^2$, and an HLS beam is not uniform. Thus, the full outputs of the HLS range (even the 30 mJ from the HLS1 unless the beam is expanded) must not be allowed to fall on the calorimeter glass disc. A suitable technique for checking the HLS performance is to calibrate the energy monitor at a lower output and then to remove the calorimeter before operating the laser at higher outputs: the assumption of a linear response by the photodiode monitors is quite valid.

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17-12-84	A
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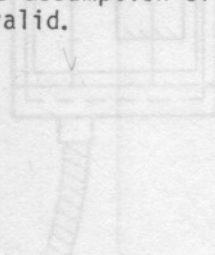
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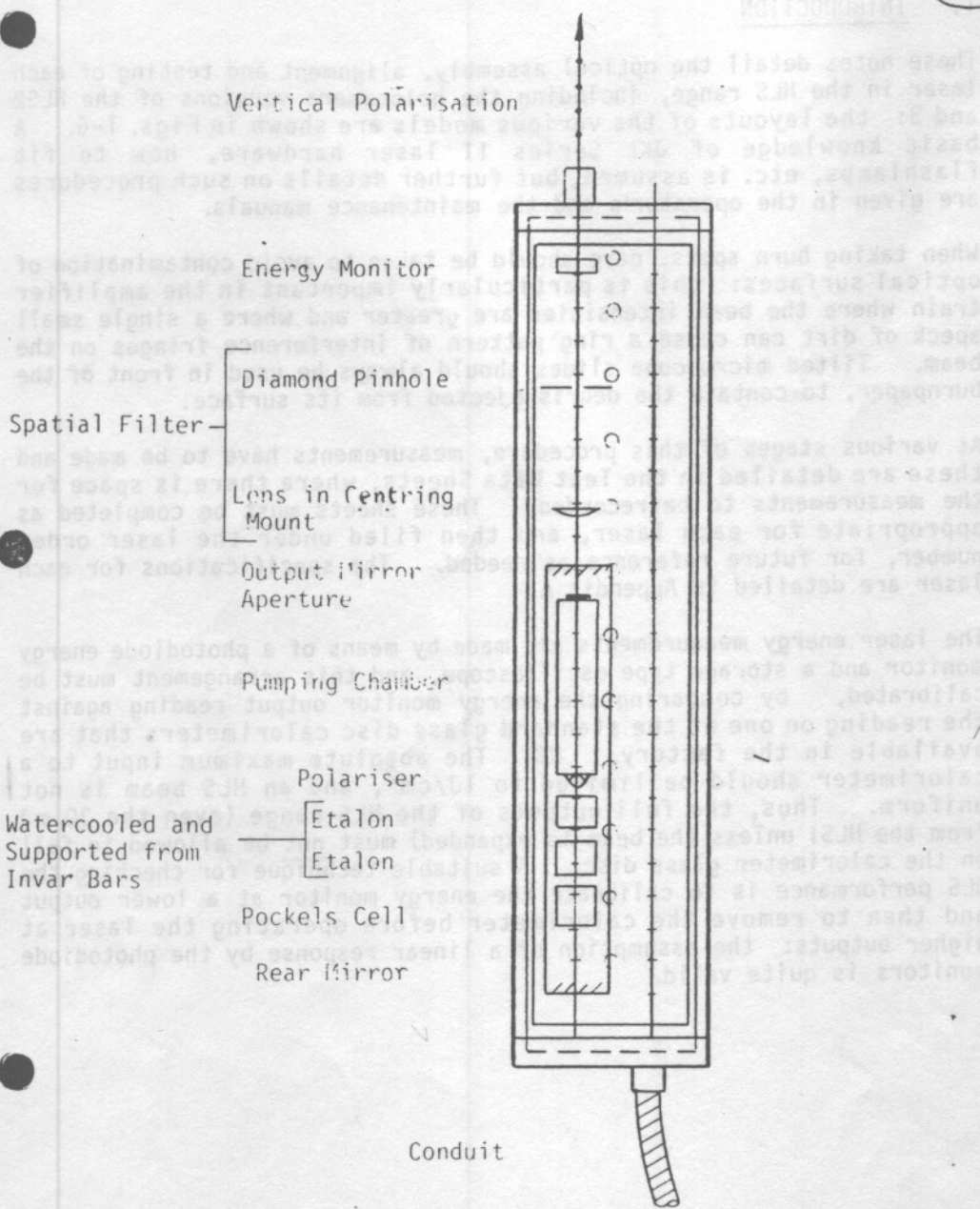
THIRD ANGLE PROJECTION

DIMENSIONS IN MILLIMETRES

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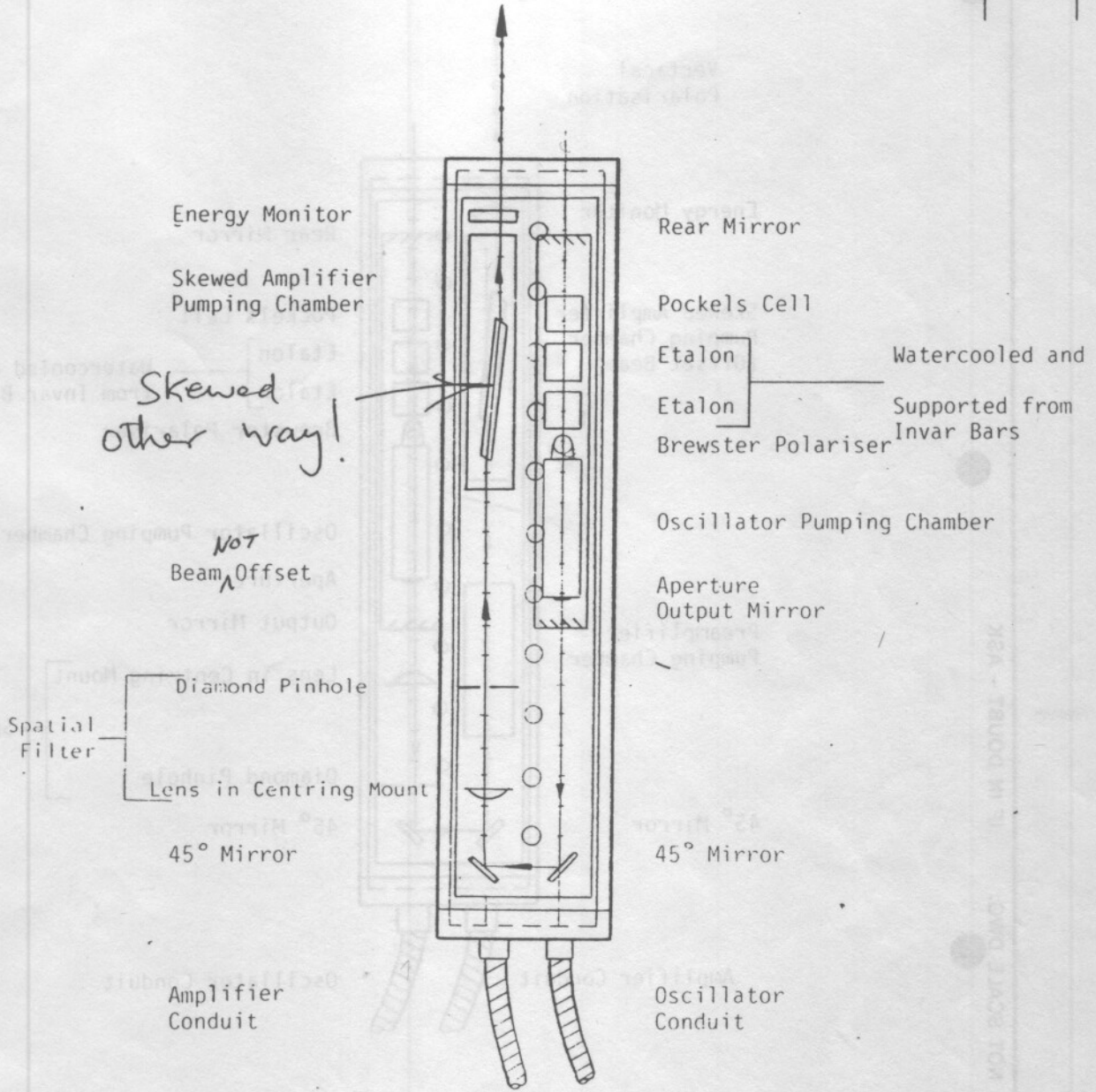
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DIMENSIONS IN MILLIMETRES

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25-3-83	A
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TITLE

COMPONENT LAYOUT - HLS2

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Y.X	+0 -0.1mm	-0 +0.1mm
Y.XX	+0 -0.1mm	-0 +0.1mm
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MACHINE AT ✓		

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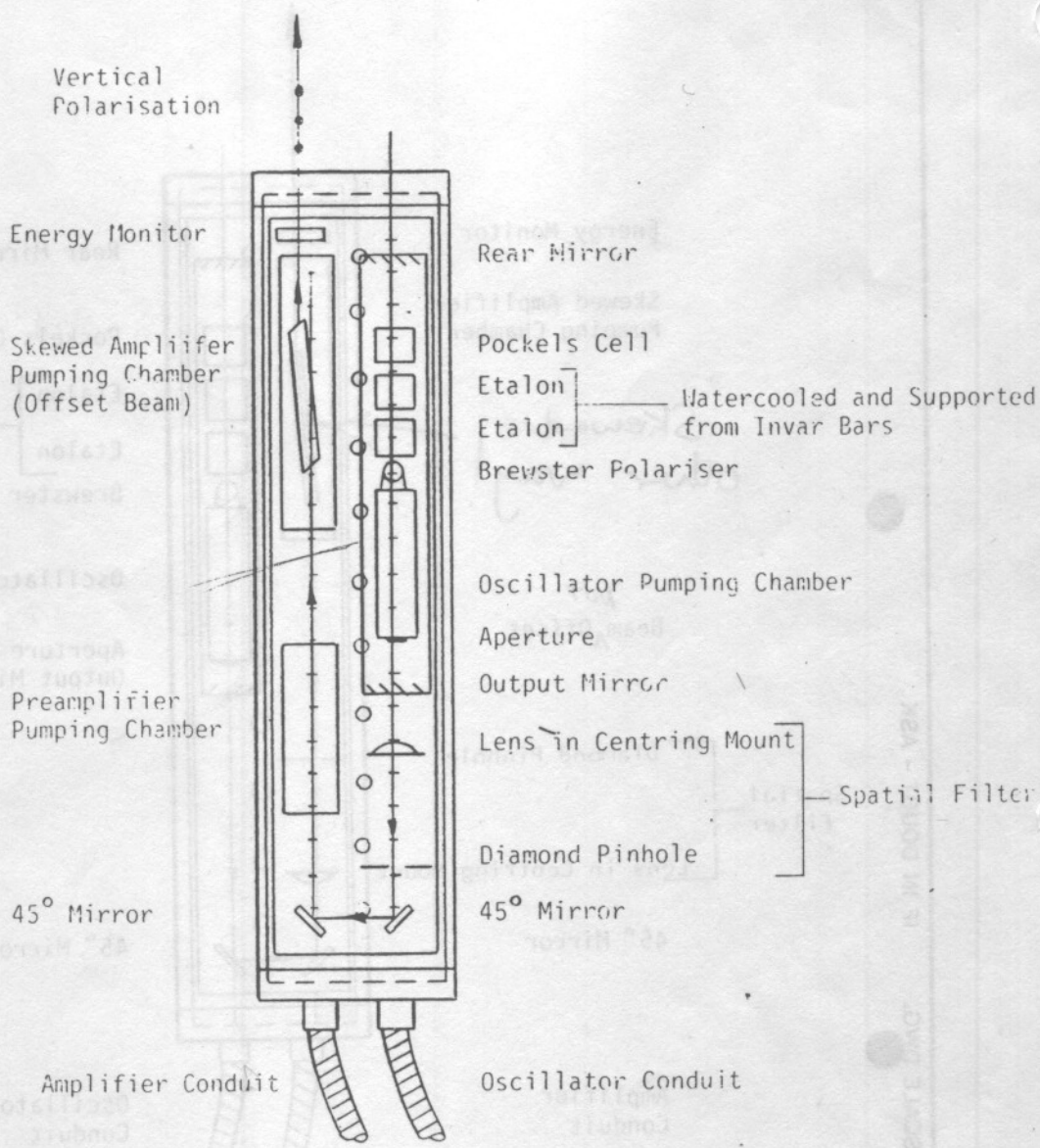
THIRD ANGLE PROJECTION

DIMENSIONS IN MILLIMETRES

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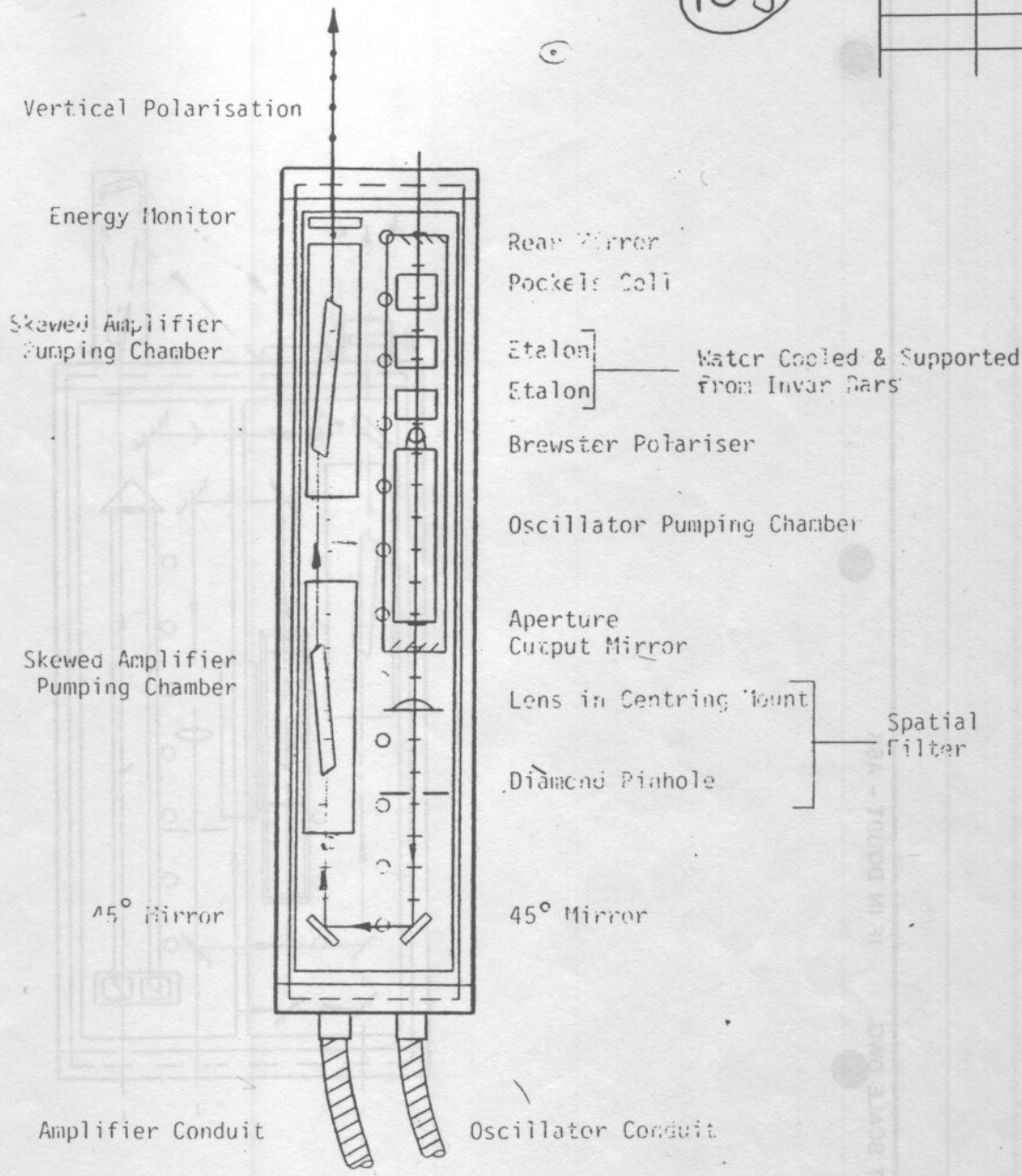
THIRD ANGLE PROJECTION

DIMENSIONS IN MILLIMETRES

NOTE	REV.
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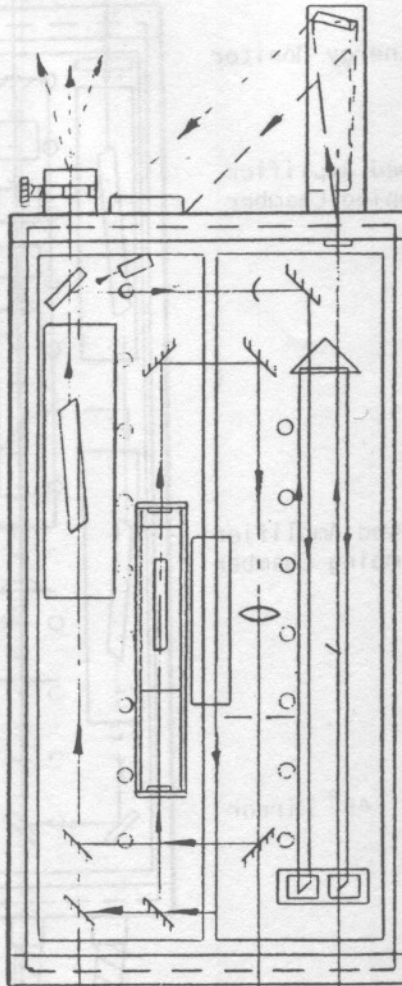
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	DWG. No. M609581EA				
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THIRD ANGLE PROJECTION

DIMENSIONS IN MILLIMETRES

NOTE	REV.
	A

101



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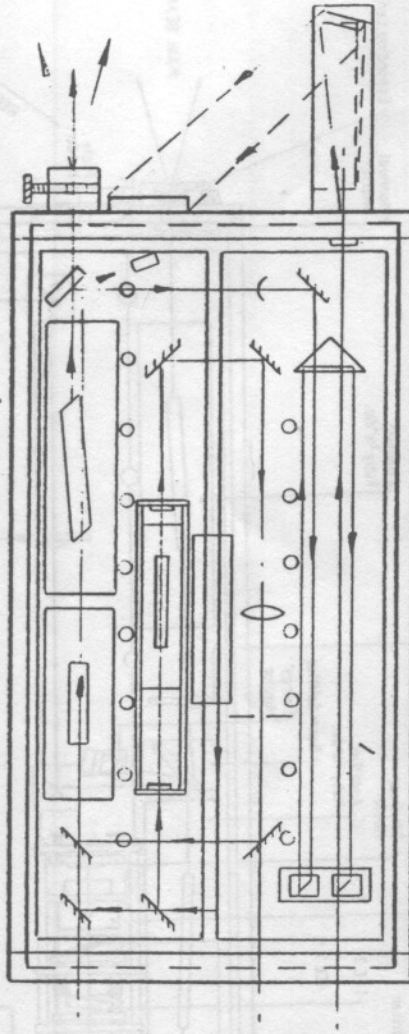
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DWG. No. M609570EA

THIRD ANGLE PROJECTION

DIMENSIONS IN MILLIMETRES

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Y.XX	EXTERNAL	+0	-0.1mm
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MACHINE AT		✓	

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C. H. J. D. R.

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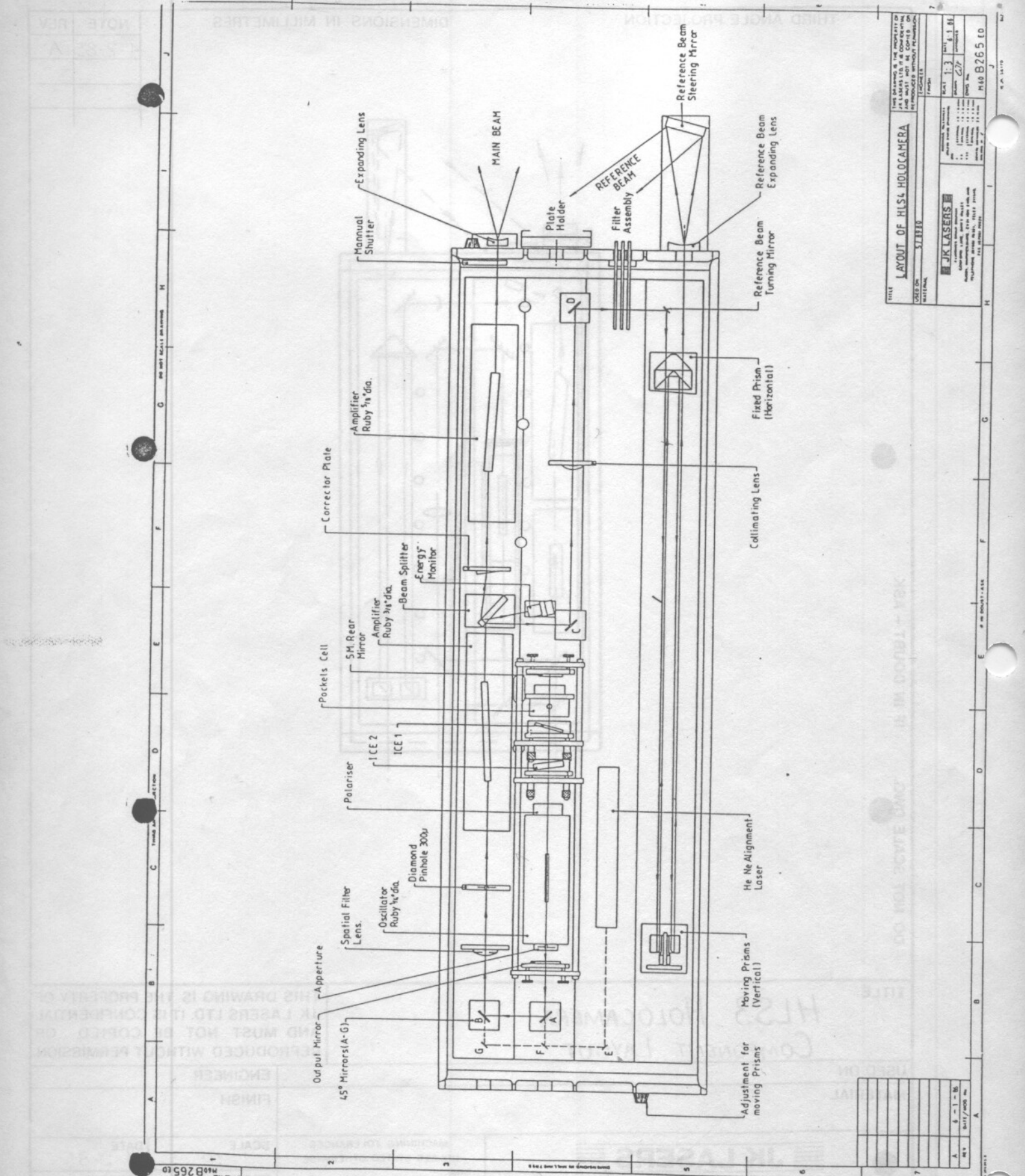
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DWG. No.

M609663EA



TITLE
LAYOUT OF HILSL HOLOCAMERA

DATE
 5/13/68

DESIGNER
 J. KLASERS

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6	ISSUED FOR FABRICATION	5/13/68
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