MAINTENANCE SECTION

Experiment No. 564 P

Line up the Pye 3" I.O. Camera Channel

Initial Settings

In order that the camera tube shall not be damaged during the line up :

Ensure that the lens is capped.
Turn Beam to position 1.
Turn Set Beam fully anti-clockwise.
Switch NORMAL/OVERSCAN switch to overscan.
Turn Vert. Amp. and Horiz. Amp. fully clockwise.

All other operational controls should be set to their approximate operating position, i.e. mid-position.

These are found on the front of the CCU and on the back of the Camera.

Switch TARGET HEATER ON (on camera).

Switch TRANSMIT/OFF switch to TRANSMIT.

Switching ON

Check all leads are properly plugged in.
Connect power supply to mains.
Switch meter on power supply to AC (right hand switch).
Adjust AC Volts until the meter registers in the red reference mark. Note that there is a locking lever which operates on positions 2, 3 and 4.
Switch on CAM AC.
Switch on HT + after two or three minutes warm up.
Check the following voltages and adjust if necessary.

Switch Position	Meter Reading	Adjustment
+1	300 Volts	on LHS of P.S.U.
+2	150 "	" " " "
+3	380 ± 20% Volts	No adjustment
-1	200 Volts	"
-2	150 "	"
+1A	350 mA ± 15%	
+1B	190 mA	
+2	170 mA	
+3	140 ± 25%	

Check Focus Current by switching Meter switch on Camera to F and check that it reads on the third red reference mark, which has a thin red line drawn through it.

Check Multi-Anode (Dynode) volts by switching to position M and obtaining as near as possible the same reading.

The adjustments are on the LHS of the camera under the lower cover.

To set up the picture monitor and the wavefrom monitor.

Switch w/f monitor selector switch to V.

Press the CAL push button and adjust the w/f monitor controls until two cycles of the 1 volt sine wave just fill the graticule.

Adjust SET SYNC to w/f Vert shift so that -3v of syncs just fill the lower part of the graticule.

With LIFT Control in its mid position, adjust, SET LIFT (on LHS of CCU) Field Shading, and Line shading (on back of Camera), to give a w/f which has 10% of lift without any shading.

Set Picture MON brightness so the blanking just disappears and set the Picture MON Scans to give a 4:3 raster.

To set Contrast it is necessary to obtain a sawtooth, using the line shading, to GAIN controls. Picture MON CONTRAST can then be adjusted so that a satisfactory picture is obtained.

By slightly increasing the amplitude of the sawtooth is possible to set the peak White Limiter (LHS of CCU) to limit at about 110% of peak white.

To Obtain a Picture

When the channel has been switched on for about 20 minutes, switch the TARGET HEATER OFF.

Using the LIFT control ensure that some (about 10%) of set up is present.

Turn up SET BEAM until some signal starts to appear.

All subsequent adjustments of beam current should be made with the Beam control.

A circular image of the Target should now be present. Centralize this if necessary using the vertical centring and Horiz. Centring which is on the LHS of the camera.

NOTE

It is important that the Target should not be UNDERSCANNED. Therefore SCAN Amplitudes can only be set when a known size of Image is projected on to the Photo Cathode.

Because of the interaction of many of the controls the size of this image on the Target will vary. Scan amplitudes can, therefore, only be set when every other control is at its correct operating Position.

However it is permissable at this stage to adjust Vert. Amp. and Horiz. Amp. until the white corners are only just visible.

Using the switch marked Lens at the back of the camera, turn the turret until the diascope is in the taking position. This is indicated by the red arrow on the front of the camera.

Increase TARGET bias until an image of the Test Card is obtained.

NOTE

Severe misalignment of the beam may prevent any image being obtained. If this is the case turn the TARGET control to maximum and adjust each Alignment control in turn until the maximum output is obtained.

Care must be taken the overloading does not occur and it will be necessary to reduce Target bias as the signal amplitude increases. It may also be necessary to adjust LIFT and GAIN to ensure that the signal always lies between Black level and Peak white.

When a picture is obtained it must be brought into focus by adjusting in turn Beam Focus, Image Focus and Optical Focus.

Optical Focus is servo operated and can be controlled remotely or from the Left or Right hand side of the camera. Control is selected by a switch on the back of the camera.

Beam Alignment

Switch on Focus Rack which is on the sub panel at the top of the LHS of the CCU.

Adjust the Alignment controls until the Two Images merge.

Take care that the signal does not overload and reduce Target Bias or increase BEAM as necessary when adjusting the alignment.

Lift and Gain may also need adjusting to ensure that the signal is always between Black level and peak white.

Switch off the FOCUS ROCK.

Press the "SET TARG" push button and adjust the TARGET bias until cut-off is reached. (Peak whites only just appear).

Release the push button.

Adjust BEAM so that Peak whites are just discharged.

Adjust MULTI-FOCUS (Persuader) to give the maximum output consistent with acceptable shading. (Care must be taken that the Multiplier does not overload).

Adjust the Accelerator to give minimum S distortion, refocussing after each adjustment with Image Focus.

The picture should now be correct except for the incorrect scan settings

To set the Scans

Ensure that the diascope is set so that an image corresponding to 0% overscan is projected onto the photo-cathode. This can be done by sliding the body of the diascope until the required engraving is opposite the marker.

Check the optical focus.

Set Vert. Amp. and Horiz. Amp. and Vert. shift and Horiz. shift (on Camera) so that the Test Card just fills the raster.

Select a capped lens and adjust Decellerator, Line Shading (on Camera) and Field shading until minimum shading is obtained.

Refocus on the Diascope.

Check :

Target Bias
Beam Current
Beam Focus
Image Focus
Scan Amplitudes.

To obtain the correct exposure & signal level

Stop down the lens of the diascope.

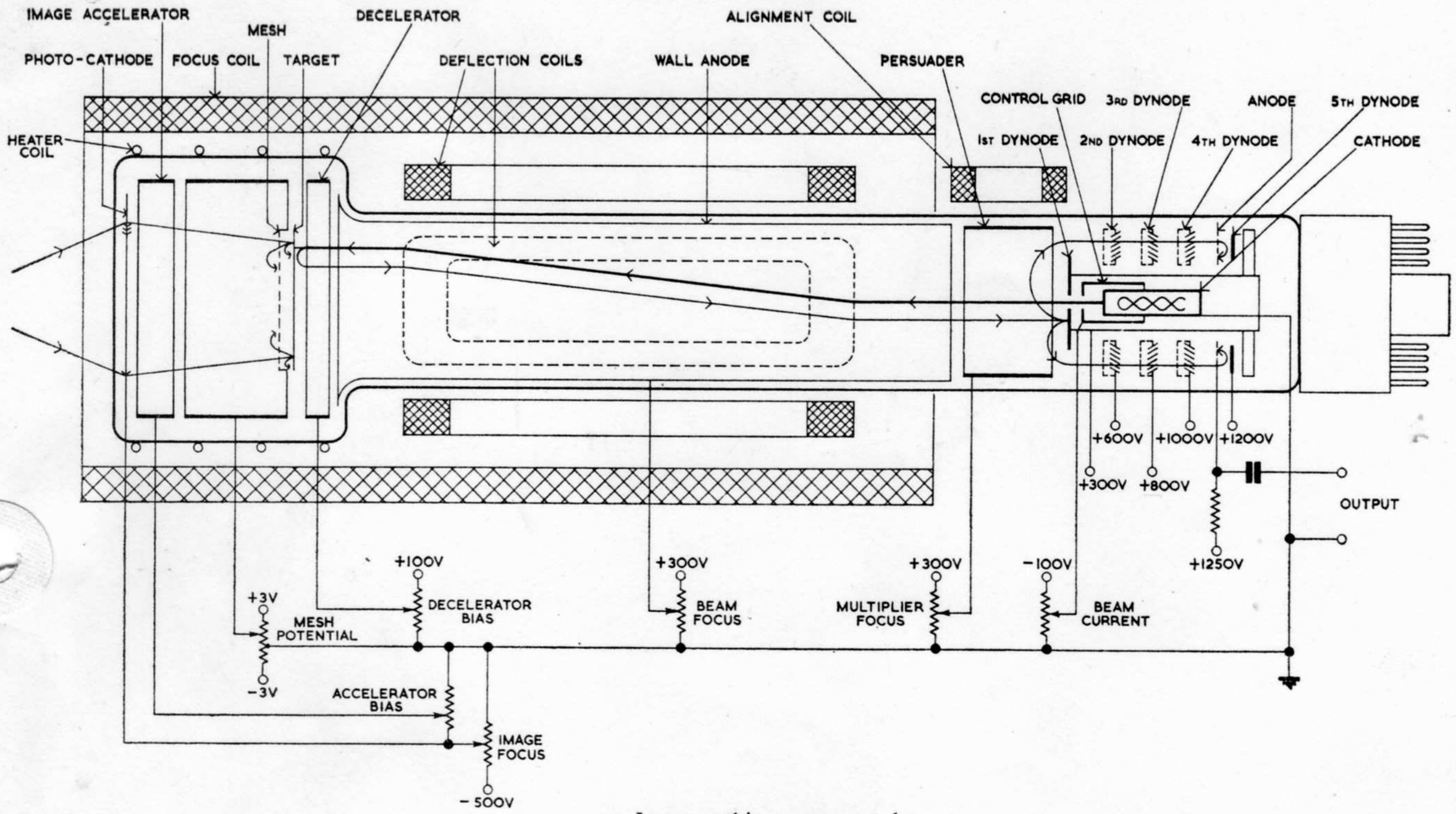
Adjust the GAIN control until about .5v of picture is obtained.

Open up the lens iris until the 'knee' is reached. This occurs when the whites in the signal cease to increase in amplitude, but the greys continue to do so.

Open up the lens one more step.

With GAIN control in its mid position adjust SET GAIN so that 0.7 volts of signal are obtained.

MEH/CB
30.12.63



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