VERTIBUCKY

Operating Instructions

Contents

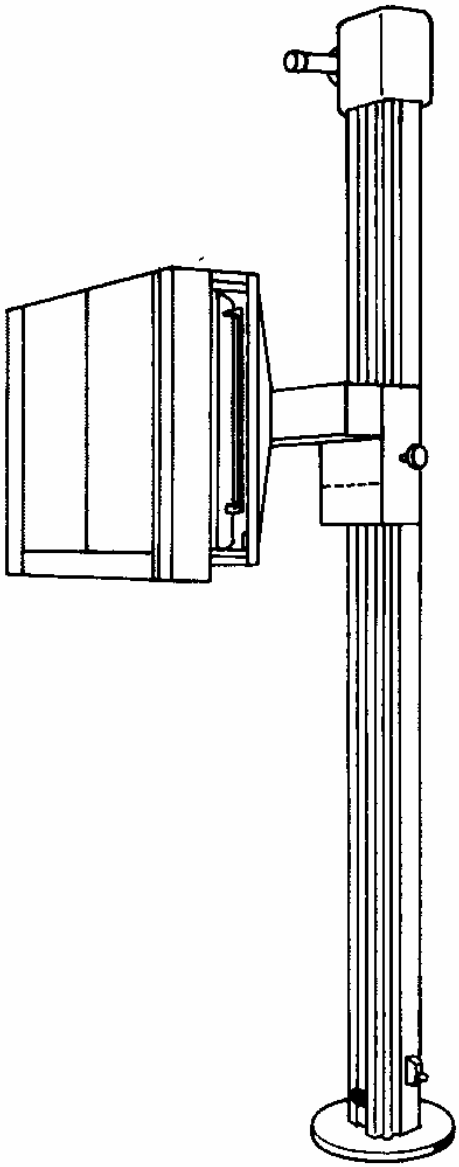


Fig 1

1. GENERAL INFORMATION

The Vertibucky Potter Bucky stand is illustrated in Fig 1. Alternative to the wall mounting, a ceiling fixture can be used. The operational function of either model is identical.

The offset Potter Bucky assembly can be arranged on the opposite side of the vertical column; this will usually be assembled, either right or left handed, on installation.

The vertical movement is counterweighted and can be held in any position along the vertical column by a screw type brake. An auxiliary counterweight is incorporated inside the column to maintain balance of the table when accessory components are fitted.

The cassette tray has a self aligning action and accepts cassettes up to 35.6cm x 43cm, (14in x 17in). The Potter Bucky diaphragm incorporates an interchangeable grid which is interlocked with the X-ray exposure.

2. FUNCTION AND OPERATION OF THE CONTROLS

2.1 Cassette Tray

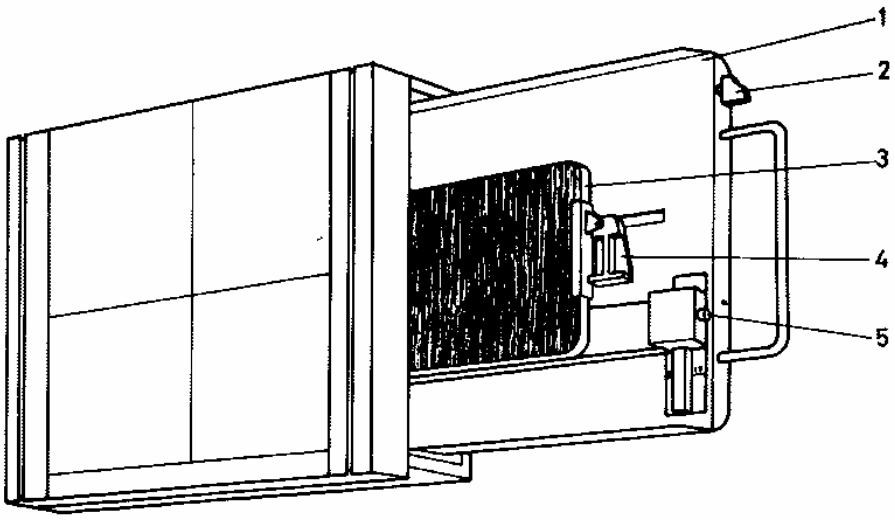


Fig 2

Tray entry can be right or left handed.

To remove cassette:

Press catch (2).
Pull out tray (1).
Lift clamp (4) and pull to release cassette (3).

Set rest (5) for positioning of cassette.

2.2 Auxiliary Counterweight

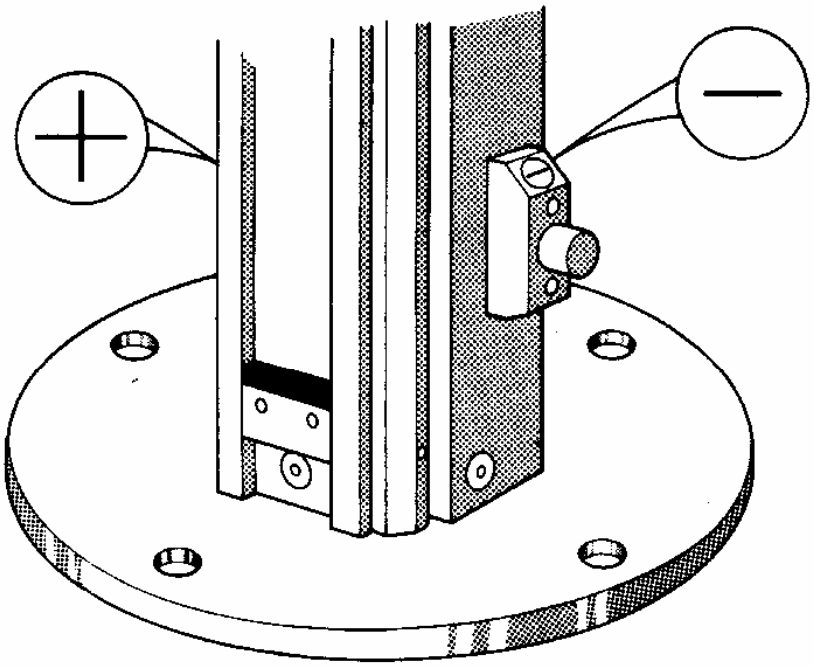


Fig 3

(+) Plunger for adding auxiliary counterweight.
(–) Plunger for disengaging auxiliary counterweight.

After fitting the accessory component to the table, the auxiliary counterweight must be added.

Hold table, release brake, push table to highest point, press IN plunger marked (+) to add auxiliary counterweight to main counterweight. Move table to desired position, apply brake.

To disengage the auxiliary counterweight, set the table assembly at the highest limit and press in the plunger marked (-). Remove accessory component.

2.3 Interchangeable Grid

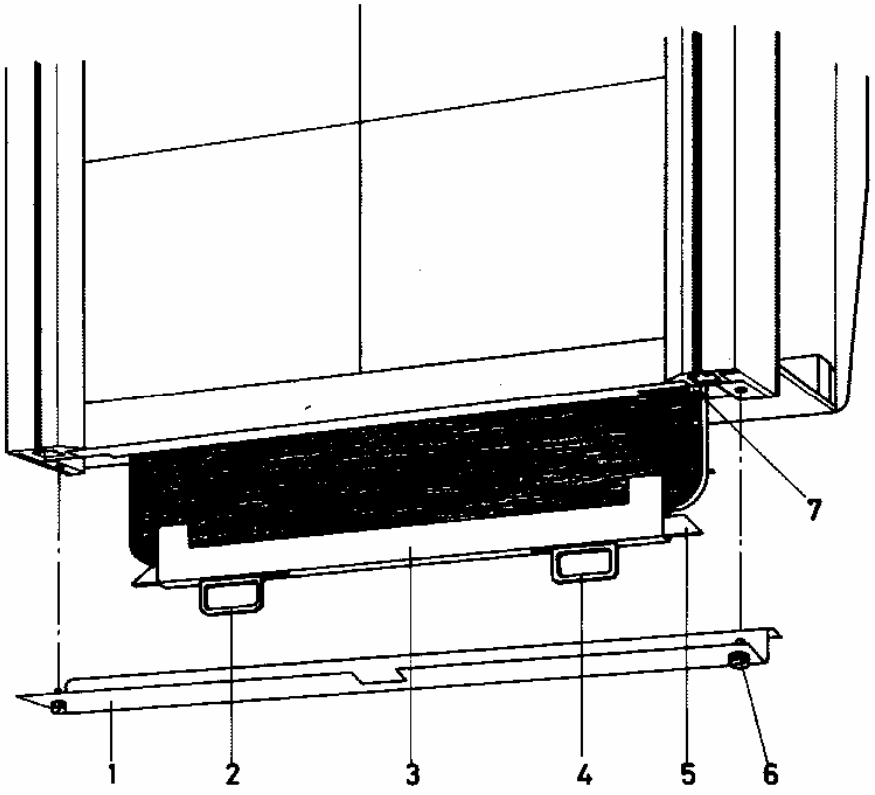


Fig 4

To change the grid:

Remove the coverplate (1) by unscrewing the knurled headed screw (6) at each end of the coverplate.

Grasp the two catch handles (2) and (4) and move them inwards towards the centre of the grid (3). Withdraw the grid assembly STRAIGHT OUTWARDS from the channels so that the grid assembly is not bent.

To fit the replacement grid, align the assembly with the channels and push the grid STRAIGHT INWARDS.

Ensure that the catches (5) at either side of the grid assembly engage with the latch holes in the channels (7).

Re-fit the coverplate (1).

3. SPECIAL APPLICATIONS

3.1 Cassette Holder

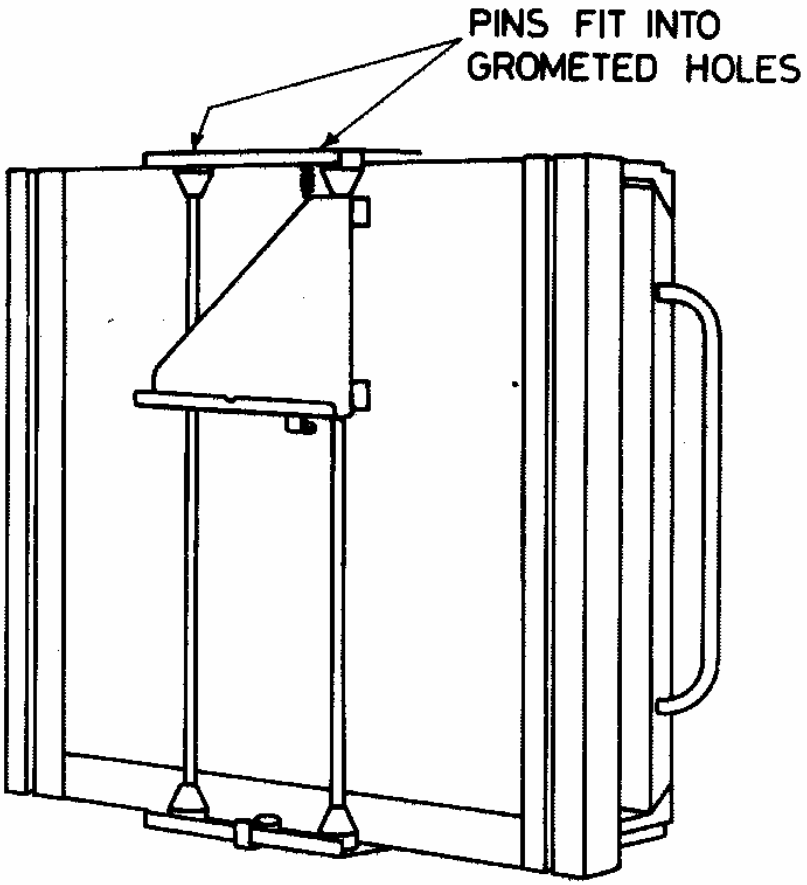


Fig 5

Set the table top at a convenient height and apply brake.

Cassette Holder pins locate in the rubber grommets at the top edge of the table. The bottom of the holder is held by a catch.

The Cassette Holder will take cassettes from:

35.6cms x 43cms (14in x 17in) down to
20.3cms x 25.5cms (8in x 10in).

Add the auxiliary counterweight as described in paragraph 2.2, page 7.

3.3 Head Clamp

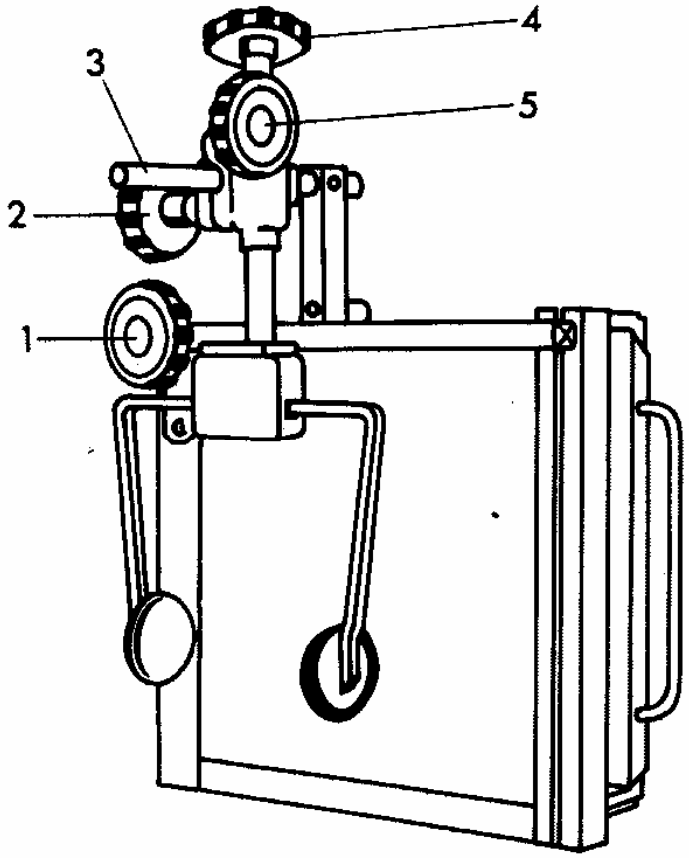


Fig 7

Set the table at a convenient height and apply brakes.

The locators of the Head Clamp are fitted into the DIN rail slots and assembly fixed by clamp (1).

The top knob (4) controls the clamp pads.

The vertical and rotational position of the clamp pads can be fixed by the clamp knob (5). Support the clamp assembly whilst making the adjustment.

The pads can be set close to or away from the table by the clamp (2). The assembly can be set to an angel from the vertical by pivotting on the support bar (3).

Add the auxiliary counterweight as described in paragraph 2.2, page 7.

4. RADIATION AND SAFETY PRECAUTIONS

4.1 General

Ionising radiations, such as X-radiations, are a source of danger to both patient and operator if proper precautions are not taken. Such precautions are simple and therefore easy to observe and they should never be omitted.

For the operators and staff who are likely to be frequently exposed to scattered and stray radiation from the patient and the equipment, it is particularly important that all protective facilities available are used. Additionally, each member of the department should wear some form of recording device capable of measuring the radiation received by his or her body. This device will confirm that use made of the protective apparatus available has been adequate.

4.2 Recording the Dose Received

The most simple and convenient recording apparatus is the use of one or more monitor film and holder. A small photographic (X-radiation) film, contained in a sealed wrapper, which is placed in the special radiation filtering holder worn on the body clothing, usually at the chest or gonad level, for a period of one to four weeks, after which the film is processed and the amount and quality of the radiation received estimated from the blackening. Radiation monitoring cannot normally be carried out satisfactorily by a qualified Medical Physicist or Health Physicist without specially calibrated reference charts. It therefore convenient to use the services of an organisation specialising in providing a radiation monitoring service. Such a service is provided by most national radiation advisory bodies. In the British Commonwealth - The Radiological Protection Service of the Ministry of Health - is available and provides a comprehensive service used widely in Great Britian and overseas.

4.3 Protection of the Operators

Protective screens or a protective cubicle will normally form part of the installation to absorb scattered radiation emitted from the X-radiation equipment and the examinee's body during the exposure.

Whilst X-radiation exposures are being made, staff present should at all times stand behind the protective screen or cubicle and observe the patient through the lead glass protective window.

Where circumstances require closer contact with the patient, for example during fluoroscopy, suitable protective clothing (lead rubber apron and gloves) and any other equipment available (e.g. protective chair) should be utilised wherever possible to avoid exposure to direct radiation at all times.

4.4 Protection of the Patient

The two regions of the body most sensitive to small doses of radiation are the blood forming organs - the long bones and the bones of the thorax - and the reproductive organs.

Certain areas of the patient must necessarily be subjected to radiation during examination but, provided every precaution is taken not to subject the patient to over exposure, the dose will be warranted by the importance of the X-radiation examination.

Irradiation of the patient beyond the area under examination should be avoided at all times by using X-radiation beam shutter diaphragm controls or diaphragm plates or cones.

The dose to the gonads must be reduced to the minimum practicable and this region must not be subjected to direct radiation unless adequate protection is present.

4.5 Presence of Anaesthetics

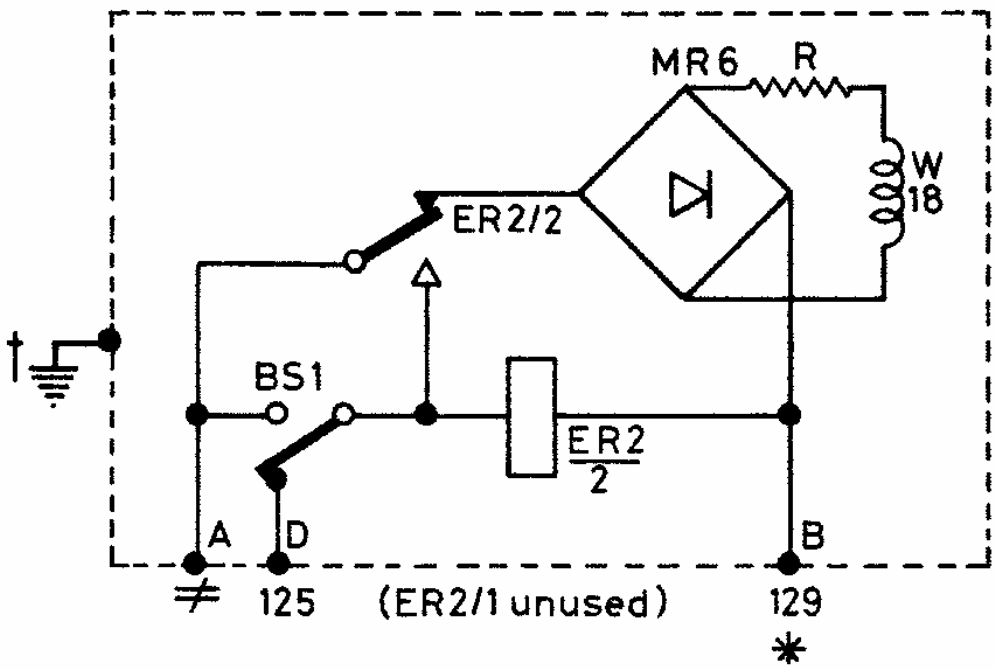
It is dangerous to use X-radiation apparatus in the proximity of inflammable anaesthetics. If it is essential for X-radiation equipment to be used in these conditions, the control unit should be sited as far as possible from the area of anaesthetic vapour and qualified assessment made of the conditions present.

FUNCTION of VIBRATING-GRID POTTER BUCKY (YM Series)

The circuit below is shown in the de-energised condition with the grid at rest in the centre. In this condition the Bucky exposure microswitch BS 1 is connected through to the relay but the exposure control line 124 is not connected through the Potter-Bucky. Line 125 is the outgoing exposure control. Line 129 is the common-return connecting point for the Potter-Bucky operating circuit.

When line 124 on the Potter-Bucky diaphragm is energised by closure of the exposure switch in the X-ray control unit, the solenoid W 18 is energised and the grid is off-set from the central rest position. The microswitch changes over and relay ER 2 is then energised from line 124, and, as the contact ER 2/2 changes over, the solenoid W 18 is de-energised and the grid is free to vibrate. The microswitch reverts to the position shown in the circuit diagram, and line 124 is connected through contact ER 2/2 to line 125 to start the X-ray exposure. The grid will continue to vibrate for a period in excess of 30 seconds. When the exposure control button is released, relay ER 2 is de-energised and the supply to line 125 is broken.

Note.... Resistor 'R' 360Ω 5% 10W not fitted to all units.



CIRCUIT OF INTERCHANGEABLE-GRID VIBRATING BUCKY. YM SERIES

* RETURN CIRCUIT MAY BE 121 or 120 ON EARLY WATSON UNITS

≠ FOR BUCKY 1, TERMINAL 124
FOR BUCKY 2, TERMINAL 126

† N.B. BUCKY FRAME MUST BE EARTHED