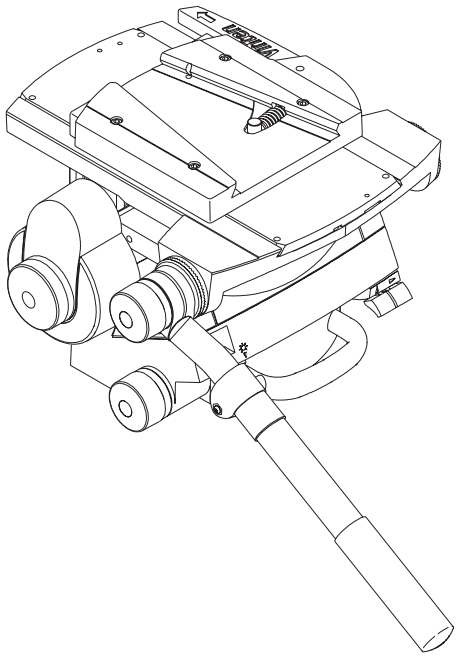
Operators Guide

Vector 700/700H

Pan & Tilt Head



Vinten

Camera Control Solutions

Vector 700/700H

Pan and Tilt Head

Publication Part No. 3448-8 Issue 2

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Safety - Read This First

Warning Symbols in this Operators Guide

Where there is a risk of personal injury, injury to others, or damage to the pan and tilt head or associated equipment, comments appear, highlighted by the word **WARNING!** and supported by the warning triangle symbol.

Technical data

Maximum payload	70 kg (154 lb)
Payload Centre of Gravity height range	
Vector 700	80 mm (3 in.) to 200 mm (8 in.)
Vector 700H	80 mm (3 in.) to 250 mm (10 in.)
Weight (complete with pan bar and wedge adaptor)	
Vector 700	18.85 kg (41.5 lb)
Vector 700H	19.15 kg (42.1 lb)
Overall dimensions	
Height (flat base with wedge adaptor)	
Minimum balance setting	255 mm (10.0 in.)
Maximum balance setting	355 mm (14.0 in.)
Length (without pan bar)	355 mm (14.0 in.)
Width (without pan bar)	350 mm (13.8 in.)
Width (with two pan bars)	445 mm (17.5 in.)
Tilt range	
Vector 700	±60°
Vector 700H	±52°
Pan range	360°

Further information

For further information or advice regarding this pan and tilt head, please contact Vinten Broadcast Limited, your local Vinten distributor or visit our website.

For details on maintenance and spare parts, please refer to the Vector 700/700H Pan and Tilt Head (Grey) Maintenance Manual and Illustrated Parts List (Publication Part No. 3354-9) or Vector 700/700H Pan and Tilt Head (Black) Maintenance Manual and Illustrated Parts List (Publication Part No. 3458-9), obtainable from Vinten Broadcast Limited or your local Vinten distributor. For information on-line, visit our website at

www.vinten.com.

Contents

Associated publications

Vector 700/700H Pan and Tilt Head (Grey)
Maintenance Manual
Publication Part No. 3448-9

Vector 700/700H Pan and Tilt Head (Black)
Maintenance Manual
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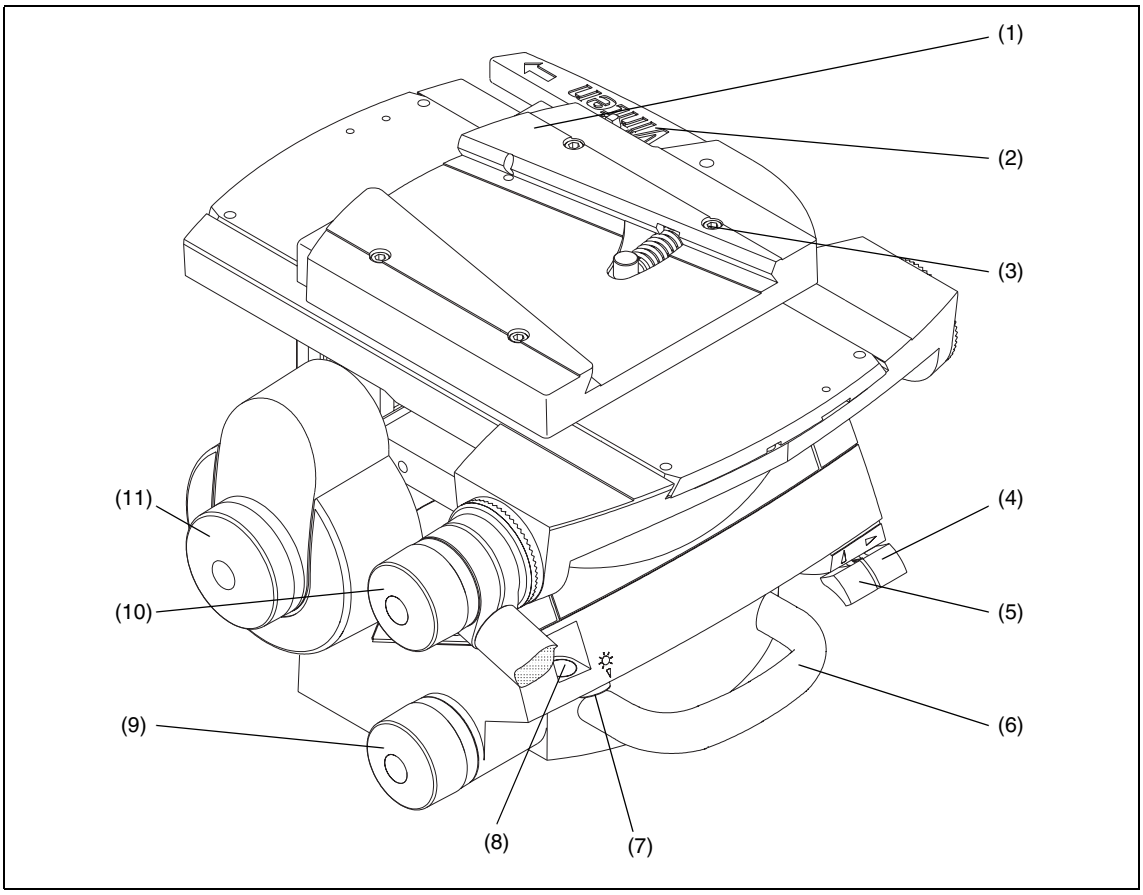
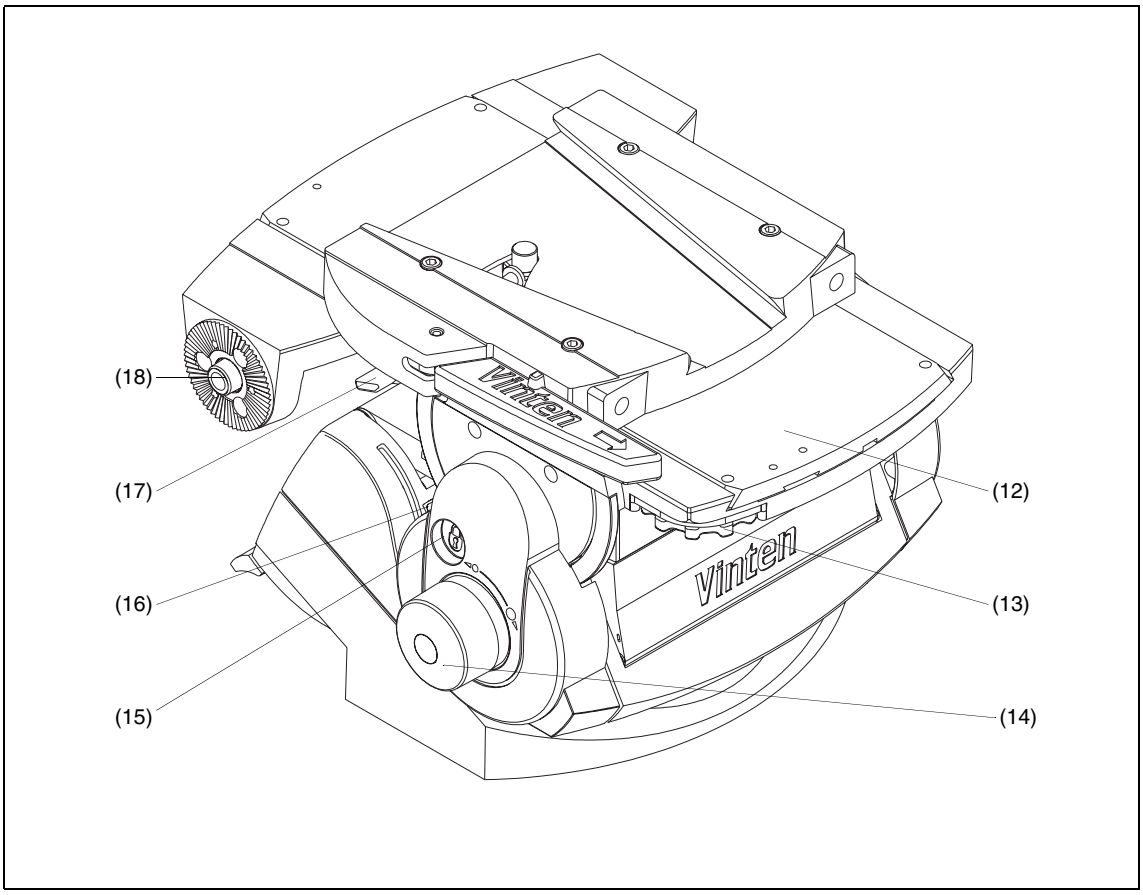


Vector 700/700H Pan and Tilt Head (Left-Hand Side)

(1)	Wedge adaptor
(2)	Wedge adaptor operating lever
(3)	Wedge adaptor screw
(4)	Pan brake lever
(5)	Tilt brake lever
(6)	Carrying handle
(7)	Level bubble illumination switch
(8)	Level bubble
(9)	Pan drag adjustment knob
(10)	Pan bar clamp
(11)	Tilt drag adjustment knob



Vector 700/700H Pan and Tilt Head (Right-Hand Side)

(12)	Sliding plate
(13)	Sliding plate adjustment knob
(14)	Balance adjustment knob
(15)	Centre lock plunger
(16)	Centre lock release lever
(17)	Sliding plate clamp
(18)	Pan bar mounting

Introduction

The Vector 700/700H pan and tilt head embodies a unique linkage counterbalancing mechanism, thin film (TF) drag assemblies for pan and tilt motions and an adjustable camera mounting plate.

The balance system is easily adjusted by a knob (14) on the right-hand side of the head. The balance adjustment control compensates for differing platform load C of G heights by varying the mechanical advantage of a bell-crank in the counterbalance mechanism.

Both the pan and tilt mechanisms incorporate TF drag systems to ensure smooth movement of the camera about these axes and are fitted with control knobs (9)(11) to adjust the drag setting. The drag controls are mounted on the left-hand side of the head. The whip-pan facility is unaffected by the pan drag setting.

Friction brakes on each axis allow the head to be locked at any chosen position. The operating levers for both brakes (4)(5) are fitted at the right-hand rear of the head. A tilt axis centre lock (15) is provided on the right-hand side of the head to secure the platform in the horizontal position during transport or load changing.

A level bubble (8) is fitted to the rear of the head and is provided with a time-delay illumination unit, operated by a switch (7). The battery for the illumination unit is contained in the base.

Pan bar mounting points (18) are located at the rear of the head, on either side of the camera mounting platform. A telescopic pan bar is supplied and is attached using a pan bar clamp (10), with angular adjustment available on the mount serrations. A second pan bar may be fitted, and fixed and short pan bars are available as optional extras.

The camera is attached to the head by means of a wedge adaptor (1).

Operation

Unpacking

The head is supplied with one pan bar and a battery (fitted) for the level bubble illumination unit.

The flat base version is supplied with four mounting bolts, four washers and a spanner. The Mitchell fixing version is supplied with a lightweight Mitchell adaptor.

A second telescopic pan bar or short pan bar for use with a zoom or focus controller are optional. Ensure that all items are unpacked prior to disposal of the packing materials.

After unpacking ensure that:

The centre lock (15) is engaged (See **Locking the platform)**. Always engage the centre lock before lifting or carrying the head. Lift the head by the base and/or the carrying handle, not the platform.

The pan and tilt brakes (4)(5) are on (See **Pan and tilt brakes)**.

Mounting the head

NOTE: When mounted on Vinten 'Hawk' or 'Teal' pedestals, clearance between the head and the pedestal weight tray prevents the use of 5.5 lb (1.6 kg) and 1.0 lb (0.47 kg) trim weights. Use alternative weights or fit the adaptor plate kit (Part No. 3354-900SP) between the head and pedestal.

Flat base

WARNING! Before installing the head, hold a fixing bolt in position and check that the threaded end does not project more than 12 mm (1/2 in.) above the mounting face.

The head is mounted on a tripod, pedestal or suitable firm surface using the four fixing bolts and washers. Tighten the bolts with the spanner provided.

After mounting the head, use the level bubble (8) to set it level. The level bubble may be illuminated by pressing the switch (7). The light will go out after approximately 15 seconds.

Mitchell-type fixing

Remove the clamp knob and washer. Position the head on the tripod or pedestal, ensuring that the spigot is seated and the key is engaged in the slot. Refit the clamp washer and knob and tighten securely.

After mounting the head, use the level bubble (8) to set it level. The level bubble may be illuminated by pressing the switch (7). The light will go out after approximately 15 seconds.

Pan bars

Fit the pan bars to the head and adjust the position of each one before tightening the clamp (10) on the mounting (18). Adjust the length of the telescopic pan bars.

Fitting a camera

WARNING! Do not rely on the tilt brake when changing the payload. Always engage the centre lock.
Ensure that the weight and C of G height of the total payload is within the range for which the head is designed
Vector 700 - up to 70 kg (150 lb) with C of G height from 80 mm (3 in) to 200 mm (8 in).
Vector 700H - up to 70 kg (150 lb) with C of G height from 80 mm (3 in) to 250 mm (10 in).

To fit a camera, proceed as follows:

Lower the mounting to a convenient working height.

If not already fitted, install the wedge adaptor (1) in the middle position on the sliding plate (12) (See **Servicing)**.

Attach the wedge to the camera/lens.

Ensure that the centre lock (15) is engaged (See **Locking the platform)**.

Slide the wedge adaptor operating lever (2) forward (parallel to the wedge) about 6 mm (1/4 in.) against spring tension. Pull the operating lever out, away from the body of the wedge adaptor, as far as it will go.

Insert the camera wedge into the wedge adaptor and push it forward into full engagement. Push in the operating lever (1) until it lies parallel with the wedge adaptor body. During this operation resistance of the spring-loaded over-centre mechanism will be felt. As the lever reaches the end of its travel it will slide back (parallel to the wedge) to the locked position.

Confirm that the lever is in the locked position. This is indicated by coloured bands above the lever. When the green band only is visible, the lever is locked. If any of the red band can be seen, the lever is not locked.

Install the remainder of the payload (lens, zoom and focus controls, viewfinder, prompter etc).

Balancing the head

NOTE: It is important that the pan bar(s) and all camera accessories (lens, zoom and focus controls, viewfinder, prompter etc.) are fitted in their operational position before balancing the head. Any equipment fitted or adjusted later will unbalance the head.

Balancing the head consists of positioning the payload fore and aft on the head so that its C of G is immediately above the platform pivot, then compensating for the payload C of G height using the balance adjustment knob.

Position the payload fore and aft as follows:

Ensure that the centre lock is engaged (See **Locking the platform)** and that the camera and all accessories are fitted.

Turn the tilt drag adjustment knob (11) to its minimum setting.

WARNING! If the balance control is set to minimum, a heavy out-of-balance payload will cause the platform to tip violently when the centre lock is disengaged. Increase the C of G height setting (see below) prior to balancing a heavy payload.

Holding the pan bar to steady the platform, disengage the centre lock (See **Locking the platform)**.

Release the sliding plate clamp (17) and turn the sliding plate adjustment knob (13) to move the sliding plate fore and aft to achieve horizontal balance. The horizontal balance is correct when no perceptible tilting force can be felt on the pan bar with the platform level. Apply the sliding plate clamp (17).

If there is insufficient movement in the sliding plate to achieve balance, reposition the wedge adaptor (See **Servicing)**, refit the load and repeat the horizontal balancing procedure.

When fore and aft balance has been achieved, carry out the payload C of G height adjustment as follows:

Using the pan bar, tilt the platform forward and backward. When correctly balanced, there should be no perceptible tilting force on the pan bar at any angle of tilt and the head should remain in any tilt position to which it is set.

If the head tends to fall away when the platform is tilted, push in and turn the balance adjustment knob (14) clockwise to increase the C of G height setting. If the head tends to spring back to centre, push in and turn the balance adjustment knob (14) counter-clockwise to decrease the C of G height setting.

NOTE: The balance adjustment knob is a multi-turn control. To enable the knob to be turned more easily, slightly tilt the platform using the pan bar whilst turning the knob.

When the payload C of G height adjustment is complete, check that the fore and aft balance remains satisfactory. Re-adjust the position of the sliding plate if necessary.

After balancing, release the brakes and exercise the head through both axes to confirm that it operates smoothly.

Locking the platform

The centre lock mechanism is operated by a plunger on the right-hand side of the head. To engage the lock, hold the platform in the horizontal position and push the plunger (15) inwards until it latches and the release lever (16) appears. Use the pan bar to rock the platform slightly whilst pushing the button.

To release the centre lock, rock the platform slightly and push down on the release lever (16).

Pan and tilt brakes

The pan and tilt brakes (4)(5) are operated by levers at the rear of the head. They are applied by pulling the appropriate lever up and back and released by pushing the lever forwards.

The brakes should be applied whenever the camera is left unattended.

Pan and tilt drag

To increase drag, turn the knob clockwise, towards a higher graduation. To decrease drag, turn the knob anti-clockwise, towards a lower graduation.The whip-pan facility is unaffected by the pan drag setting.

The pan drag adjustment knob (9) is mounted on the left-hand lower part of the main body. Tilt drag is adjusted by a knob (11) mounted on the face of the tilt drag housing on the left-hand side of the head.

Turn the knobs clockwise to increase drag and counter-clockwise to decrease drag.

WARNING! Use only hand force to adjust drag. Do not overtighten

Servicing

General

The Vector 700/700H pan and tilt head is robustly made to high engineering standards and little attention is required to maintain serviceability save regular cleaning.

Routine maintenance on the Vector 700/700H pan and tilt head is limited to annual replacement of the level bubble illumination unit battery. No further routine maintenance is required.

During normal use, check the effectiveness of the platform slide clamp and the adequacy of level bubble illumination.

Refer to the appropriate section in the Maintenance Manual if any defect is apparent. Adjustments and repairs should be carried out only by a competent person.

Cleaning

During normal use the only cleaning required should be a regular wipe over with a lint-free cloth. Dirt accumulated during storage or periods of disuse may be removed with a semi-stiff brush. Particular attention should be paid to the wedge location faces of the wedge adaptor.

NOTE: Use only detergent-based cleaners. DO NOT use solvent- or oil-based cleaners, abrasives or wire brushes to remove accumulations of dirt as these damage the protective surfaces

Use out-of-doors under adverse conditions may require special attention and the head should be covered when not in use. Salt spray should be washed off using fresh water at the earliest opportunity. Sand and dirt act as an abrasive and should be removed using a semi-stiff brush or a vacuum cleaner.

Cleaning balance mechanism tracks

The balance mechanism tracks are automatically cleaned by built-in wipers, but after use in particularly adverse conditions the tracks may require cleaning. Some dismantling of the head is necessary and it is recommended that this be carried out in clean workshop conditions.

Vertical tracks

To clean the vertical tracks it is necessary to remove the platform. Proceed as follows:

Remove the payload (if fitted). It is not necessary to remove the wedge adaptor.

Release the sliding plate clamp (17). Use the adjustment knob (13) to wind the sliding plate (12) backwards until it is clear of fixing screws (19).

Level the platform.

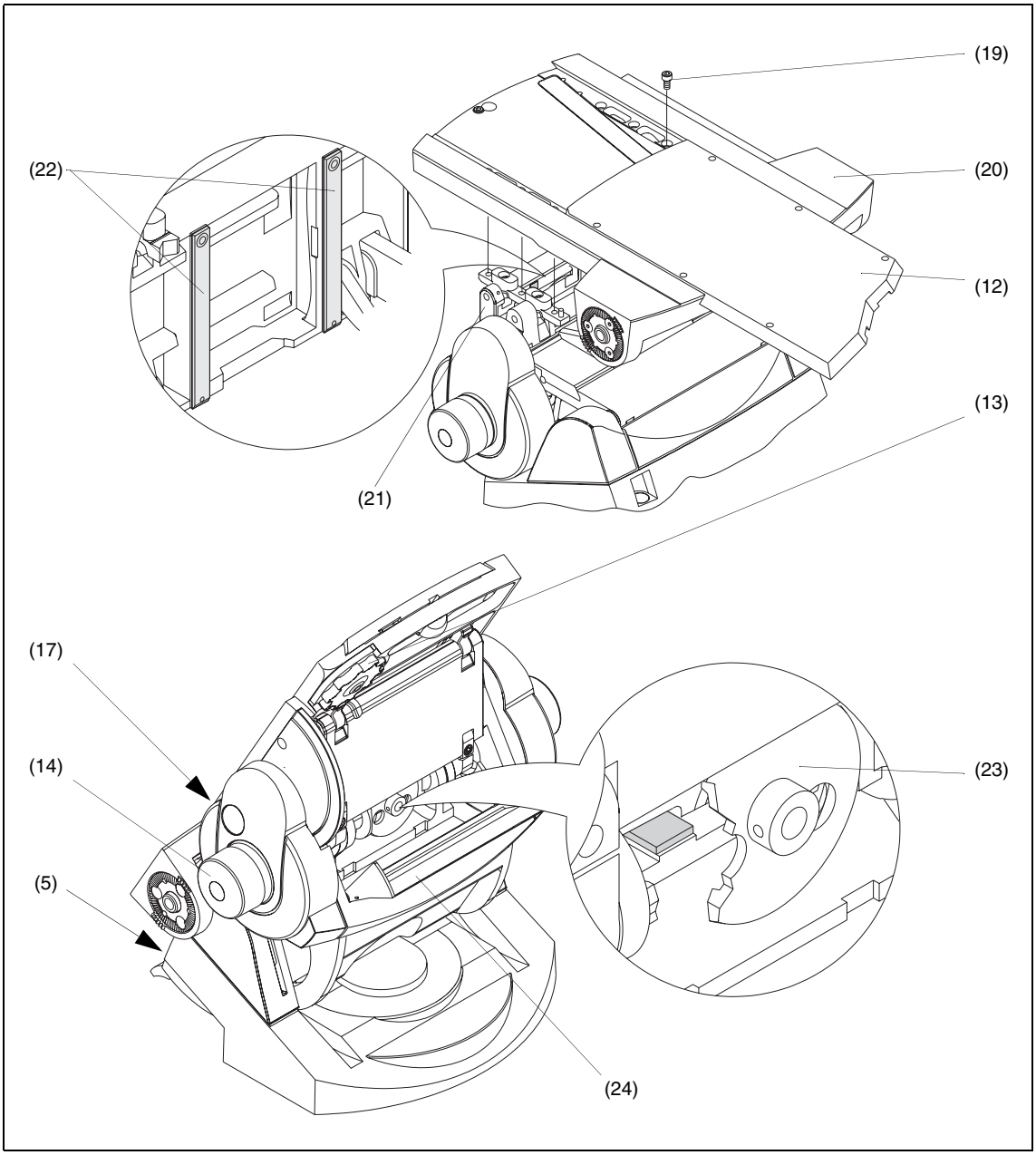
Remove six screws (19) securing the platform (20) to the balance mechanism (21). Lift off the platform.

Using a pipe cleaner (or similar) moistened with an isopropanol-based cleaner (3M VBH or similar), clean the two vertical tracks (22). Upwards pressure on the balance mechanism will allow the area of track under the vertical rollers to be cleaned.

Install the platform (20) on the balance mechanism (21) and secure with six screws (19), using Loctite 222E.

Using the adjustment knob (13) wind the sliding plate forwards to the central position.

Refit the payload (if required) and rebalance the head.



Cleaning balance mechanism tracks

Horizontal tracks

No dismantling is necessary to clean the horizontal tracks. Proceed as follow:

Remove the payload (if fitted).

Set the balance mechanism to its maximum setting by pushing in the knob (14) and turning it clockwise to its stop.

Tilt the platform fully backwards and apply the tilt brake (5).

Pull down the flap guard (24) to reveal the bevel gear (23). Access to the horizontal tracks is through the holes in the bevel gear, which may be rotated freely.

Using a pipe cleaner (or similar) moistened with an isopropanol-based cleaner (3M VBH or similar), clean the two horizontal tracks. Upwards pressure on the balance mechanism will allow the area of track under the horizontal rollers to be cleaned.

Release the flap guard (24) and the tilt brake (5) and return the platform to the horizontal position.

Refit the payload (if required).

Routine maintenance

Level bubble illumination unit battery replacement

The level bubble on the Vector 700/700H pan and tilt head is illuminated by a battery-powered light-emitting diode (LED). A time-delay circuit initiated by a switch controls the LED. The battery should be replaced at yearly intervals or whenever the illumination is considered inadequate.

NOTE: Dependent on the type of mounting, it may be necessary to remove the head from the mounting for access to the battery compartment.

To install or replace the battery:

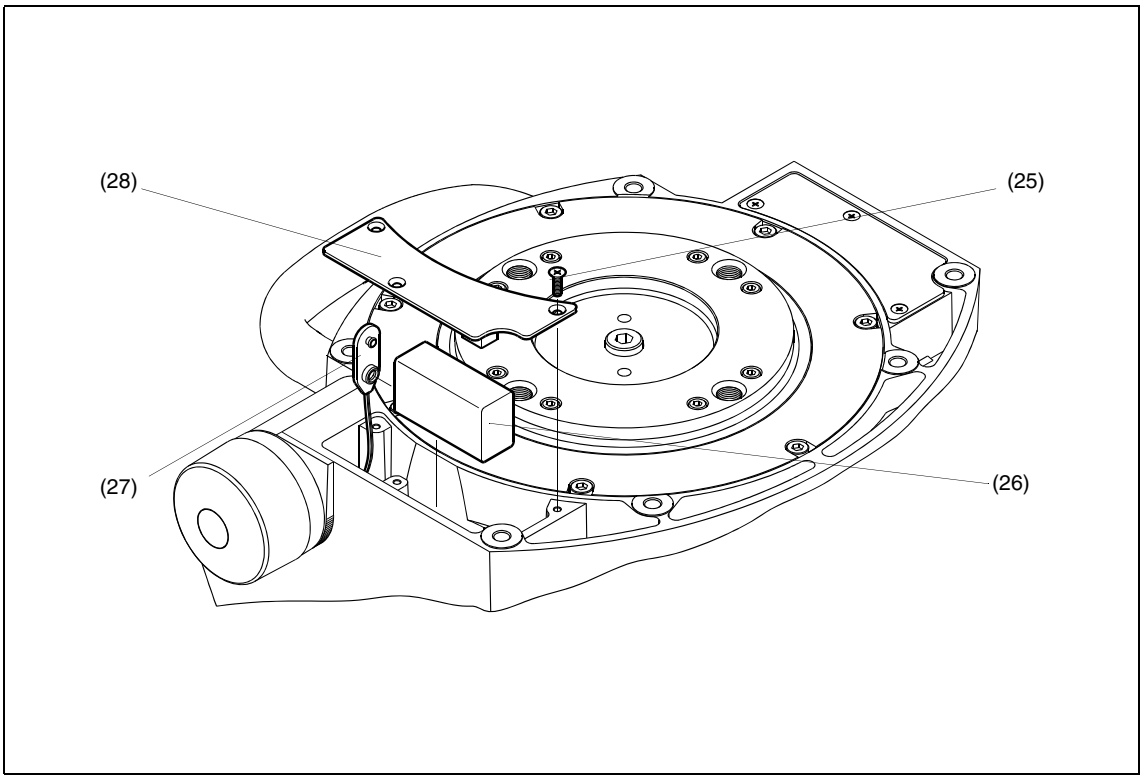
Remove three screws (25) which secure the battery compartment cover plate (28) to the head.

Install or replace the battery (26), pushing the connector (27) onto the battery terminals.

Position the battery in the battery compartment, ensuring that the wiring is not trapped.

Refit the battery cover plate (28), ensuring battery locates in cover plate. Secure with three screws (25).

Press the switch (7) and ensure the lamp is lit for approximately 15 seconds.



Level bubble illumination unit battery replacement

Adjustments

After considerable use the platform slide clamp may require adjustment.

To enable the payload to be correctly balanced, the wedge adaptor may require repositioning.

The pan and tilt brakes may require adjustment after considerable use.

Platform slide clamp adjustment

The platform slide clamp should be set so that, in the up or clamped position it prevents the platform slide from being moved, while in the down or released position it allows free adjustment of the slide. To adjust the clamp, proceed as follows:

On the right-hand side of the platform, carefully remove the self-adhesive label (17.2) to reveal the slotted shaft (17.1).

Pull the slide clamp lever (17) fully upwards.

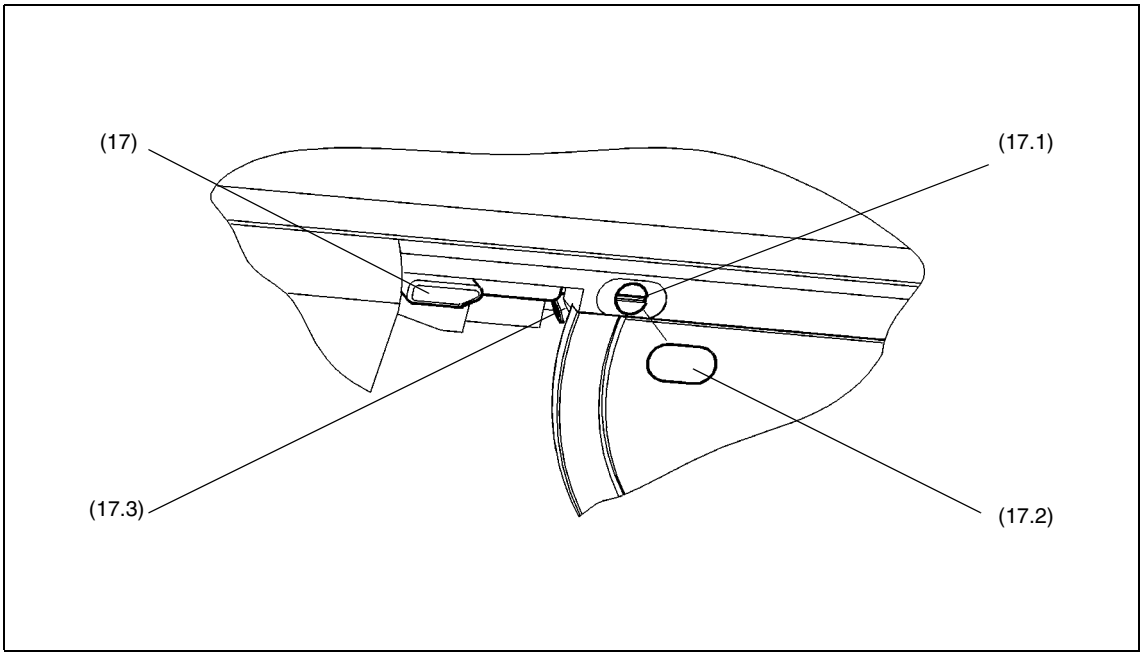
Slacken the clamp screw (17.3).

Turn the slotted shaft (17.1) fully clockwise to apply the clamp.

Tighten the clamp screw (17.3).

Move the lever over its full range and ensure that, in the clamped position, it prevents the slide from being moved, while in the released position it allows free adjustment of the slide. Re-adjust if necessary.

Replace the self-adhesive label (17.2) in the recess in the platform.



Platform slide clamp adjustment

Repositioning the wedge adaptor

The wedge adaptor (1) is secured by four cap head screws (3) which pass through the wedge adaptor into the sliding plate (12).

WARNING! Overlong screws will prevent the sliding plate from operating. Always use the screws provided (M6 x 30 mm).

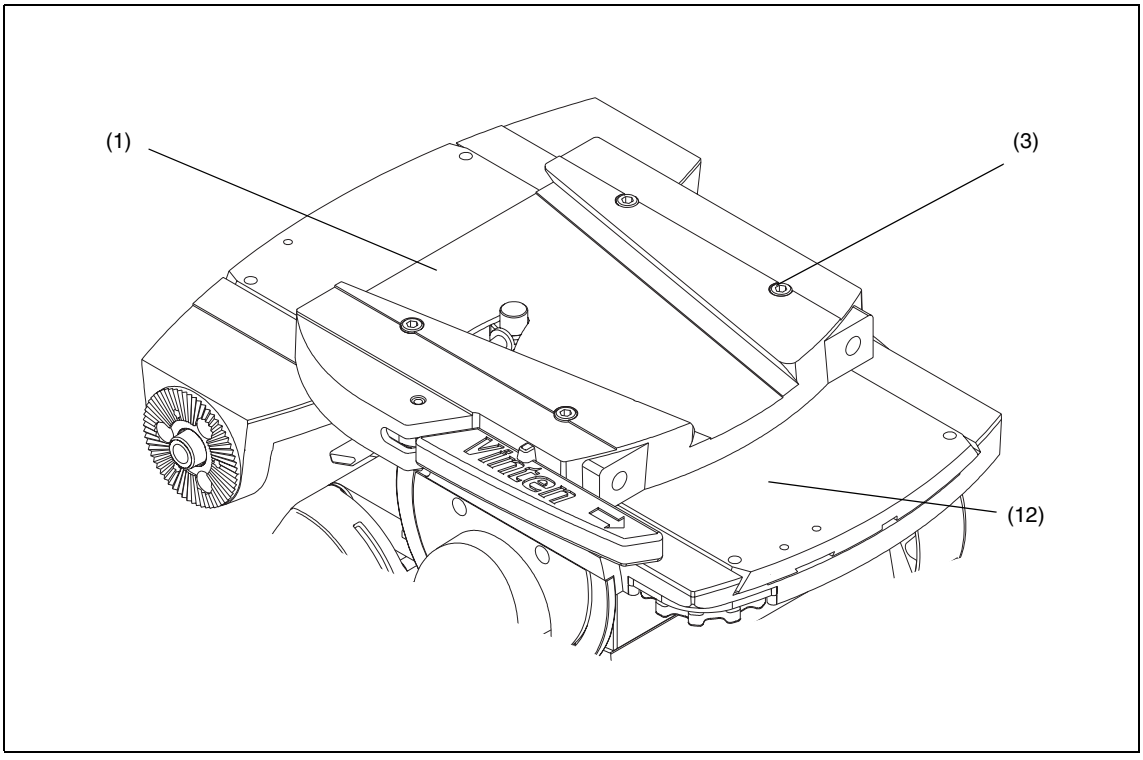
To reposition the wedge adaptor:

Engage the centre lock (See **Locking the platform)** and remove the load.

Hold the body of the wedge adaptor (1) and use a 4 mm hexagon wrench to remove four securing screws (3).

Reposition the wedge adaptor (1) on the sliding plate (12), ensuring that the narrow end of the wedge adaptor faces forwards

Insert the four screws (3) in the holes in the wedge adaptor and tighten.



Repositioning the wedge adaptor

Pan and tilt brake adjustment

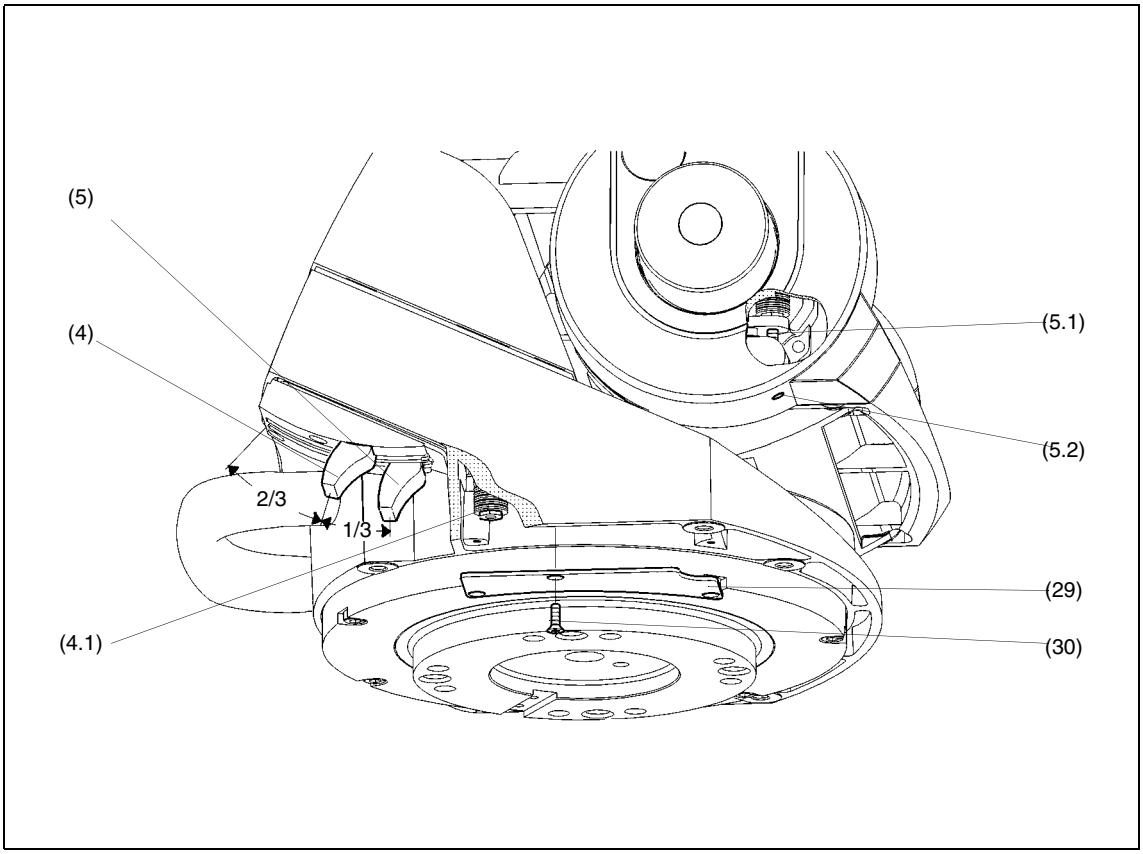
The pan and tilt brakes should be set so that the brakes begin to be applied after approximately one-third of the lever travel.

The tilt brake is adjusted by inserting a 2 mm hexagon wrench through the hole (5.2) in the bottom of the tilt unit cover and turning the grub screw (5.1). To adjust the tilt brake, proceed as follows:

Operate the tilt brake lever (5) from the OFF to the ON position.

If brake pressure is not felt after approximately one-third of the lever travel, turn the grub screw (5.1) clockwise until this is achieved.

Operate the tilt brake lever (5) to the OFF position and ensure that the platform is free to move.



Pan and tilt brake adjustment

The pan brake is adjusted by turning the pin (4.1). To gain access to the pin it is necessary to remove the payload from the head, remove the head from its mounting and remove a cover plate (29) from the underside of the head. To adjust the pan brake, proceed as follows:

WARNING! Remove the payload before adjusting the pan brake.

Remove the payload from the head.

Remove the head from its mounting.

On the underside of the head, remove three screws (30) securing cover plate (29).

Operate the pan brake lever (4) from the OFF to the ON position.

If brake pressure is not felt after approximately one-third of the lever travel, turn the pin (4.1) clockwise until this is achieved.

Operate the pan brake lever (4) to the OFF position and ensure that the head is free to rotate.

Refit cover plate (29) and secure with three screws (30).

Parts List

The following list includes the main assemblies, user-replaceable spare parts and optional accessories. For further information regarding repair or spare parts, please contact Vinten Broadcast Limited or your local distributor.

For information on-line, visit our website at

www.vinten.com

Main assemblies

Vector 700 pan and tilt head - flat base (Grey)	3448-3
Vector 700 pan and tilt head - Mitchell adaptor (Grey)	3448-5
Vector 700H pan and tilt head - flat base (Grey)	3448-3H
Vector700H pan and tilt head - Mitchell adaptor (Grey)	3448-5H
Vector 700 pan and tilt head - flat base (Black)	3458-3
Vector 700H pan and tilt head - flat base (Black)	3458-3H
Wedge adaptor (Grey)	3389-3
Wedge adaptor (Black)	3460-3
Camera wedge for wedge adaptor	3391-3
Telescopic pan bar and clamp (Grey)	3219-62
Telescopic pan bar and clamp (Black)	3219-82
Fixed pan bar and clamp (Grey)	3219-65
Fixed pan bar and clamp (Black)	3219-94
Short fixed pan bar and clamp (Grey)	3219-66
Short fixed pan bar and clamp (Black)	3219-93
Fixing bolt	L054-714
Washer - for fixing bolt	L602-122
Spanner - for head bolts	J551-001

User-replaceable spare parts

Battery - 9V, 6LR61 (PP3, 6AM6, MN1604, E-BLOCK or equivalent)	C550-023

Optional accessories

Lightweight Mitchell adaptor	3103-3
Heavy-duty Mitchell adaptor - for Vinten pedestal mounting in conjunction with Hi-hat adaptor Part No. 3055-3	3724-3
Adaptor plate kit - for use on Hawk and Teal pedestals	3354-900SP