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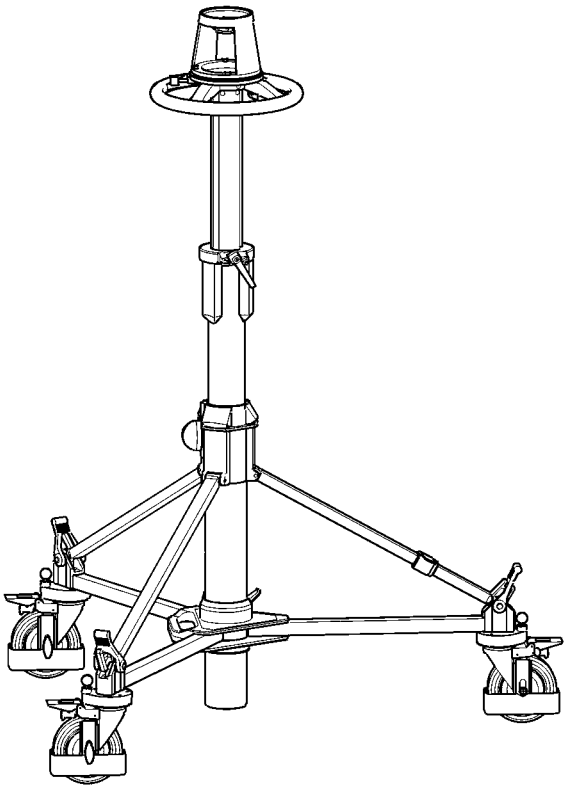
Maintenance Manual

Vision Pedestal



Vinten

Camera Control Solutions

Vision

PEDESTAL
3320

MAINTENANCE MANUAL
AND
ILLUSTRATED PARTS LIST

PUBLICATION PART No. 3320-9

ISSUE 9

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Foreword

This manual provides full and detailed maintenance and spare parts information for the Vinten® Vision® pedestal.

WARNING!: Read the Safety Section on page 7 before using this pedestal or attempting any adjustment or repair

It is recommended that this manual is read carefully and the illustrations studied prior to operating or servicing the pedestal. Attention to the details contained herein will ensure that the pedestal will operate efficiently with the minimum of attention over a long service life. Particular attention must be paid to cleaning, especially after use in adverse conditions.

To order spare parts or to obtain further information, application should be made to Vinten Broadcast Limited or to your local distributor.

NOTE: Information contained in this document is subject to change.
Vinten Broadcast Ltd reserves the right, without notice, to make changes in equipment design or performance as progress in engineering, manufacturing or technology may warrant.

Notes to readers

This is the on-line version of 'Vision Pedestal Maintenance Manual' (3320-9). Readers should be aware that the pagination differs between on-line and printed versions.

Navigation

Clicking the mouse on any blue text will move you around the document. For example, if you click on one of the blue call-outs on an exploded drawing, you will be taken to the appropriate line in the relevant parts list.

Contents Clicking here will take you to the Contents Page.

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Illustrations **Page**

ASSOCIATED PUBLICATION

Vision Pedestal Operators Guide - Publication Part No. 3320-8

Safety - Read This First!

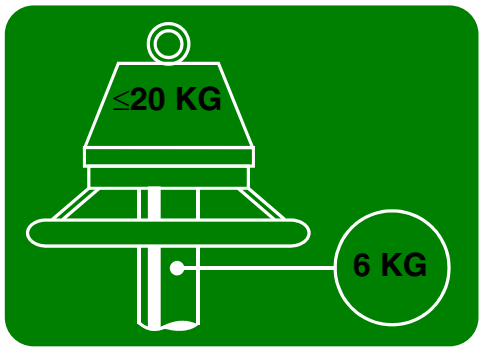
Warning symbols in this maintenance manual

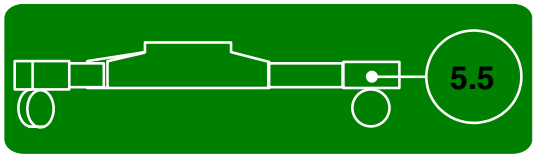
Where there is a risk of personal injury, injury to others, or damage to the pedestal or associated equipment, comments appear, highlighted by the word WARNING! and supported by the warning triangle symbol.

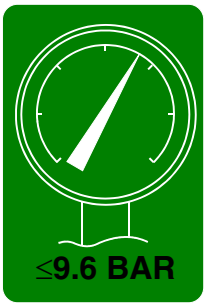
Warning symbols on the pedestal

On encountering the warning triangle and open book symbols it is imperative that you consult this maintenance manual before using this pedestal or attempting any adjustment or repair.

Critical data







Mass

Column	**6 kg**	**(13 lb)**
Skid	**5.5 kg**	**(12 lb)**

Load

Maximum Load	**20 kg**	**(44 lb)**

Pressure

Maximum Pressure	**9.6 bar**	**(140 psi)**

Abbreviations

The following abbreviations are used in this publication:

ac	alternating current	lb	pound (weight)
A	Amps	LF	Lubricated Friction
AF	across flats	LH	left hand
A/R	as required	MISO	metric thread
ASME	American Society of Mech Engineers	m	metre
assy	assembly	mm	millimetre
BS	British Standard	N	Newton
BA	British Association thread	NPT	National Pipe thread
BSF	British Standard Fine thread	NI	not illustrated
BSP	British Standard Parallel Pipe thread	No.	number
BSW	British Standard Whitworth thread	OD	outside diameter
btn	button	PCB	printed circuit board
chs	cheese	PCD	pitch circle diameter
C of G	centre of gravity	pozi	Pozidriv
comp	compression	psi	pounds per square inch
csk	countersunk	pt	point
cu	cubic	PTFE	Polytetrafluoroethylene
c/w	complete with	PVC	Polyvinyl chloride
dc	direct current	RH	right hand
dia	diameter	sect	section
ft	foot	skt	socket
hd	head	SWG	standard wire gauge
hex	hexagon	thk	thick
Hz	Hertz (frequency)	UNC	Unified Coarse thread
IC	integrated circuit	UNF	Unified Fine thread
ID	inside diameter	V	Volts
in.	inch	W	Watts
kg	kilogram		

Technical Specification

	STUDIO	OB
Payload	20 kg (44 lb)	20 kg (44 lb)
Column weight	6 kg (13 lb)	6 kg (13 lb)
Skid weight	5.5 kg (12 lb)	5.5 kg (12 lb)
Total pedestal weight	11.5 kg (25 lb)	11.5 kg (25 lb)
Minimum height to 100 mm bowl adaptor mounting face	743 mm (30.2 in.)	768 mm (29.2 in.)
Maximum height to 100 mm bowl adaptor mounting face	588 mm (63.5 in.)	1613 mm (62.5 in.)
Minimum height to flat mounting face	628 mm (25.7 in.)	653 mm (24.7 in.)
Maximum height to flat mounting face	1473 mm (59 in.)	1489 mm (58 in.)
On-shot stroke	414 mm (16.3 in.)	414 mm (16.3 in.)
Wheel diameter	100 mm (4 in.)	125 mm (5 in.)
Skid leg radius	500 mm (19.7 in.)	500 mm (19.7 in.)
Doorway tracking width	991 mm (39 in.)	991 mm (39 in.)
Transit doorway width	686 mm (27 in.)	686 mm (27 in.)
Steering ring diameter	280 mm (11 in.)	280 mm (11 in.)
Max working pressure	9.6 bar (140 psi)	9.6 bar (140 psi)
Relief valve pressure	11.3 bar (165 psi)	11.3 bar (165 psi)

Design Improvements

DETAILS	SERIAL No. INFORMATION
New design relief valve	582
‘CE’ marking	1245

Section 1

Introduction and Description

Contents **Para**

Introduction

1 The Vision Pedestal (Fig 1.1) is a fully portable pneumatic camera mount with self contained pump. It is suitable for use either outdoors or in a studio and is designed to accept the Vinten lightweight pan and tilt heads.

2 The pedestal has a central telescopic column, part of which may be raised or lowered during operation. This column is supported on a skid assembly which has castoring wheels. To facilitate transport, the telescopic column and skid may be separated and the skid folded.

3 The pedestal is equipped with a pressure relief valve to prevent a build up of excessive pneumatic pressure and with a safety latch to prevent accidental operation of the telescopic column. The pressure relief valve operates at one of two predetermined levels depending on the version supplied, and automatically resets at a predefined level below this.

Description

4 The pedestal consists of two main parts:

4.1 A skid assembly

4.2 A telescopic column

Skid assembly

5 The base of the skid assembly consists of a centre casting which accepts the outer tube (14) of the telescopic column. Radiating from the centre casting of the skid assembly are three equispaced skid legs (9), each fitted with a castor wheel (8) and brake (7) and a foot support moulding (11).

6 When in place, the outer tube is secured to the skid by a retaining clamp (10) and three leg ties (4) which are secured to the foot supports by rubber straps (6). Two versions of the skid assembly are available. The OB skid (3319-3B) has 125 mm (5 in.) castor wheels and brakes. The studio skid (3319-3C) has 100 mm (4in.) castor wheels with brakes and cable guards (12) and spring-loaded track locking pins (13).

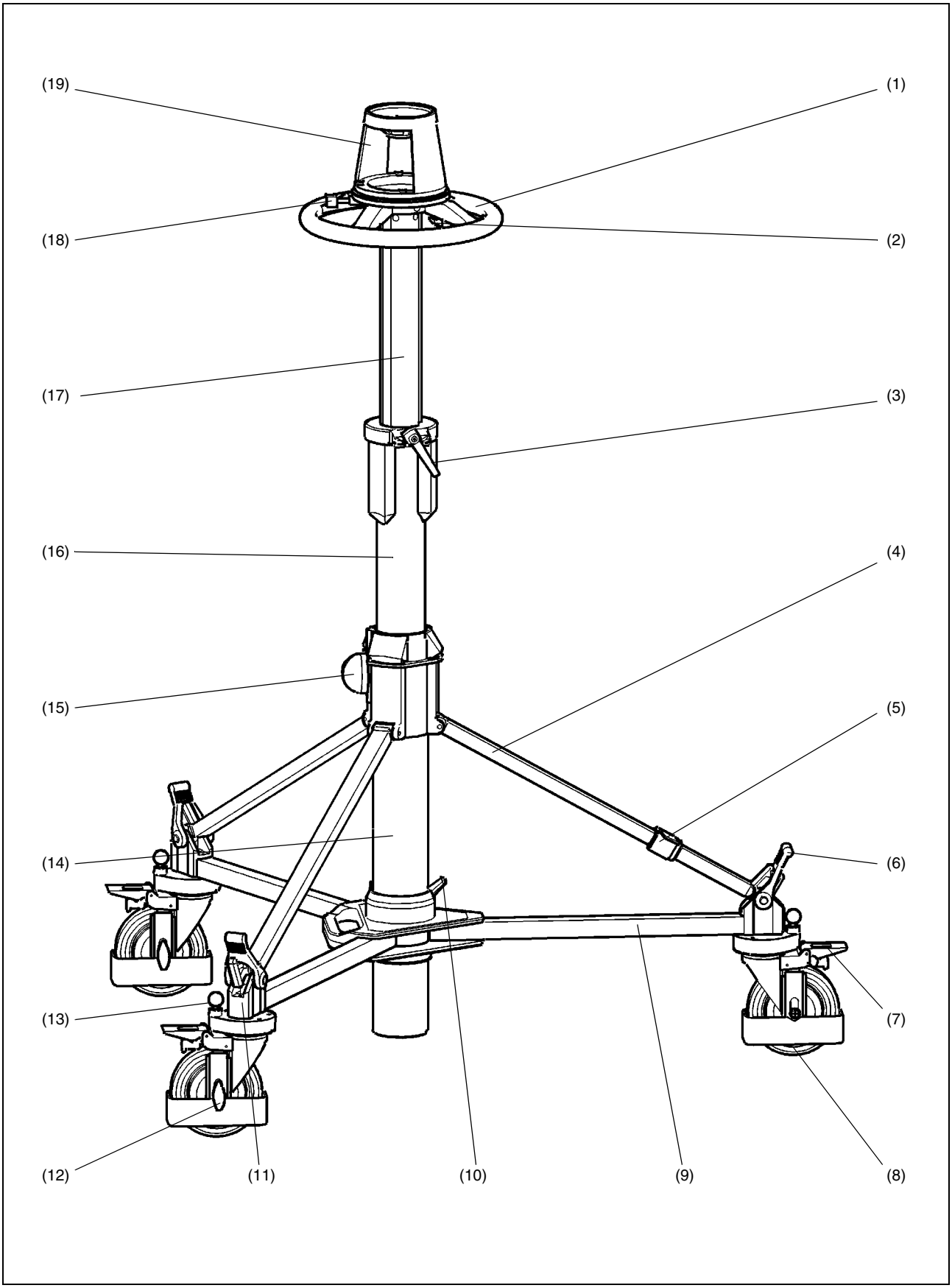


Fig 1.1 Vision Pedestal

Telescopic column

7 The telescopic column consists of:

7.1 An outer tube

7.2 An elevation tube

7.3 A tank assembly

Outer tube

8 The outer tube (14) forms the bottom section of the telescopic column. Its lower end fits into the centre casting of the skid assembly, where it is secured by the skid clamp (10). The upper end of the tube is fitted with a clamp (15) which secures the elevation tube of the telescopic column. Three leg ties (4) radiate from the upper part of the tube. These leg ties engage with the foot supports on the skid assembly to give the pedestal its strength and stability.

9 The pedestal is supplied with a retaining strap (5) to secure the leg ties to the outer tube of the telescopic column during transportation and storage.

Elevation tube

10 The elevation tube (16) forms the middle section of the telescopic column. The positioning of this tube relative to the outer tube defines the working height of the pedestal. Once set at the required height, the elevation tube is secured by tightening the bottom clamp (15).

11 The upper end of the tube is fitted with three sets of rollers which guide the tank assembly and a clamp (3) which secures the tank assembly in position. The lower end is closed by an end plate to which the tank assembly piston rod is secured.

Tank assembly

12 The tank assembly (17) forms the uppermost section of the telescopic column and comprises three main elements: the tank, the control valve and the ram cylinder. The outer wall of the tank has three machined longitudinal flats, which engage with the rollers in the elevation tube to guide it and to prevent rotational movement. The control valve is an integral part of the tank top plate. The ram cylinder is housed within the tank.

13 The tank is fitted with a pressure relief valve at its base, which is set at 11.3 bar (165 psi) to prevent over-pressurization.

14 The control valve (18) selects the mode of operation of the ram cylinder. When set to the 'Work' position it provides direct connection between the ram cylinder and the tank. In the 'Pump' position the control valve closes the connection between the ram cylinder and the tank and air compressed in the ram cylinder reaches the tank through a non-return valve to raise the pressure in the pneumatic system. An intermediate position mid-way between 'Pump' and 'Work' provides a restricted connection between the tank and the ram cylinder so that the pressure in the ram cylinder may rise gradually to tank pressure. When set to the 'Bleed' position the control valve provides a restricted vent from the tank to atmosphere to reduce tank pressure. During normal operation of the pedestal, the control valve is set to the 'Work' position and permits no further alteration of pressure.

15 The ram cylinder provides the counterbalance effort for the column and payload. It also acts as a pump to pressurize the pneumatic system. The base of the piston rod is fixed in the elevation tube. When the control

valve is set to the 'Pump' position movement of the tank assembly relative to the elevation tube causes the ram cylinder to operate as a pump. When the tank assembly is raised air at atmospheric pressure is drawn into the ram cylinder through a non-return valve in the head of the piston. During the downstroke the air is compressed by the piston and admitted to the tank through the non-return valve in the tank top plate to build up pneumatic pressure.

16 A steering ring (1) is located at the top of the tank assembly. It may, as its name suggests, be used for steering the pedestal, but is intended primarily for use as a handle, when pressurizing the pedestal or altering its height (Section 2).

17 The safety latch (2) and control valve are located close to the steering ring and are positioned in such a way as to minimise the risk of accidental operation.

Section 2

Operation

Contents **Para**

General

1 To identify components, please refer to Fig 1.1. For further operating instructions, please refer to Vision Pedestal Operators Guide, Publication Part No. 3320-8.

Assembling the pedestal

2 The Vision Pedestal is supplied with the column and skid separated and must be assembled before operation. Ensure that all items are accounted for prior to disposal of packing materials.

3 To assemble the pedestal proceed as follows:

3.1 On the skid assembly depress each leg locking plunger on the underside of the centre casting and fold out the leg. Ensure that the legs are locked in the open position.

3.2 Set the skid on the ground on its wheels and apply the wheel brakes (7).

3.3 If the skid is fitted with track locking pins turn each castor to align with the boss on the locking pin housing and engage the track locking pin (13).

3.4 Fully slacken the skid clamp (10).

3.5 On the telescopic column depress the top stage (17) to its lowest point and engage the safety latch (2).

3.6 Ensure the bottom clamp (15) is engaged and the control valve (18) is set to the 'Work' position (Fig 2.1).

3.7 Release the Velcro retaining strap (5).

3.8 Hold the telescopic column upright with the steering ring uppermost and swing the three leg ties up almost to horizontal.

3.9 Lift the column assembly by the steering ring and lower it vertically into the skid centre casting. Engage the leg ties on the foot supports add secure with the rubber strap (6).

3.10 Tighten the skid clamp (10).

3.11 Secure the Velcro retaining strap (5) clear of the wheels.

3.12 The pedestal is now assembled and must be pressurized before a load is fitted.

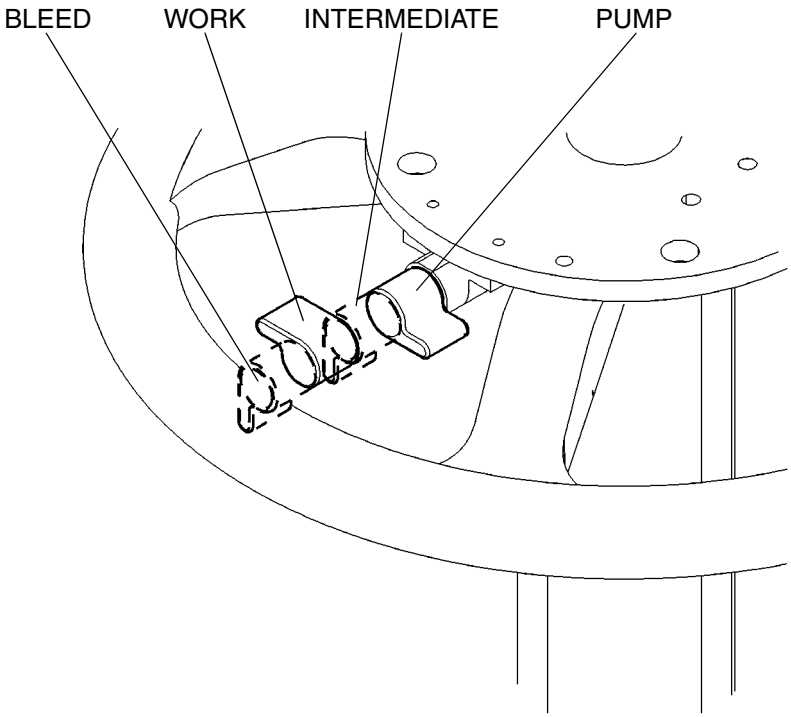


Fig 2.1 Control Valve

Pressurizing the pedestal

WARNING!: The Vision Pedestal is fitted with a pressure relief valve as a safeguard against over-pressurization.
Do not attempt to adjust the pressure relief valve.

Initial pressurization

WARNING!: A pressurized pedestal will rise rapidly when the safety catch is released. Do not release the safety catch when pedestal is pressurized and balancing load is not installed. Always restrain the pedestal by hand pressure on the steering ring when the safety catch is released.

4 To pressurize the pedestal proceed as follows:

4.1 Ensure that bottom clamp (15) is engaged.

4.2 Slacken top clamp (3).

4.3 Depress the steering ring (1) slightly, release the safety latch (2) and allow the top column to rise under hand restraint. The extent to which the column rises will depend upon the pressure in the pneumatic system.

4.4 Set the control valve (18) to the PUMP position (Fig 2.1) and pump the tank assembly over its full stroke until a counterbalancing force at least equal to the intended load has been achieved.

WARNING!: A pressurized pedestal will rise rapidly if the control valve is set to WORK. Do not move the control valve directly from PUMP to WORK

4.5 Set the control valve (18) to the INTERMEDIATE position for 10 seconds to allow the pressure to equalize between the pump cylinder and tank tube. The tank tube will rise to its full extent during this time.

4.6 Set the control valve (18) to the WORK position.

Fitting a load

5 To fit a load proceed as follows:

5.1 Pressurize the pedestal.

5.2 Depress the top stage to its lowest position and engage the safety latch (2).

5.3 Fit the load securely to the mounting face or to the 100 mm levelling bowl adaptor (1) using the appropriate fastenings.

5.4 Depress the steering ring slightly, release the safety latch (2) and allow the tank assembly to rise under hand restraint.

5.5 Try the balance of the load and adjust the pressure if necessary.

5.6 If the load is to remain static at a fixed height for any length of time, engage the top clamp (4).

Adjusting pressure

6 The pressure in the pneumatic system may be increased or decreased to provide the correct counterbalancing force as follows:

6.1 To increase pressure, remove the load and pressurize the pedestal.

6.2 To reduce the pressure, set the control valve (18) to the BLEED position (Fig 2.1) until the desired force is achieved, then set it to the WORK position.

Removing a load

7 To remove a load proceed as follows:

7.1 Depress the top stage to its lowest point and engage the safety latch (2).

7.2 Engage the top clamp (3) and remove the load.

7.3 Unless another load is to be fitted, depressurize the pedestal by setting the control valve (2) to the BLEED position (Fig 2.1).

7.4 After depressurization set the control valve to the WORK position.

Using the pedestal

Height adjustment

Lower stage

8 The elevation tube (16) forms the lower stage of the pedestal height adjustment and has a range of 431 mm (16.9 in.). This stage is not fitted with any form of counterbalance mechanism but has been designed so that the piston effect of the elevation tube entering the outer tube will provide sufficient air-damping to prevent a sudden drop if the lower clamp is released while the pedestal is carrying a load.

9 To adjust the height setting:

9.1 Lower the top stage and engage the top clamp (3).

9.2 Support the weight of the load by holding the steering ring (1) and then slacken the bottom clamp (15) by turning the knob counter-clockwise until the lower stage is free to move.

9.3 Use the steering ring to set the column at the required height and tighten the bottom clamp.

Top stage

10 The top stage of the column has an on-shot stroke of 414 mm (16.3 in.) and the load can be moved over this distance, in balance, by raising or lowering the steering ring.

11 A clamp (3) is provided for the top stage. This can be used to hold the top stage in position if fixed-height operation is required. Turn the clamp lever clockwise to apply the clamp and counter-clockwise to release it.

Brakes

12 Each of the pedestal wheels is fitted with a foot-operated brake (7). The brakes are applied by pressing down on the lever situated above the wheel and released by pressing on the centre 'pop-up' lever which is raised when the brake is on.

Adjustment of cable guards

13 The cable guards (12) fitted to the studio version are height-adjustable and should be set as required. Adjustment is carried out by slackening the knobs, setting the cable guard at the required height and re-tightening the knobs.

Pedestal movement

14 The wheels on the studio version of the Vision pedestal have the facility of being locked into the straight ahead position or of castoring freely. The castor/lock changeover is effected by track lock pins (13), located just above each castor; the pins on the folding skid legs have black knobs and the pin on the fixed leg has a red knob. Each lock pin is spring loaded to engage in a hole in the castor top plate. Each track lock pin may be secured in the disengaged position by pulling it up against the spring and turning it through 90°. To engage the track lock turn the castor to align with the pin and then turn the lock pin so that the cross pin drops into the slot in the housing. Note that the lock will only engage when the castor is correctly aligned.

15 The castor/lock arrangement provides castor, track and steer modes.

WARNING!: To ensure maximum stability, particularly when moving over uneven ground, reduce pedestal height to a minimum

16 For castoring motion, disengage all three track locks (13). The pedestal can now be moved freely in any direction.

17 For tracking motion, engage all three track locks. The pedestal can now track back and forth in a straight line.

18 For steer motion:

18.1 Position the fixed leg of the skid (the one with the RED knob on the track lock pin) in the intended direction of travel.

18.2 Engage the black track locks.

18.3 Disengage the red track lock.

18.4 With the fixed leg of the pedestal facing forward the pedestal can now be moved around with a 'steering-type' motion.

Transportation and storage

19 The column and skid may be separated to facilitate transport or storage.

20 To separate the column and skid:

20.1 Lower the elevation tube as far as possible.

20.2 Engage the bottom clamp (15).

20.3 Depress the tank assembly and apply the safety latch (2).

20.4 Set the control valve (18) to the BLEED position (Fig 2.1) and allow the air pressure to vent.

20.5 When all of the air has been vented set the control valve (18) to the WORK position.

20.6 Remove the load.

20.7 Release the skid clamp (10) and the rubber securing straps (6). Lift the leg ties clear of the foot supports.

20.8 Use the steering ring to lift the telescopic column vertically until it is clear of the skid assembly then secure the leg ties with the retaining strap.

WARNING!: The column will be unstable if stood on its base or on the folded struts.

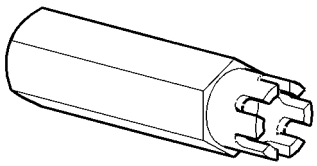
20.9 Depress each leg locking plunger on the underside of the skid and fold the leg.

Section 3

Tools and Materials

Special tools

1 The following special tools are required for certain procedures in Sections 4 and 5. For details, please contact Vinten Broadcast Ltd or your local distributor.

Item		Part No.	Procedure
	Wheel nut spanner	3319-900SP	Castor wheel installation

Consumable materials

2 The following consumable materials are required for certain procedures in Sections 4 and 5.

NOTE: Adhesives and lubricants are not supplied by Vinten Broadcast Ltd and should be obtained under local arrangements

Item	Part No.	Use
Grease, white bearing	Z150-085	'O' rings, clamps
Loctite 221	Z002-026	Screw locking
Loctite 222E	Z002-075	Screw locking
Loctite 242	Z002-077	Thread locking
Loctite 270	Z002-034	Screw locking
Loctite 290	Z002-012	Screw locking
Loctite 380	Z002-078	Adhesive
Loctite 409	Z002-076	Adhesive
Loctite 415	Z002-062	Adhesive
Loctite 542	Z002-025	Sealant
Loctite 638	Z002-058	Adhesive
Loctite Primer T	Z002-019	Primer for 542
Silcoset 153	Z002-036	Control valve knob cover

Section 4

Servicing

Contents **Para**

General

1 The Vision Pedestal is robustly made to high engineering standards and little attention is required to maintain serviceability save regular cleaning. Attention to the following points will ensure a long and useful service life with minimum need for repair. Should servicing or repair involving disassembly be required, refer to Section 5 of this manual.

Cleaning

2 During normal studio 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 flats on the top stage of the column and to the bowl of the levelling bowl adaptor.

NOTE: Do not use oil or grease on any exposed part of the telescopic column. This is unnecessary and traps dirt which acts as an abrasive.

3 Use out of doors will require special attention especially in adverse conditions. Salt spray must be washed off with fresh water at the earliest opportunity and the castor wheels dried off and oiled. Do not allow water to enter the telescopic column. Sand and dirt acts as an abrasive and should be removed with a semi-stiff brush or vacuum cleaner.

NOTE: Do NOT use wire brushes to remove accumulations of dirt. This damages the protective surfaces.

Routine checks

4 Check the following points during normal use:

4.1 Check for ageing and cracking of the rubber securing straps and renew if necessary.

4.2 Check the effectiveness of the top and bottom clamp.

4.3 Check for radial or side play in the top stage.

4.4 Check that pressure is not lost from the top stage during use.

Adjustments

5 Adjustments which may become necessary after considerable use are as follows:

5.1 Taking up wear in the bottom clamp.

5.2 Taking up wear in the top clamp and the skid clamp.

5.3 Elimination of radial and side play on the top stage.

5.4 Wheel alignment (studio version).

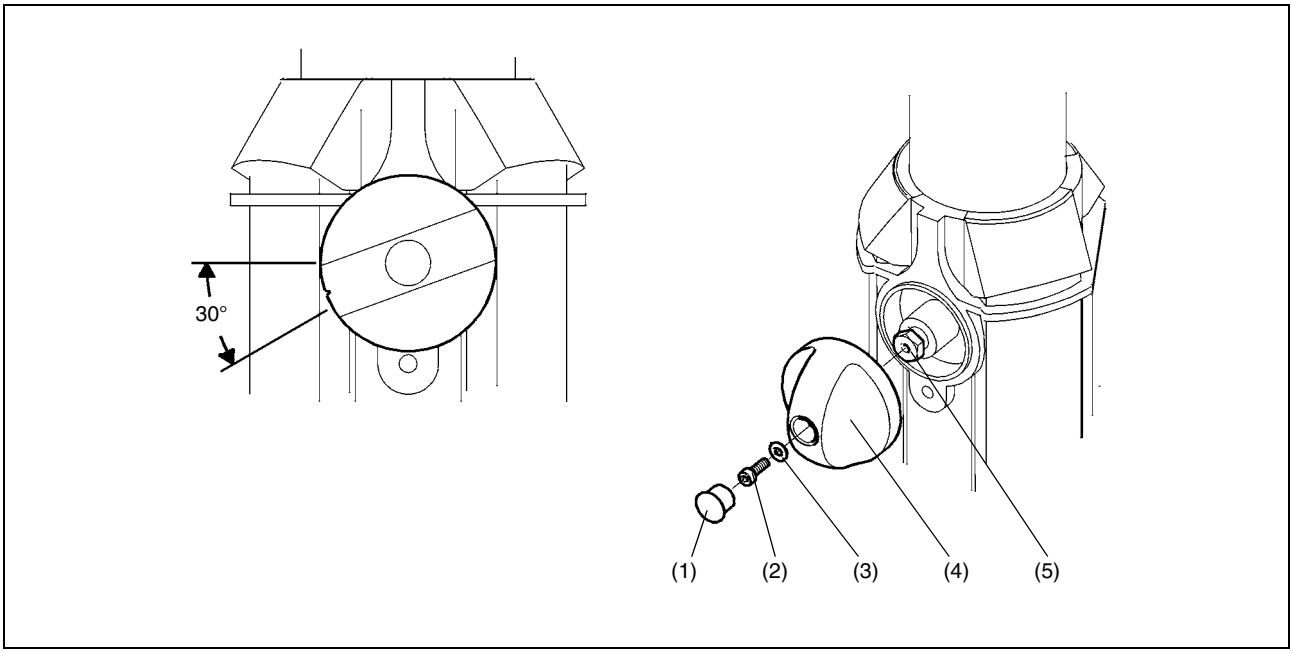


Fig 4.1 Bottom clamp adjustment

Bottom clamp adjustment

6 When applied finger-tight, the ‘V’ notch on the bottom clamp knob should be within the limits shown. To adjust the bottom clamp (Fig 4.1):

6.1 Tighten the clamp finger-tight.

6.2 Remove the hole plug (1). Remove the screw (2) and washer (3) securing knob (4) to the spindle (5).

6.3 Remove the knob, turn counter-clockwise, then replace on spindle (5) so that the ‘V’ notch on the clamp knob is within the limits shown.

6.4 Degrease screw (2), coat with Loctite 222E and secure knob with washer (3) and screw (2). Replace hole plug (1).

Top clamp and skid clamp adjustment

7 The top clamp and skid clamp are applied and released by turning the handle clockwise or counter-clockwise. Both handles have push-on/pull-off type ratchet adjustment.

8 To adjust the top and skid clamps pull the clamp handle away from the spindle, rotate it clockwise and release.

9 Repeat the above procedure, as necessary, until the clamp locks when applied but allows free movement when released.

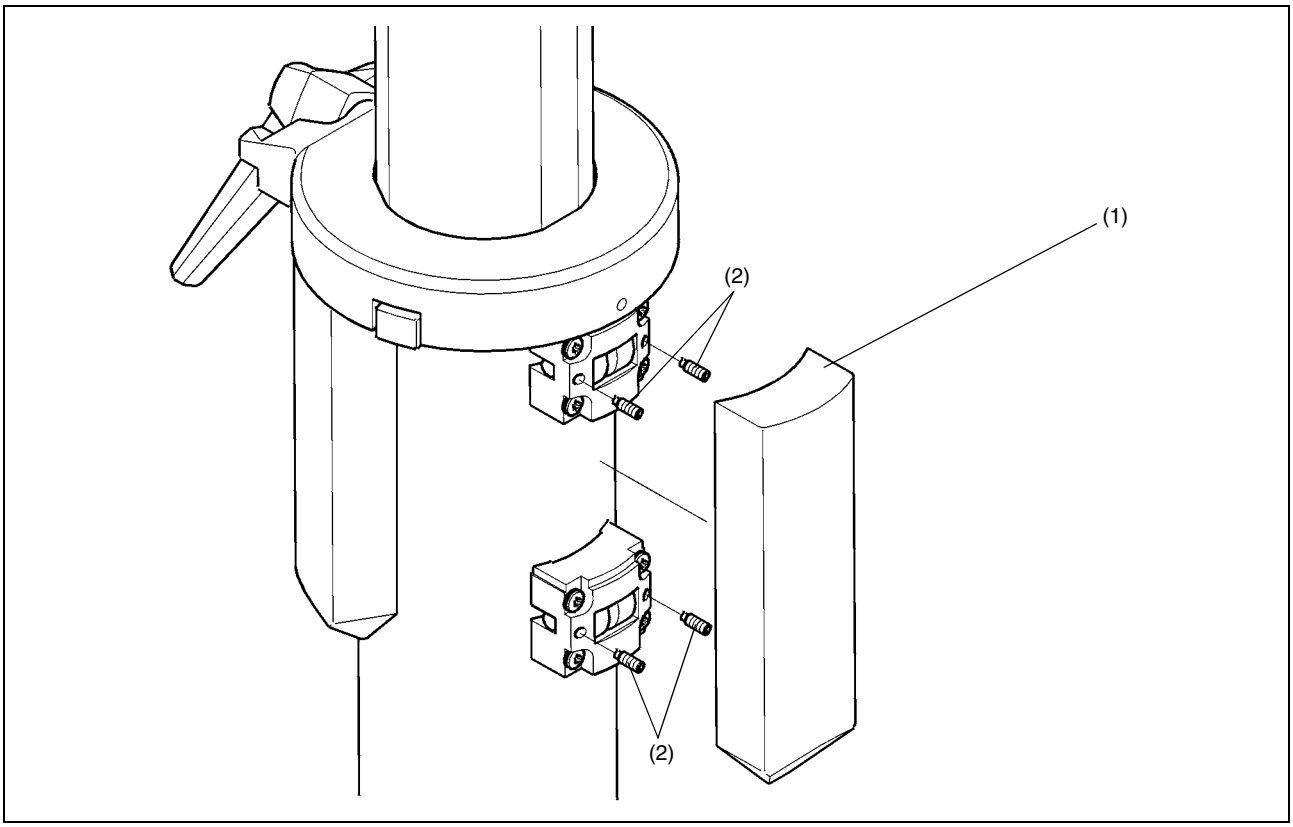


Fig 4.2 Elimination of radial and side play on the top stage

Elimination of radial and side play on the top stage

10 To eliminate radial and side play in the top stage (Fig 4.2):

10.1 Remove the load from the pedestal (See “Removing a load” on page 18.).

10.2 Depressurize the pneumatic system (See “Adjusting pressure” on page 18.).

10.3 Partly extend the elevation tube and engage the bottom clamp.

10.4 Remove the roller cover (1) from the rollers opposite the top clamp by prising off with a flat bladed screwdriver.

10.5 Adjust the grub screws (2) in each roller housing equally until radial and side play has been eliminated but the top stage still moves freely.

10.6 Degrease the grub screws by spraying degreasant into the threaded holes and secure them with a drop of Loctite 222E.

10.7 Refit the roller cover (1).

Wheel alignment (studio version).

11 To re-align the skid wheels:

11.1 Separate the column from the skid (See “Transportation and storage” on page 20.).

11.2 Engage track lock on each castor (See “Pedestal movement” on page 19.).

11.3 Referring to Fig 6.5 remove two screws (4) from each foot support (5) and remove foot support.

11.4 Using special wheel nut spanner (Part No. 3319-900SP) remove nut (6) on each leg.

11.5 Apply Loctite 242 to the nuts, re-install and tighten lightly.

11.6 Align the wheel on the fixed leg so that it runs parallel to the leg. Tighten nut (6) on the fixed leg.

11.7 Adjust each other leg in turn so that the skid runs in a straight line. Tighten nuts (6).

11.8 Install foot support (5) on each leg and secure with two screws (4).

Minor repairs

Leak testing and rectification on the top stage.

12 If it becomes apparent that air pressure is being lost, pressurize the pedestal and check for leaks by applying a strong soap solution with a small paint brush around the control valve (Fig 6.2 item 22) and the large grub screw (Fig 6.2 item 27) on the opposite side of the tank top plate. Leaks will be apparent by the

appearance of bubbles. If there are no bubbles, the leak is internal and the telescopic column must be dismantled for further investigation (Section 5). In the event of visible leaks, proceed as follows:

WARNING!: This pedestal is pressurized to a maximum of 9.6 bar (140 psi)). Do not disassemble or interfere with any component in the pressure system without proper authority. Ensure all pressure is vented before disassembling any component in the pressure system.

12.1 Control Valve - renew control valve 'O' rings (Fig 6.2 items 25 and 26).

12.2 Large grub screw (Fig 6.2 item 27) - remove and re-seal with Loctite 542.

Section 5

Repair

Contents Para

General

1 Repair and renewal of damaged items involves disassembly and must be carried out in accordance with the following instructions. Any load must be removed from the pedestal before carrying out the following procedures.

2 Disassembly and assembly of the various components is carried out in conjunction with figures in the Illustrated Parts List (Section 6).

WARNING!: This pedestal is pressurized to a maximum of 9.6 bar (140 psi)). Do not disassemble or interfere with any component in the pressure system without proper authority. Ensure all pressure is vented before disassembling any component in the pressure system.

Disassembly

Column

WARNING!: Ensure all pressure is vented before disassembling any part of the column.

Tank assembly

3 To remove the tank assembly:

3.1 Separate the telescopic column from the skid (Section 2).

3.2 Referring to Fig 6.4 remove the outer snap ring (17) from the base of the outer tube (11) by prising out the exposed bevel end of the snap ring with a screwdriver until enough of the ring is free of the annular groove to place a second screwdriver behind it. Progressively free the ring with two or three screwdrivers until it can be pulled from the outer tube with pliers.

3.3 Remove the lower cover (18) and inner snap ring (17) complete with glued-on 'O' ring (19) from the base of the outer tube (11). Remove and discard 'O' ring (19). Remove old adhesive from snap ring (17).

3.4 Referring to Fig 6.3 remove four retaining screws (19) and 'O' ring retaining plate (20) from the bottom of the elevation tube.

3.5 Remove 'O' ring (21), spacer (18), gauze filter (22) and washer (23) from the elevation tube. Discard the 'O' ring and renew during assembly.

3.6 Referring to Fig 6.2 pull out piston rod (36) from the elevation tube sufficiently to drift out Spirol pin (8). Remove washer (7) from the piston rod.

3.7 Ensure top clamp (Fig 6.3 item 26) is in the disengaged position and lay the telescopic column horizontally with the top clamp downwards.

3.8 Withdraw the tank assembly from the elevation tube. Remove top clamp pad (Fig 6.3 item 27). Note the orientation of the tank assembly relative to the elevation tube for assembly.

4 To dismantle the tank assembly (Fig 6.2):

4.1 Remove the tank assembly (Para 3).

4.2 Remove four retaining screws (2), rubber washers (4), washers (5) and Nyloc nuts (6) which secure the steering ring (3) to the top tank plate and remove steering ring. Discard Nyloc nuts and renew during assembly.

4.3 Remove two screws (24) which secure shaft guide (23) to top tank plate.

4.4 Withdraw control valve switchover shaft (22) complete with shaft guide (23) from top tank plate.

4.5 Remove 'O' rings (25) and (26) from the switchover shaft and discard.

NOTE: Grub screw (27) is secured with Loctite and is under slight spring compression. Take care not to lose items during dismantling.

4.6 Remove grub screw (27) from tank top plate.

4.7 Withdraw valve spring (28), valve (29) and 'O' ring (30) from top tank plate. Discard 'O' ring (30).

NOTE: Locating ball (14) and spring (15) are retained by catch lever (10) with the spring under compression.

4.8 Remove screw (11) and remove catch lever bracket (13) complete with catch lever (10). Collect locating ball (14) and spring (15).

WARNING!: Do not remove or attempt to adjust the pressure relief valve.

4.9 Apply short pieces of adhesive tape or similar non-abrasive marking to relief valve assembly and tank tube to indicate orientation for assembly.

4.10 Remove four countersunk socket head screws (43) from lower end of tank assembly and withdraw tank lower end plate (40) complete with pressure relief valve assembly and 'O' rings (41) and (42).

4.11 Remove and discard 'O' rings (41) and (42).

4.12 Withdraw ram cylinder (44) and piston rod assembly (34, 35, 36) from tank tube (45).

4.13 Withdraw piston rod assembly (34, 35, 36) from ram cylinder (44).

4.14 Hold open the tines of the piston head (34) and remove the piston valve (32).

4.15 Break the Loctite seal and remove 'O' ring (33) from the piston valve. Discard the 'O' ring and remove remaining traces of adhesive from piston valve (32).

4.16 Remove 'O' ring (31) from piston head and discard.

4.17 Note orientation and remove eleven 'O' rings (37), cylinder sleeve (39) and nine plain washers (38) from the piston rod. Examine 'O' rings and replace if damaged.

4.18 Apply short pieces of adhesive tape or similar non-abrasive marking to tank top plate and tank tube to indicate orientation for assembly.

4.19 Remove four countersunk socket head screws (43) from the tank top plate (48) and remove tank tube. Remove and discard 'O' rings (46) and (47) from the tank top plate.

Elevation tube

5 To remove the elevation tube (Fig 6.4):

5.1 Separate the telescopic column from the skid (Section 2).

5.2 Remove the tank assembly from the elevation tube (Para 3).

5.3 Remove grub screw (9) and guide pin (8) from below the bottom clamp on the outer tube.

5.4 Lay the outer tube on a horizontal surface with the bottom clamp downwards.

5.5 Withdraw the elevation tube until it is clear of the outer tube.

5.6 Remove clamp (1) and shims (2) from inside the top of the outer tube.

6 To dismantle the elevation tube (Fig 6.3):

6.1 Push out the Spirol pin (3) from inside the tube with the short leg of a small Allen key until it is free of the tube.

6.2 Remove the tank tube clamp assembly (2), by pivoting the free end about the retaining grub screw (25) and lifting off.

6.3 Remove roller housing covers (24) from the elevation tube by placing a screwdriver under the moulded cutout and prising off.

NOTE: The bearing assemblies are held together by the roller housings (7). All internal components are released when the housing is separated from the elevation tube.

6.4 Remove four pan head screws (9) and washers (8) and take off each roller housing (7) complete with bearing assembly. Discard washers (8) and fit new during assembly.

6.5 Extract spindle (11) with bearings (12), spacer (13) and shims (6) from roller housing. Note number and position of shims for assembly. Remove grub screws (10).

Outer tube

7 To dismantle the outer tube (Fig 6.4):

7.1 Remove the tank assembly and elevation tube from the outer tube (Para 3 and Para 5).

7.2 Mark the position of the skid clamp (13) on the outer tube.

7.3 Slacken retaining screw (15) and slide skid clamp (13) off the outer tube.

7.4 Remove six grub screws (24) and take off two leg ties (10) and leg tie (with strap) (20). Note position of leg tie (with strap) (20).

7.5 Prise hole plug (7) out of clamp knob (4), remove screw (6) and washer (5) and take off clamp knob.

7.6 Unscrew spindle (3) from outer tube.

7.7 Remove the top housing covers (25) by springing the sides apart and pulling them away from the outer tube. The top housing cover springs (26) are attached to bosses in the cover and must be removed with care.

Skid

NOTE: Both types of skid assembly are covered in the following procedure with reference to variations as they occur.

Centre casting and leg assemblies

8 To dismantle the centre casting and leg assemblies (Fig 6.5):

8.1 Separate the telescopic column from the skid (Section 2).

8.2 Turn the skid upside down and unfold the legs.

NOTE: The skid leg locking plungers (26) are held under slight spring compression by the skid centre castings. Take care not to lose items during dismantling.

8.3 Remove screw (25) and five screws (23) and separate upper and lower centre castings (2) and (24).

8.4 Lift out folding legs (30) and collect leg tube lock plungers (26), springs (27), leg tube pads (28) and nylon washers (29).

8.5 Lift out fixed leg (22) which is located in the skid casting by bosses which engage holes in the leg.

8.6 Remove rubber securing strap (3) from foot support (5).

8.7 If fitted, remove cable guards (15) by taking off adjusting knob (16) and removing screw (12) and washers (13) and (14). Slide off cable guard.

Castor assemblies

9 To remove the castor assembly (Fig 6.5):

9.1 Separate the telescopic column from the skid (Section 2).

9.2 Remove two screws (4) which secure foot support (5) to the leg assembly and remove foot support.

9.3 Use tool 3319-900SP through the hole in the top of the leg tube to remove nut (6). Note that nut is secured with Loctite 242.

9.4 Remove castor assembly (19) or (31) and collect washer (7) from inside leg tube.

9.5 Separate wheel lock housing (20) from leg tube assembly.

Track locks

10 To dismantle a track locking pin (Fig 6.5):

WARNING!: Track locking pins (11) are held under spring compression and must be removed with care.

10.1 Remove leg assembly from centre casting (Para 8). Note position of leg assembly and colour of knob for assembly.

10.2 Do not remove castor assembly from leg assembly unless required (Para 9).

10.3 Withdraw track lock pin from wheel castor and turn castor clear of pin.

10.4 Apply pressure to the point of the track locking pin to lift Spirol pin (9) clear of wheel lock housing (20). Drift out Spirol pin (9).

10.5 Grip lower part of locking pin (11) to prevent rotation and unscrew knob (8). Note that knob is secured to pin with Loctite 415.

10.6 Withdraw track locking pin from the wheel lock housing complete with spring (10).

Assembly

Column

WARNING!: All seals and screws that are disturbed must be replaced with genuine Vinten seals and screws.

Tank assembly

11 To assemble the tank tube (Fig 6.2):

11.1 Lightly lubricate 'O' ring (41) with white bearing grease and install in the relief valve assembly (40).

11.2 Lightly lubricate 'O' ring (45) with white bearing grease and install in the tank top plate (48).

11.3 Lightly lubricate 'O' ring (25) and 'O' ring (26) with white bearing grease and fit to switchover shaft (23).

11.4 Insert switchover shaft into control port on tank top plate (48). Apply Loctite 221 to two screws (24) and secure shaft guide (23) to tank top plate. Leave control valve in 'Work' position.

11.5 Lubricate 'O' ring (30) with white bearing grease, fit to valve (29) and insert into tank top plate.

11.6 Prime tapped hole in tank top plate and grub screw (27) with Loctite primer 'T'.

11.7 Insert spring (28) into hole and fit grub screw (27) flush to tank top plate using Loctite 542 as sealant.

11.8 Lubricate 'O' ring (46) with white bearing grease and fit to tank top plate.

11.9 Lubricate bore of ram tube (44) very lightly with white bearing grease.

11.10 Assemble ram tube (44) into tank top plate (48).

11.11 Ensure that piston valve (32) and 'O' ring (33) are clean and free from grease. Use Loctite 380 to attach 'O' ring to piston valve. After assembly lubricate 'O' ring with white bearing grease.

11.12 Assemble piston valve into head of piston (34) with 'O' ring towards piston rod.

11.13 Assemble washers (38), 'O' rings (37) and cylinder sleeve (39) onto piston rod in the following order: one 'O' ring, one washer, one 'O' ring, one washer, one 'O' ring, one washer, one 'O' ring, one washer, cylinder sleeve, one washer, one 'O' ring, one washer, one 'O' ring, one washer, one 'O' ring, one washer, one 'O' ring, one washer, one 'O' ring, one washer.

11.14 Lightly lubricate 'O' ring (31) with white bearing grease and fit to piston.

11.15 Insert piston assembly into ram tube (44).

11.16 Assemble tank tube (45) to tank top plate (48) to marks applied during disassembly.

11.17 Secure tank tube to tank top plate with four screws (43) retained with Loctite 222E and remove assembly marks.

11.18 Lubricate 'O' ring (41) with white bearing grease and fit to relief valve assembly (40).

11.19 Assemble relief valve assembly (40) to tank tube to marks applied during disassembly.

11.20 Install four screws (43) to retain relief valve assembly and remove assembly marks.

11.21 Assemble catch lever (10) to catch lever bracket (13) with spindle (12). Apply Loctite 638 to one end of spindle prior to final assembly.

11.22 Lightly lubricate spring (14) and steel ball (14) with white bearing grease and place in hole in tank top plate.

11.23 Install catch lever bracket (13) on tank top plate to trap steel ball (14) and spring (15) and retain with screw (11). Secure screw (11) with Loctite 222E. Note that grub screw (‘6) which provides second location point for bracket (13) is secured in tank top plate with Loctite 270.

11.24 Thread steering ring (3) onto tank assembly and secure with four screws (2), rubber washers (4), washers (5) and Nyloc nuts (6). Ensure that steering wheel is arranged so that warning and instruction labels on spokes are adjacent to safety catch and control lever. Use new Nyloc nuts (6) and tighten screws (2) until rubber washers are lightly compressed.

12 To install the tank tube:

12.1 Assemble the elevation tube (Para 13).

12.2 If roller housings have been removed from elevation tube ensure that grub screws (Fig 6.3 item 10) are removed.

12.3 Ensure top clamp (Fig 6.3 item 26) is in the disengaged position and lay the telescopic column horizontally with the top clamp downwards.

12.4 Install top clamp pad (Fig 6.4 item 1).

12.5 Insert the tank tube into the elevation tube. Ensure that the orientation of the tank tube relative to the elevation tube is as noted during disassembly. If the tank tube is incorrectly oriented the pressure relief valve will not enter the recess provided for it in the elevation tube end.

12.6 Draw out piston rod (Fig 6.2 item 36) from end of elevation tube sufficiently to gain access to the cross drilling for Spirol pin (8).

12.7 Thread on washer (7) and drive in Spirol pin (8).

Elevation tube

13 To assemble the elevation tube (Fig 6.3):

13.1 Fit catch (4) to elevation tube (14) and secure with two screws (5). Apply Loctite 290 to inner end of each screw.

13.2 Assemble spacer (13), bearings (14) and shims (6) onto spindle (11). Fit equal numbers of shims to each side of rollers to eliminate side play when offered up to roller housing.

13.3 Fit each bearing assembly into roller housing (7) and secure to elevation tube with four screws (9) and new washers (8). Tighten screws (9) to torque of 1.36Nm (12lbf in.).

13.4 Do not fit grub screws (10) at this stage.

13.5 Refit tank tube clamp assembly (1) to the elevation tube (44), by pivoting the free end about the retaining grub screw (25) and tap in Spirol pin (3) to secure.

14 To install the elevation tube (Fig 6.4):

14.1 Assemble the outer tube (Para 15)

14.2 Lay the outer tube on a horizontal surface with the bottom clamp spindle downwards.

14.3 Assemble two shims (2) into clamp pad (1) and fit clamp pad into top housing

14.4 Install elevation tube (Fig 6.3) into outer tube and align groove with position for guide pin (8).

14.5 Install guide pin (8) and grub screw (9), securing grub screw with Loctite 222E.

14.6 Adjust grub screw so that elevation tube is free to move in outer tube with minimum rotational freedom.

14.7 Screw in clamp knob spindle (3) finger tight. Fit clamp knob as shown in Fig 4.1 (Section 4). Secure clamp knob with screw (6) and washer (4). Fit plug (7) into clamp knob.

14.8 Tighten bottom clamp and engage safety catch.

14.9 Apply protective tape to face of tank tube top plate.

14.10 Stand column assembly on face of tank tube top plate.

14.11 Referring to Fig 6.3 fit spacer (18), new 'O' ring (21), washer (23) and filter (22).

14.12 Install retaining plate (20) and secure with four screws (19).

14.13 Slacken bottom clamp and lift outer tube about 50mm (2in.). Retighten bottom clamp.

14.14 Fit one snap ring (17) to inner groove of outer tube (11). Degrease inner face of snap ring after installation.

14.15 Cut 'O' ring (19) to fit in bore of outer tube and degrease.

14.16 Use Loctite 409 to adhere 'O' ring (19) to inner face of snap ring (17).

14.17 Install outer tube lower cover (18) and retain with second snap ring (17).

14.18 Assemble column to skid (Section 2) and apply skid brakes.

14.19 Referring to Fig 6.3 degrease grub screws (10) and threaded holes in roller housings (7).

14.20 Fit grub screws to roller housings (7).

14.21 Ensure that top tube clamp lever is released and release safety catch.

14.22 Adjust grub screws (10) in four roller housings (7) adjacent to bottom clamp knob to centralize tank assembly in elevation tube.

14.23 Adjust grub screws (10) in two roller housings (7) opposite to clamp knob to take up all radial play between tank tube and rollers. When correctly adjusted the tank tube can be moved freely over the whole length of travel in the elevation tube without rotational or side play. Secure each grub screw with Loctite 222E.

14.24 Refit roller housing covers (24).

14.25 Adjust top tube clamp lever (Section 4).

14.26 Carry out leak test (Section 4).

Outer tube

15 To assemble the outer tube (Fig 6.4):

15.1 Install a spring (26) on the left-hand boss in each top housing cover (25) so that the bent end of the spring points inwards. Clip each cover into position on the top housing, ensuring that the straight end of the spring engages with the lug in the cover and the bent end of the spring rests in the notch in the housing.

15.2 Degrease six grub screws (24), apply Loctite 222E and install in top housing to form pivots for two leg ties (10) and leg tie (with strap) (20). Install leg ties with open side of foot moulding facing downwards. Ensure leg tie (with strap) (20) is in the position noted during disassembly. Tighten each pair of grub screws (24) until the leg tie will hold its own weight when extended horizontally from the outer tube.

15.3 Slide skid clamp (13) onto the outer tube (11) to the position marked during disassembly. Ensure that skid clamp is correctly positioned to allow engagement of leg ties and tighten retaining screw (15).

15.4 Assemble column to skid (Section 2).

15.5 Adjust skid clamp lever (Section 4).

Skid

NOTE: Assembly of both types of skid is covered in the following procedure with reference to variations as they occur.

16 To assemble the skid:

16.1 Assemble track locks (if fitted) (Para 17).

16.2 Assemble castors and track locks (if fitted) to skid legs (Para 20 or Para 21).

16.3 Assemble centre casting and skid legs (Para 22).

16.4 Align wheels (studio skid only) (Section 4).

Track locks

17 The track locking pin is fitted in wheel lock housing (11) directly above the castor. The angle of the wheel lock housing relative to the leg tube (and thus the direction of the wheel when the track lock is engaged) is determined by the dowel pin (21) fitted in one of three holes in the wheel lock housing. Final positioning of the wheel lock housings for alignment of the wheels is detailed in Section 4.

18 The dowel pins are fitted as follows:

18.1 Fixed leg: in centre hole (in line with track lock pin).

18.2 Folding leg: in side hole which will be nearer to carrying handle when leg is assembled to centre casting.

19 To assemble the track locking pins (Fig 6.5):

19.1 Fit a spring (10) over the stem of wheel lock plunger (11), assemble to wheel lock housing (20) and hold in compression to expose the hole for the Spirol pin. Drive in Spirol pin (9) to retain.

19.2 Apply Loctite 415 to the thread of wheel lock plunger (11) and screw on knob (8). Note that the knobs on the track locking pins are colour coded. The track locking pin on the fixed leg has a red knob and those on the folding legs have black knobs.

Castor assemblies

20 To assemble the castors (OB skid) (Fig 6.5):

20.1 Degrease thread on castor assembly (31).

20.2 Assemble castor to leg with washer (7) and slotted nut (6). Apply Loctite 242 to thread before fitting nut. Use wheel nut spanner 3319-900SP to tighten slotted nut (6).

20.3 Install foot support (5) and secure with two screws (4).

20.4 Fit leg retaining strap (3).

21 To assemble the castors (studio skid) (Fig 6.5):

21.1 Degrease thread on castor assembly (19).

21.2 Fit wheel lock housing (20) to castor assembly and assemble to leg with washer (7) and slotted nut (6). Ensure that dowel pin (21) engages in hole in leg tube. Use wheel nut spanner 3319-900SP to turn slotted nut (6) but do not tighten at this stage.

NOTE: After initial assembly wheel alignment must be set with legs assembled to centre casting (Section 4) before installation of foot supports and cable guards.

21.3 Install foot support (5) and secure with two screws (4).

21.4 Fit leg retaining strap (3).

Centre casting and leg assemblies

22 To assemble the centre casting and leg assemblies (Fig 6.5):

22.1 Assemble castors (Para 20 or Para 21) and, where fitted, track locks (Para 17) to each leg. On skids fitted with track locks do not tighten slotted nuts (6) or fit foot supports (5) at this stage.

22.2 Lay the upper centre casting (2) upside down on the bench.

22.3 Install fixed leg (22) on two spigots in the centre casting.

22.4 Fit a nylon washer (29) and leg pad (28) to the upper face of a folding leg (30) and fit to the centre casting. Note that legs fitted with track locks are handed, the track lock pin being placed on the side nearer to the carrying handle.

22.5 Place a spring (27) and a leg tube lock plunger (26) in the pocket in each folding leg tube and fit a nylon washer (29) over the leg tube pivot.

22.6 Fit the lower centre casting (24) and secure with five screws (23) and one screw (25).

22.7 Align wheels of skids fitted with track locks (Section 4).

Section 6

Illustrated Parts List

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Introduction

1 This parts list is issued for the Vision Pedestal, Type 3320, manufactured by VINTEN BROADCAST LIMITED, Western Way, Bury St. Edmunds, Suffolk, IP33 3TB, England.

2 The Vision Pedestal is available in Outside Broadcast (OB) and studio versions. The OB versions have castor wheels and brakes. The studio versions are fitted with track locks and cable guards.

Ordering spare parts

WARNING!: All seals and screws that are disturbed must be replaced with genuine vinten seals and screws. If any part associated with the tank assembly requires replacing, the replacement must be a genuine vinten pressure-tested spare part.

3 When ordering a spare part, please quote the part number, NOT the item number. Certain items form part of -900SP series composite spare parts. These are detailed in Fig 6.6 and indicated in the parts lists by an asterisk (*) against the part number.

4 Due to restrictions placed on the transportation of adhesives and other materials, supplies of the consumable materials listed in Section 3 should be obtained from your local distributor.

Main assembly part numbers

5 Ensure that the correct part number is quoted when ordering main assemblies.

Assembly	Part No.
OB Pedestal (Complete)	3320-3B
Studio Pedestal (Complete)	3320-3C
OB Skid	3319-3B
Studio Skid	3319-3C
Telescopic Column	3320-11
100mm Bowl Adaptor	3330-16

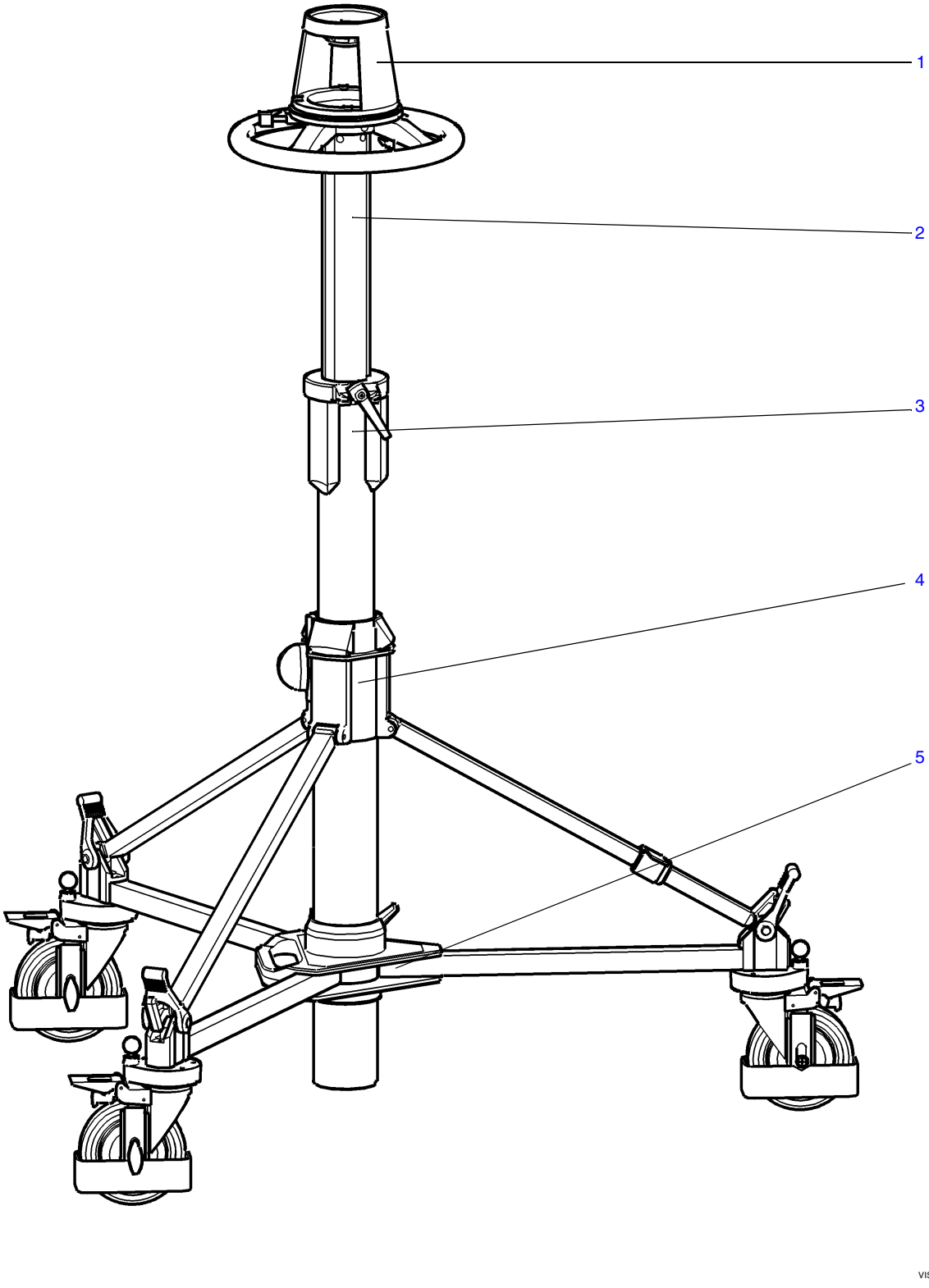

Fig 6.1 Vision Pedestal

Fig 6.1 Vision Pedestal

Item No.	Part No.	Nomenclature
1	3330-16	100 mm levelling bowl adaptor
	3320-11	Pedestal assembly, comprising:
2	-	Top stage (Fig 6.1)
3	-	Elevation tube (Fig 6.2)
4	-	Outer tube (Fig 6.2)
5	3319-3B 3319-3C	OB skid (Fig 6.3) Studio skid (Fig 6.3)

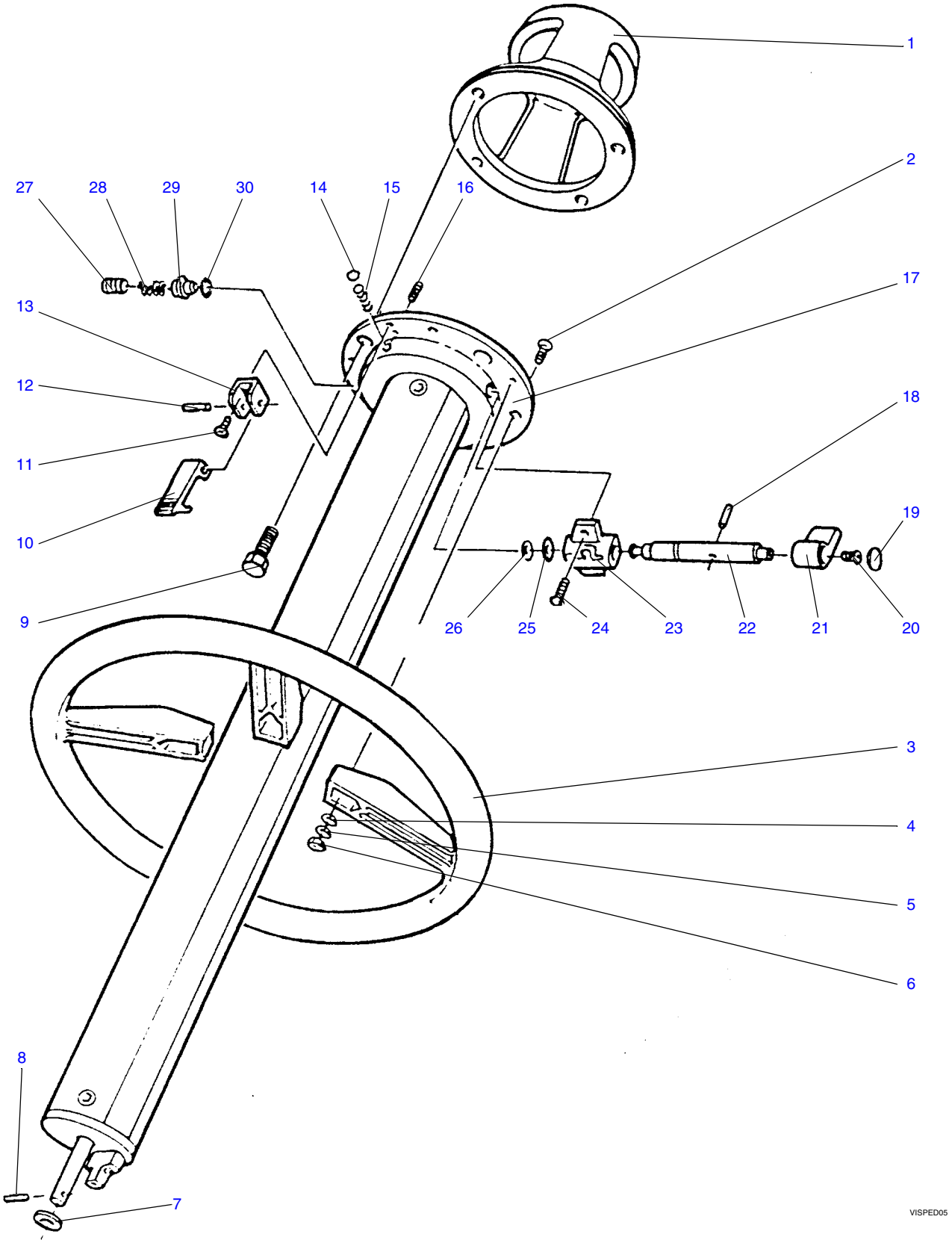

Fig 6.2 Vision Pedestal Top Stage (Sheet 1)

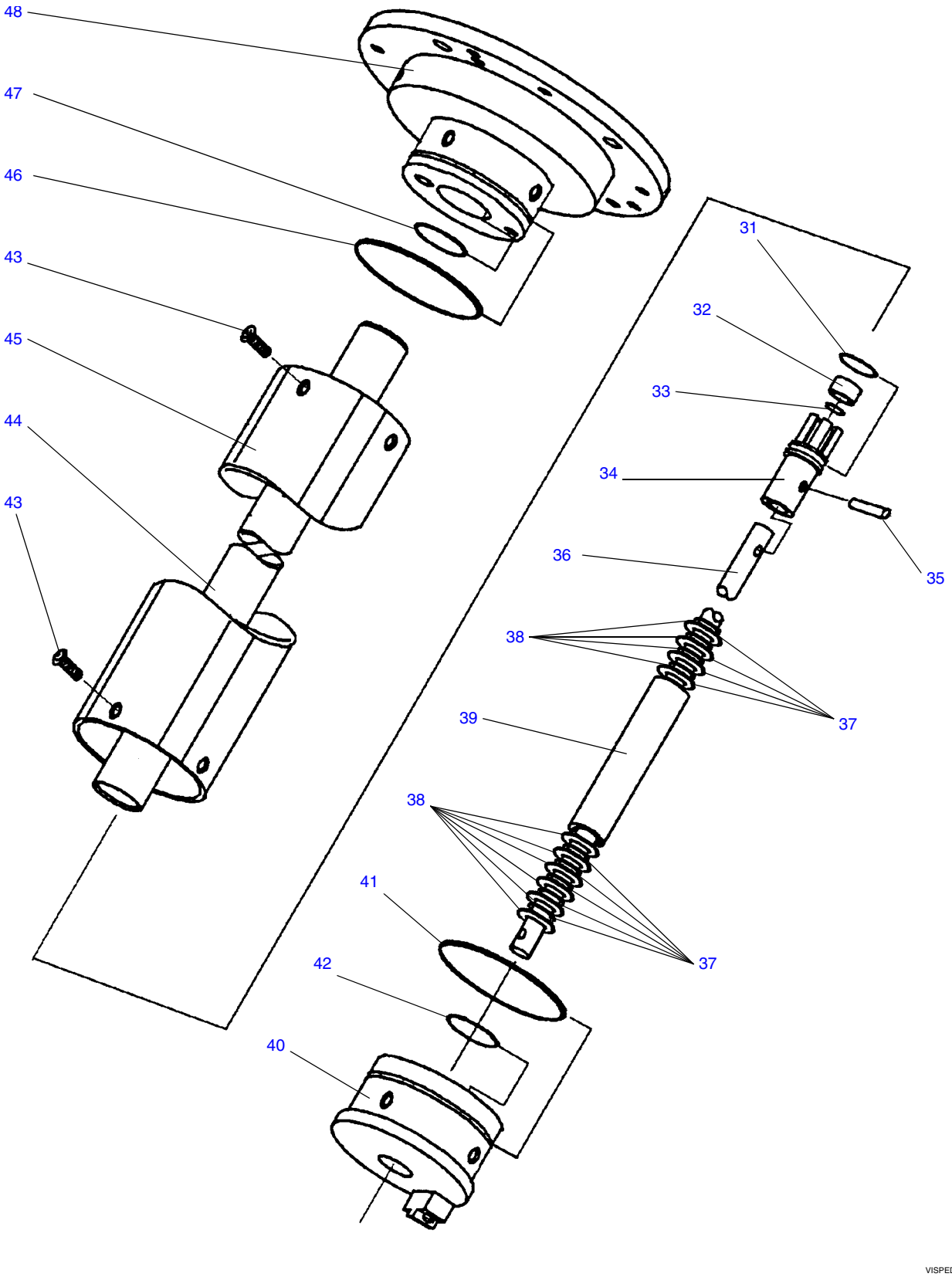

Fig 6.2 Vision Pedestal Top Stage (Sheet 2)

Fig 6.2 Vision Pedestal - Top Stage

Item No.	Part No.	Nomenclature	Qty
1	3360-16	100 mm levelling bowl adaptor (includes item 9)	1
2	M006-917	Screw, skt csk hd, M5 x 20 mm lg	4
3	3320-212*	Steering wheel	1
NI	3320-257*	Switchover shaft operation label	1
NI	3328-389*	Warning label	1
4	3320-235	Rubber washer	4
5	L602-051	Washer, 2BA, large	4
6	M501-008	Nyloc nut, M5	4
7	3219-211	Washer	1
8	M806-047	Spirol pin, 3 mm dia x 12 mm lg	1
9	L054-712	Screw, hex hd, 3/8 in. BSW x 3/4 in. lg (part of item 1)	4
10	3320-226	Catch lever	1
11	M005-908	Screw, skt csk hd, M4 x 8 mm lg	1
12	3320-242	Catch lever spindle	1
13	3320-227	Catch lever bracket	1
14	P900-010	Steel ball, 5 mm dia	1
15	J532-073	Compression spring	1
16	M006-813	Grub screw, skt hd, M5 x 10 mm lg	1
17	3320-12	Tank assembly, including:	1
18	3320-263	Headed pin	1
19	3325-329	Brake knob	1
20	M005-503	Screw, skt butt hd, M4 x 8 mm lg	1
21	3325-328	Brake knob	1
22	3320-213	Valve switchover shafT	1
23	3320-214	Shaft guide	1
24	M004-514	Screw, skt butt hd, M3 x 10 mm lg	2
25	Q001-010*	‘O’ ring, 3/8 in. OD x 1/4 in. ID x 1/16 in. sect	1
26	Q001-011*	‘O’ ring, 5/16 in. OD x 3/16 in. ID x 3/32 in. sect	1
27	M010-811	Grub screw, skt hd, M12 x 12 mm lg	1
28	3320-238	Valve spring	1
29	3320-239	Valve	1

Fig 6.2 Vision Pedestal - Top Stage (Cont)

Item No.	Part No.	Nomenclature	Qty
30	R900H026*	'O' ring, 10.4 mm OD x 5.6 mm ID x 2.4 mm sect	1
	3320-17	Piston rod assembly, comprising:	1
31	R900H052*	'O' ring, 12 mm ID x 3 mm sect	1
32	3320-234	Piston valve	1
33	R900H026*	'O' ring, 10.4 mm OD x 5.6 mm ID x 2.4 mm sect	1
34	3320-207	Piston head	1
35	L801-012	Dowel pin, 3/32 in. dia x 1/2 in. lg	1
36	3320-208	Piston rod	1
37	Q001-015*	'O' ring, 1/2 in. OD x 5/16 in. ID x 3/32 in. sect	9
38	L602-111	Plain washer, 5/16 in. dia	9
39	3320-236	Cylinder sleeve	1
40	3320-22	Relief valve assembly, including:	1
41	R900H037*	'O' ring, 53 mm OD x 48 mm ID x 2.5 mm sect	1
42	R900H040*	'O' ring, 20 mm OD x 2.5 mm sect	1
43	M005-908	Screw, skt csk hd, M4 x 8 mm lg	8
44	3320-202	Ram cylinder	1
45	3320-201	Tank tube	1
46	R900H037*	'O' ring, 53 mm OD x 48 mm ID x 2.5 mm sect	1
47	R900H040*	'O' ring, 20 mm OD x 2.5 mm sect	1
48	3320-204	Tank top plate	1

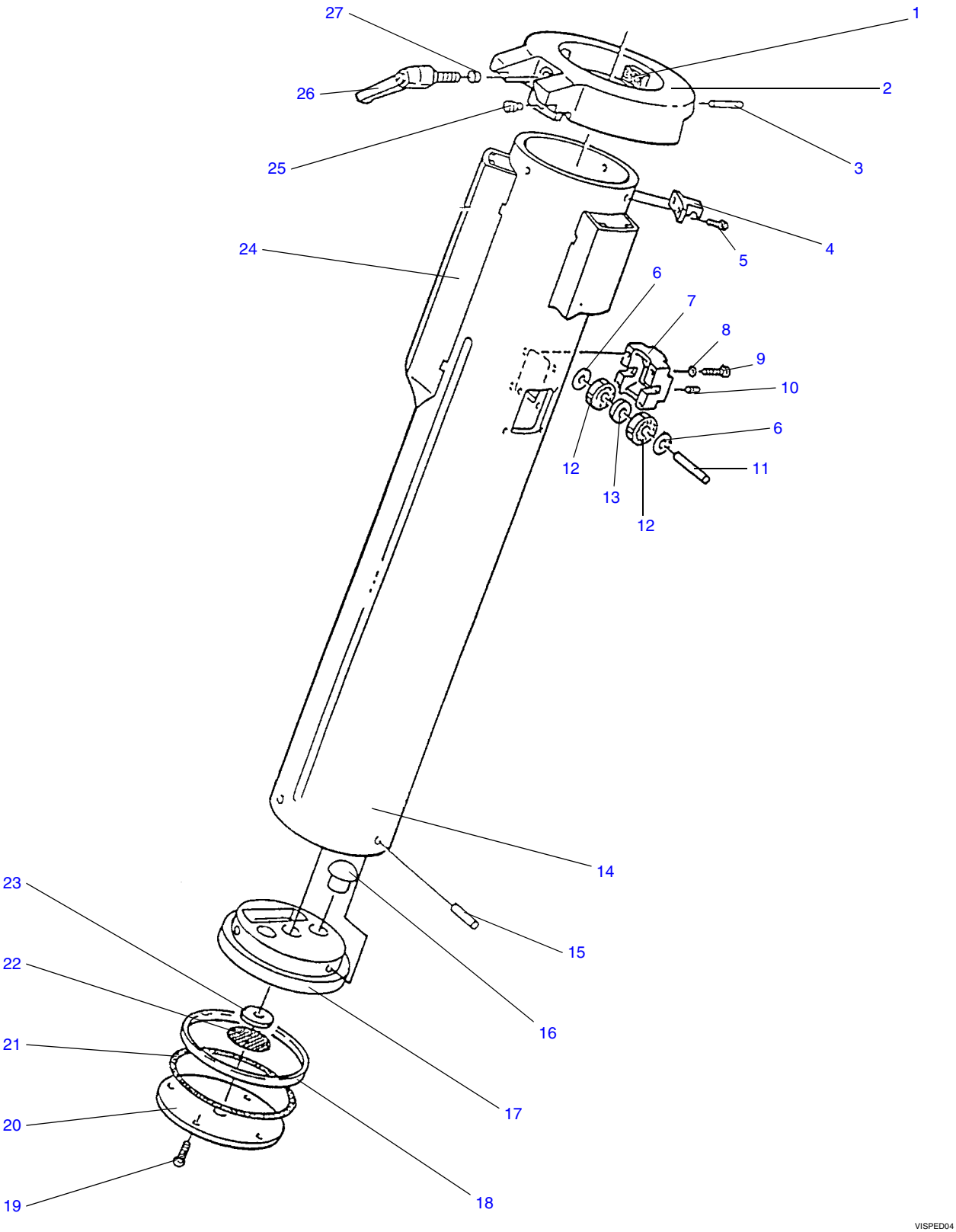

Fig 6.3 Vision Pedestal - Elevation Tube

Fig 6.3 Vision Pedestal - Elevation Tube

Item No.	Part No.	Nomenclature	Qty
1	3320-264	Wiper	3
2	3320-14	Tank tube clamp assembly	1
3	L800-040	Spirol pin, 1/8 in. dia x 3/4 in. lg	1
4	3320-247	Catch	1
5	M005-716	Screw, skt cap hd, M4 x 8 mm lg	2
6	3320-244	Roller shim	A/R
7	3320-209	Roller housing	6
8	L601-004	Crinkle washer, 6BA	24
9	M004-006	Screw, Pozi pan hd, M3 x 16 mm lg	24
10	M004-802	Grub screw, skt dog point, M3 x 6 mm lg	12
11	3320-220	Roller spindle	6
12	P200-239	Bearing, 5 mm x 19 mm x 6 mm	12
13	3320-243	Roller spacer	6
14	3320-205	Elevation tube	1
15	M806-004	Spirol pin, 4 mm dia x 10 mm lg	3
16	J550-001	Mushroom buffer	2
17	3320-206	Elevation tube end	1
18	3320-252	Spacer	1
19	L101-023	Screw, No. 6 self-tapping, pan hd, 3/8 in. lg	4
20	3320-251	‘O’ ring retaining plate	1
21	Q001-123*	‘O’ ring, PTFE, 2 9/16 in. ID x 2 3/4 in. OD x 3/32 in. sect	1
22	3320-250	Filter	1
23	3320-256	Washer	1
24	3320-221	Roller housing cover	3
25	M006-802	Grub screw, skt dog point, M5 x 8mm lg	1
26	J402-045	Clamp lever	1
27	3320-233	Tube clamp pad	1

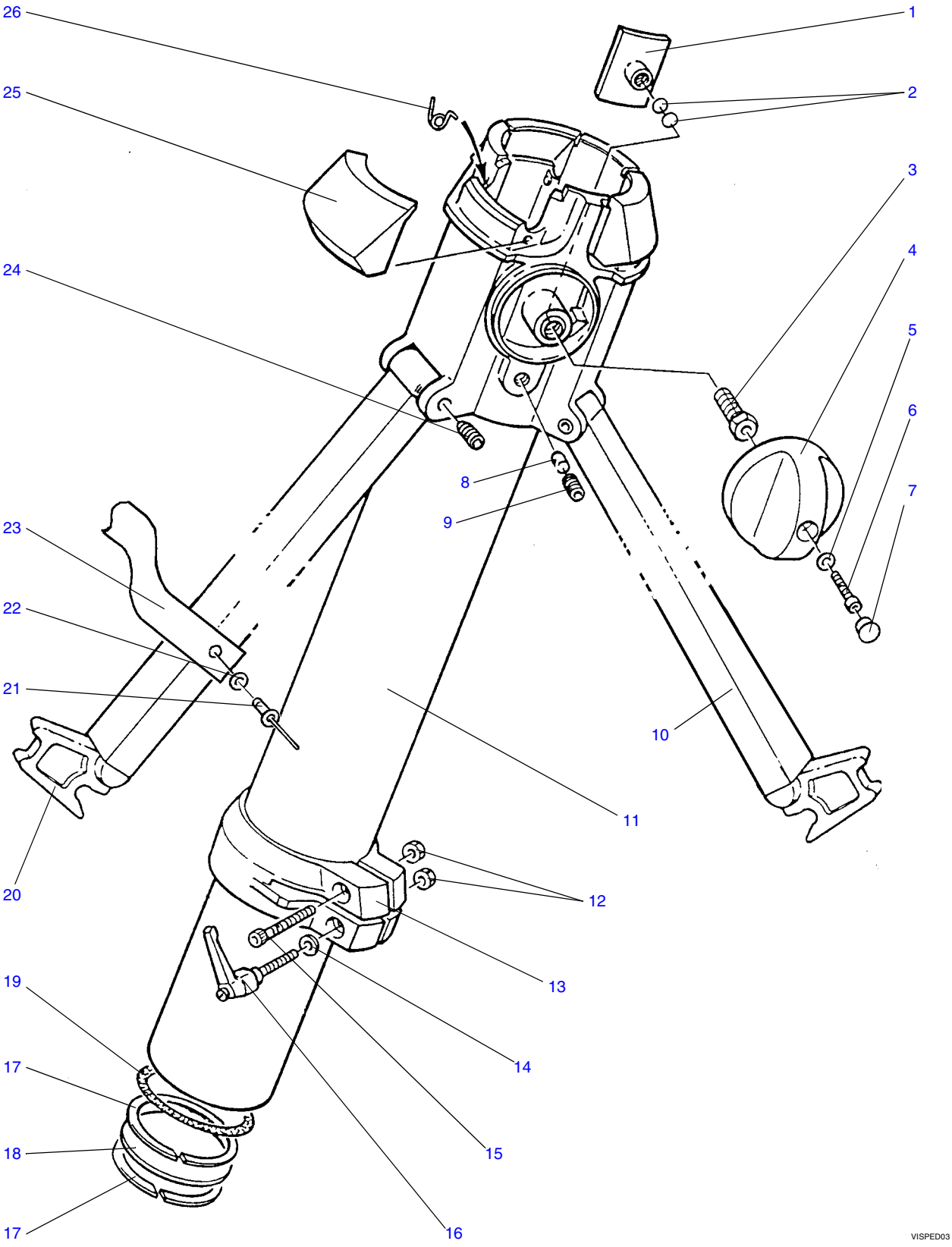

Fig 6.4 Vision Pedestal - Outer Tube

Fig 6.4 Vision Pedestal - Outer Tube

Item No.	Part No.	Nomenclature	Qty
1	3320-21	Clamp assembly	1
2	3320-296	Shim (thick)	A/R
3	3320-218	Clamp knob spindle	1
4	3320-217	Clamp knob	1
5	M601-006	Washer, M4, shakeproof	1
6	M005-718	Screw, skt cap hd, M4 x 12 mm lg	1
7	J550-081	Hole plug	1
8	3320-237	Guide pin	1
9	M007-816	Grub screw, skt dog point, M6 x 6 mm lg	1
10	3320-24	Wheel leg tie assembly	2
11	3320-13	Top housing assembly	1
12	M500-090	Nut, full, M6	2
13	3320-225	Skid clamp	1
14	M600-007	Washer, M6	1
15	M007-816	Screw, skt cap hd, M6 x 40 mm lg	1
16	J402-046	Clamp lever	1
17	P606-003	Snap ring, internal	2
18	3320-272	Outer tube lower cover	1
19	R900H076*	‘O’ ring 61 mm ID x 69 mm OD x 4 mm sect	1
20	3320-24	Wheel leg tie assembly, including	
21	L804-126*	Pop rivet	1
22	L602-041*	Washer, 4BA	1
23	3320-268*	Strap	1
24	M007-816	Grub screw, skt cone point, M6 x 10 mm lg	6
25	3320-245	Top housing cover	3
26	3320-246	Top housing cover spring	3

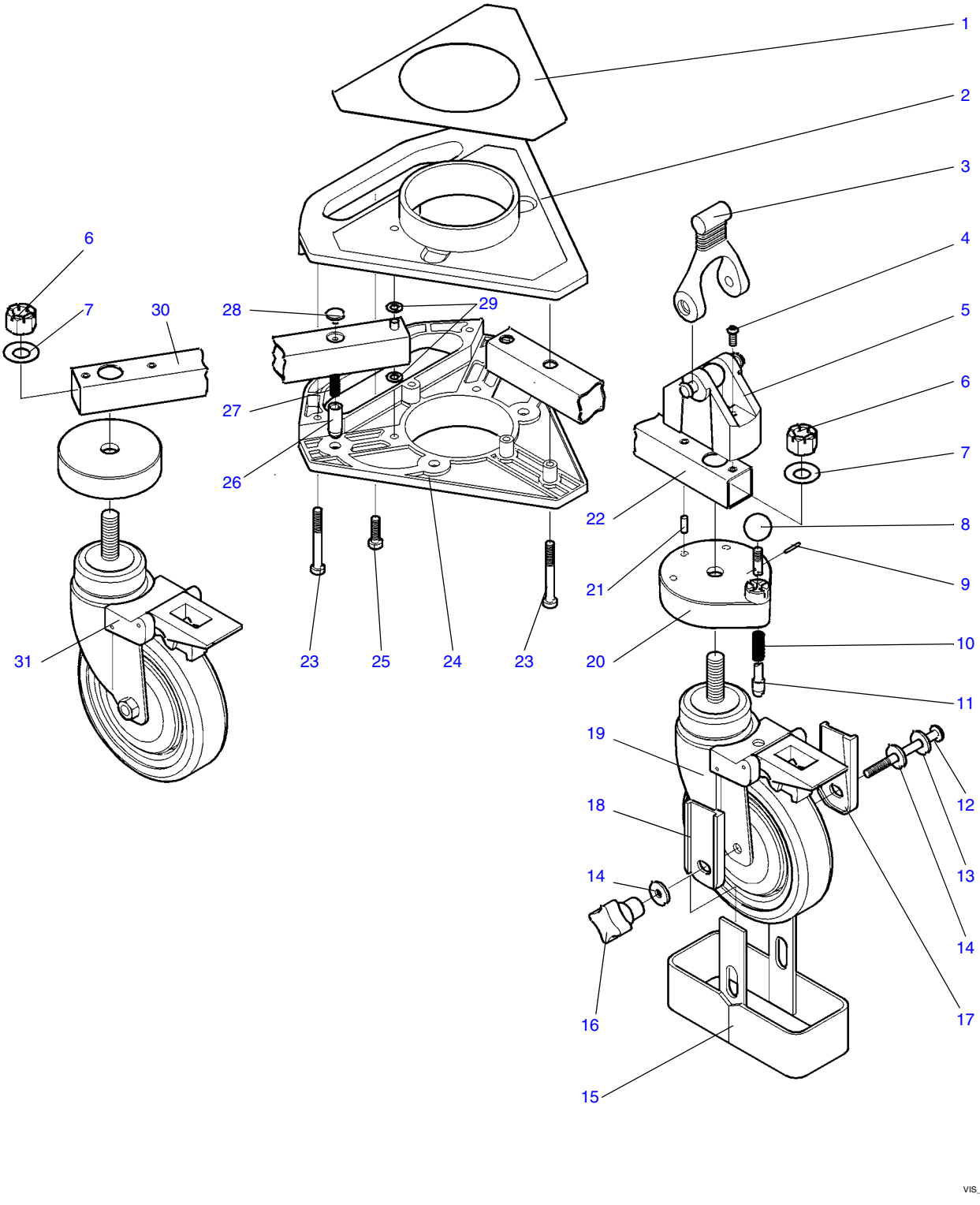

Fig 6.5 Vision Pedestal - Skid

Fig 6.5 Vision Pedestal - Skid

ITEM No.	PART No.	NOMENCLATURE	QTY OB 3319-3B	QTY STUDIO 3319-3C
1	3423-22	Serial No. label - lightweight skid	1	1
2	3319-206	Centre casting, upper	1	1
3	3313-216	Strap, foot support	3	3
4	M005-004	Screw, Pozi pan hd, M4 x 10 mm lg	6	6
5	3319-201	Foot support	3	3
6	M500-134	Slotted nut, M12	3	3
7	3319-215	Washer	3	3
8	C510-119	Knob, wheel lock, red (fixed leg)	-	1
NI	C510-056	Knob, wheel lock, black (folding legs)	-	2
9	M806-036	Spirol pin, 2mm dia x 14mm lg	-	3
10	J532-029	Spring	-	3
11	3319-211	Plunger, wheel lock	-	3
12	M008-514	Screw, skt butt hd, M8 x 65 mm lg	-	3
13	L600-030	Washer, 5/16 in. dia, internal shakeproof	-	3
14	M600-009	Washer, M8	-	6
15	3319-16	Cable guard assembly	-	3
16	C510-063	Knob, 1260-M8	-	3
17	3319-220*	Bracket, cable guard mounting LH	-	1
18	3319-221*	Bracket, cable guard mounting RH	-	1
19	3319-212*	Castor	-	1
20	3319-202	Wheel lock housing	-	3
21	M801-004	Dowel pin, 4 mm dia x 12 mm lg	-	3
22	3319-12	Leg tube assembly (fixed), OR	1	1
22	3319-18	Leg tube assembly (fixed) (short)	-	-
23	M006-738	Screw, low profile, skt cap hd, M5 x 25 mm lg	5	5
24	3319-207	Centre casting, lower	1	1
25	M006-735	Screw, low profile, skt cap hd, M5 x 12 mm lg	1	1
26	3319-209	Leg tube lock plunger	2	2
27	J532-111	Spring	2	2
28	3319-210	Leg tube pad	2	2
29	L605-009	Nylon washer	4	4
30	3319-11	Leg tube assembly (adjustable), OR	2	2
30	3319-17	Leg tube assembly (adjustable) (short)	-	-
31	3511-13	Castor assembly	3	-

Fig 6.6 Vision Pedestal - Composite Spare Parts List

PART No	NOMENCLATURE	QTY
3319-900SP	Wheel nut spanner	1
3319-901SP	Castor/guide bonding assembly, comprising:	
3319-220	Bracket, cable guard mounting LH	1
3319-221	Bracket, cable guard mounting RH	1
3319-212	Castor	1
3320-900SP	Steering wheel assembly (spares), comprising:	
3320-212*	Steering wheel	1
3320-257*	Switchover shaft operation label	1
3328-389*	Warning label	1
3320-902SP	Tank tube - spare, comprising:	
3320-201	Tank tube	1
3320-904SP	Customer seal kit, comprising:	
Q001-010	‘O’ ring, 1/4 in. x 3/8 in. x 1/16 in., R2025	1
Q001-011	‘O’ ring, 3/16 in. x 5/16 in. x 1/16 in., 200-008-4460	1
Q001-123	‘O’ ring, 2 9/16 in. x 2 3/4 in. x 3/32 in., FCR 145	1
R900H076	‘O’ ring, 61 mm ID, 204-161-4460	1
3320-905SP	Service seal kit, comprising:	
Q001-010	‘O’ ring, 1/4 in. x 3/8 in. x 1/16 in., R2025	1
Q001-011	‘O’ ring, 3/16 in. x 5/16 in. x 1/16 in., 200-008-4460	1
Q001-015	‘O’ ring, 5/16 in. x 1/2 in. x 3/32 in., 200-109-5575	9
Q001-121	‘O’ ring, 3/32 in. x 9/32 in. x 3/32 in., 200-103-4460	1
Q001-123	‘O’ ring, 2 9/16 in. x 2 3/4 in. x 3/32 in., FCR 145	1
R900H026	‘O’ ring, 5.6 mm ID, 202-632-4470	2
R900H037	‘O’ ring, 48 mm ID, 206-148-4470	6
R900H040	‘O’ ring, 20 mm ID, 206-120-4470	2

Fig 6.6 Vision Pedestal - Composite Spare Parts List (Cont)

PART No	NOMENCLATURE	QTY
R900H052	'O' ring, 15.6 mm ID, 206-312-4470	1
R900H076	'O' ring, 61 mm ID, 204-161-4460	4
3320-907SP	Strap assembly (spares), comprising:	
3320-268	Strap	1
L804-126	Pop rivet	1
L602-041	Washer, 4BA	1