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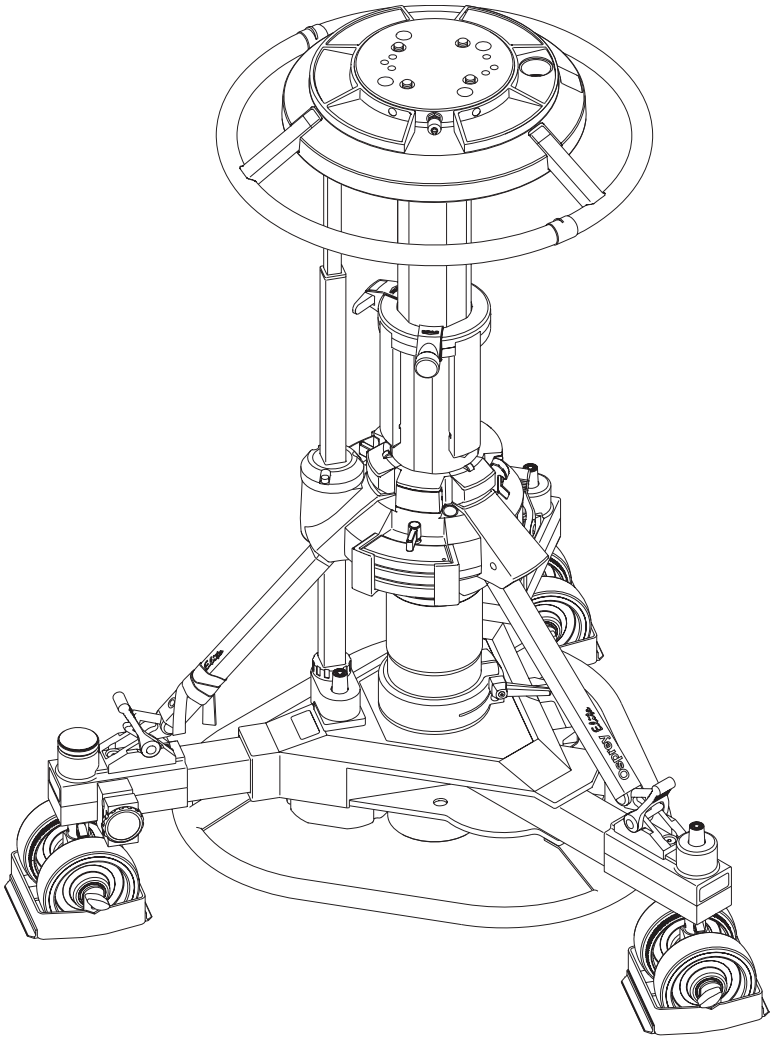
Maintenance Manual

Osprey *Elite*

Pedestal



Vinten

Camera Control Solutions

Osprey Elite

PEDESTAL
3574

MAINTENANCE MANUAL
AND
ILLUSTRATED PARTS LIST

PUBLICATION PART No. 3574-9

ISSUE 4

Foreword

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

WARNING!: Read the Safety Section on page 5 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, or visit our website at www.vinten.com.

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 ‘Osprey Elite Pedestal Maintenance Manual’ (3574-9). 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.

 Clicking here will take you to the first page.

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 Click here to go back to the previous view.

Alternatively, you may use the Acrobat Reader navigation buttons.

Safety - Read This First!

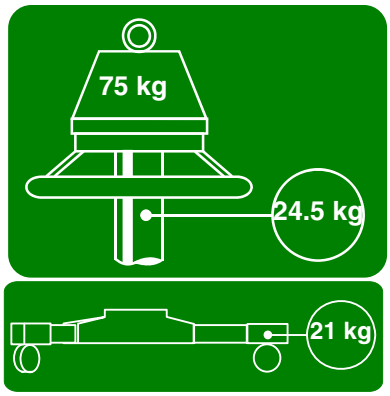
Warning symbols in this maintenance manual

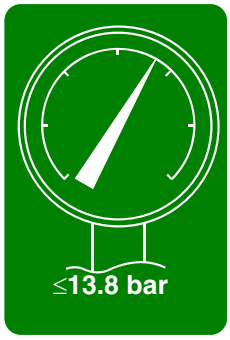
Where there is a risk of personal injury, injury to others, or damage to the pedestal or associated equipment, comments appear, highlighted by the word **WARNING!** and supported by the warning triangle symbol.

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 (including steering ring)	**24.5 kg**	**(54 lb)**
Skid (including kickbar)	**21 kg**	**(46.2 lb)**
Trim weights (total)	**3 kg**	**(6.6 lb)**

Load

Maximum Load	**75 kg**	**(165 lb)**

Pressure

Maximum Pressure	**13.8 bar**	**(200 psi)**

Contents

Illustrations Page

Associated Publication

Osprey Elite Pedestal Operators Guide
Publication Part No. 3574-8

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

Weight

- Column . . . . . 24.5 kg (54 lb)
- Skid . . . . . 21 kg (46.2 lb)
- Trim weights . . . . . 3 kg (6.6 lb)
- Total pedestal weight . . . . . 48.5 kg (106.8 lb)

Overall Dimensions

- Minimum height (Studio) . . . . . 66 cm (26 in.)
- Minimum height (OB) . . . . . 69.5 cm (27.3 in.)
- Maximum height (Studio) . . . . . 143 cm (56.3 in.)
- Maximum height (OB) . . . . . 146.5 cm (57.6 in.)
- On-shot stroke . . . . . 77 cm (30 in.)
- Doorway width
  - Tracking width . . . . . 97 cm (38 in.)
  - Transit width . . . . . 86 cm (34 in.)
  - Narrow tracking width . . . . . 70 cm (27.5 in.)

Payload . . . . . 75 kg (165 lb)

Pneumatic system

- Maximum Working Pressure . . . . . 13.8 bar (200 psi)
- Relief valve pressure . . . . . 15.5 bar (225 psi)
- Design Pressure . . . . . 15.5 bar (225 psi)
- Test Pressure . . . . . 19.5 bar (282 psi)

Design Improvements

Details	Serial No. Information
Wire retaining cable replaced by nylon cord. Elevation cable pulley groove profile improved to reduce cable damage.	From Serial No. 105
Improvements to foot moulding and strut end bungs	From Serial No. 139
Improvements to skid to eliminate possible finger trap	From skid Serial No. 121
Increase in max working pressure to improve balancing	From Serial No. 259

Section 1

Introduction and Description

Contents **Para**

Introduction

1 The Osprey Elite Pedestal (Fig 1.1) is a fully portable pneumatic camera mount, designed to support a payload of up to 75 kg (165 lb).

2 The pedestal has a central two-stage telescopic column, supported on a skid assembly with steered wheels. To facilitate transport, the steering ring may be removed and the telescopic column and skid may be separated and the skid folded.

3 The pedestal is pressurized from an external pressure source or by using the Vinten Portable Pump.

4 The pedestal is equipped with a relief valve to prevent an excessive build-up of pneumatic pressure and with a safety catch to prevent accidental operation of the telescopic column. The pressure relief valve operates at the predetermined level and automatically resets at a predetermined level below this.

Description

5 The pedestal consists of two main assemblies: a skid assembly and a two-stage column.

Skid assembly

6 The skid assembly comprises a centre casting, three equispaced skid legs, three twin wheels and a kickbar. The bottom stage of the telescopic column is secured to the centre casting by a retaining clamp (9). The centre casting also contains the skid steering mechanism, together with a crab/steer changeover control (15). Two of the legs may be folded for transportation and extended to either full or to “narrow doorway” tracking. Interchangeable twin wheels - 125 mm (5 in.) diameter, fitted with cable guards (12) for studio use or 160 mm (6 in.) diameter for outside broadcast (OB) use - are installed on each foot support, with brakes (11) on the folding leg wheels and a tiller adapter (17) on the fixed leg. A continuous chain connects the steering mechanism to each leg, with further chains in each leg to connect the wheels. Clutches in each wheel unit disconnect the steering in the event of the wheel striking an obstacle. A clamp and rubber strap (10) on each foot support secures the bottom stage struts (8)(19). A kickbar (13) is retained on the underside of the centre casting by three sliding catches. A cable clamp (16) is provided on the fixed leg.

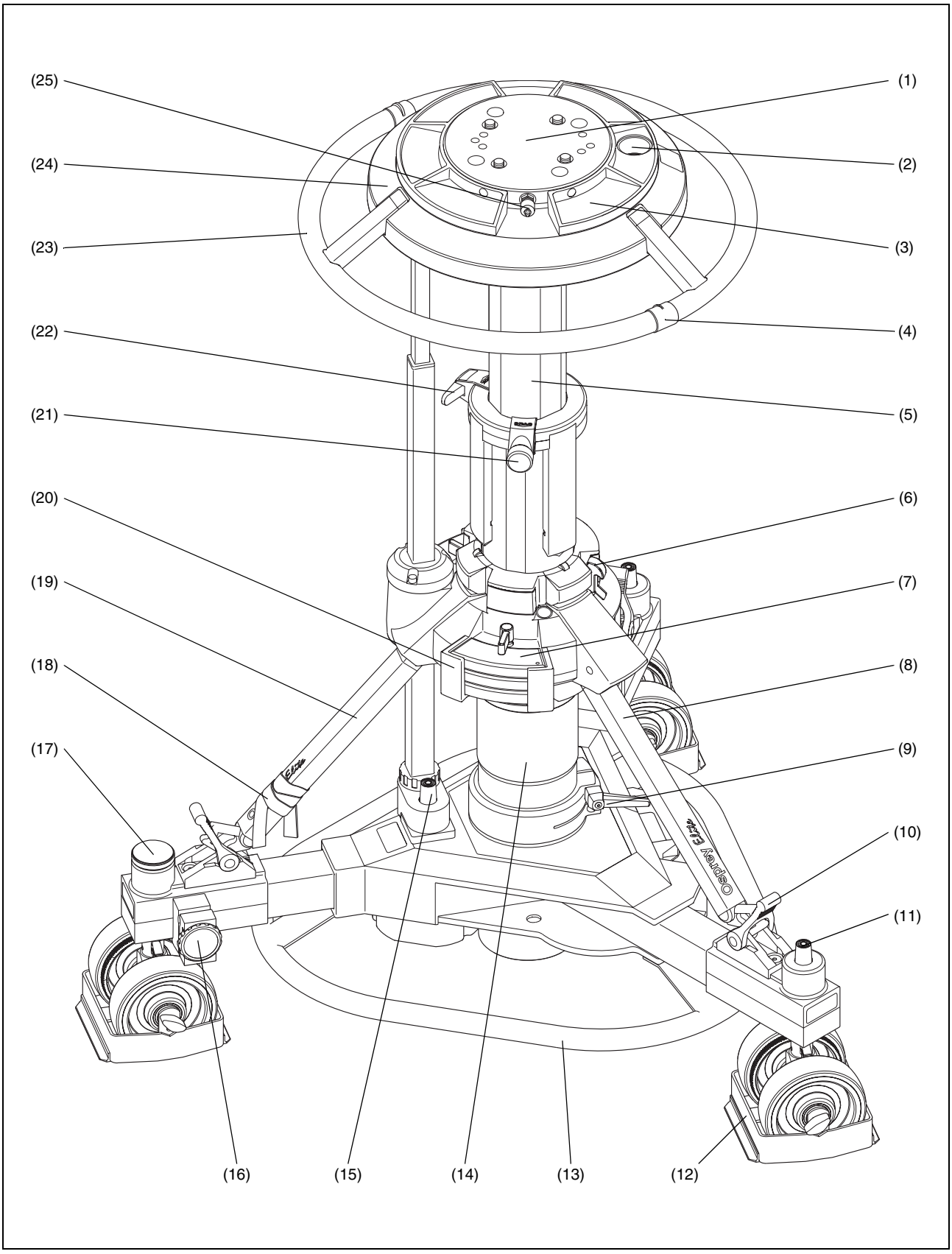


Fig 1.1 Osprey Elite Pedestal

Two-stage column

7 The two-stage column consists of an outer tube and a moving column, comprising an elevation tube and a top stage. It contains the elevation mechanism and supports the steering mechanism

Outer tube

8 The outer tube supports the column in the skid. Its lower end is closed by an end plate and fits in the centre casting of the skid assembly, where it is secured by the skid clamp. A top housing assembly is fitted to its upper end. The top housing has three equispaced sets of rollers on which the moving column moves, three equispaced anchors for the wire ropes that control the extension of the column and three equispaced pivots for the bottom stage struts. A sliding catch (6) in the top housing engages with the safety latch on the top stage and two pockets (20) are provided for trim weights (7) when not in use.

9 The bottom stage struts engage with foot supports on the skid assembly and are secured with rubber straps (10) to give the pedestal its strength and stability. A captive strap (18) secures the struts to the outer tube during transportation and storage.

Elevation tube

10 The elevation tube forms the lower stage of the moving column. It has three equispaced longitudinal tracks on its outer wall which engage with rollers in the outer tube to guide the moving column and prevent rotational movement. Its upper end is fitted with three equispaced sets of rollers, which guide the top stage. The lower end is closed by a pulley housing against which the tapered ram in the top stage acts. The wire ropes that control the extension of the column pass over three equispaced pulleys mounted vertically in the pulley housing.

11 An adjustable drag control (21) and an on-shot clamp (22) are provided at the upper end of the elevation tube.

Top stage

12 The tank assembly forms the top stage of the moving column and provides the pneumatic counterbalancing force. It consists of a tank tube, a top plate, a tapered ram and a relief valve assembly. Aluminium mesh fillers are installed in the tank and ram assemblies to improve temperature stability.

13 The tank tube has three equispaced longitudinal tracks on its outer wall which engage with rollers in the elevation tube to guide the tank assembly and prevent rotational movement.

14 The top plate, which closes the top of the tank tube, contains a Schrader valve (25), which allows for charging and pressure release and a 0-13.5 bar (0-200 psi) pressure gauge (2). Attached to the top plate are a safety latch, which engages with the catch on the outer tube top housing, the steering mechanism and two trim weight trays (3).

15 The relief valve assembly closes the bottom of the tank tube and acts as a guide for the tapered ram. The ends of the wire ropes that control the extension of the column are anchored at the lower end of the tank tube

16 The tapered ram comprises a guide tube retained in the tank tube between the top plate and the relief valve assembly, and a hollow ram, which is free to slide in the guide tube and is secured at its lower end to the elevation tube bottom end plate.

Elevation mechanism

17 The elevation mechanism consists of three equispaced steel wire ropes. One end of each rope is secured to the bottom of the tank tube. The ropes pass over pulleys at the bottom of the elevation tube and are secured in the top housing.

18 The tapered ram, under pressure, pushes the tank tube upwards on its rollers in the elevation tube. At the same time the ropes, passing over the pulleys at the bottom of the elevation tube, cause the elevation tube to move upwards on its rollers in the outer tube, so that both tubes extend equally.

Column retaining rope

19 To prevent inadvertent damage if the column is extended when not under pressure, a retaining steel wire rope is installed between the bottom of the top stage and the end plate of the outer tube. This rope passes over a pulley on the elevation tube and ensures that the ropes of the elevation mechanism remain in tension.

20 Prior to Serial No. 105, this rope was steel wire. Nylon cord is now used.

Steering mechanism

21 The steering mechanism comprises a steering gear, which is free to rotate on four rollers attached to the underside of the tank assembly top plate; a steering ring mounting plate (24) secured to the steering gear; a detachable steering ring (23), secured to the steering ring mounting plate by three screws and a vertical, telescopic steering column, driven from the steering gear by a timing belt and connected at its lower end to the skid.

22 Two movable steering indicators (3) are used to indicate the straight-ahead position and provide a reference point when steering.

Section 2

Operation

Contents **Para**

General

1 To identify components, please refer to Fig 1.1. For further operating instructions, please refer to Osprey Elite Operators Guide, Publication Part No. 3574-8.

Assembling the pedestal

2 To assemble the pedestal, proceed as follows:

2.1 Turn the skid upside-down, depress the leg locking plungers and swing each folding leg out until the plungers lock the legs in the fully open position.

2.2 Fit the kick bar (13), which is secured by three sliding catches on the underside of the centre casting. The marker on the kick bar locates between the folding legs.

2.3 Set the skid on the ground on its wheels and apply the brakes (11).

2.4 Fit the steering ring to the column as follows:

2.4.1 Position the steering ring (23) in the cut-outs of the mounting plate (24).

2.4.2 From the underside of the mounting plate, tighten the three screws using a suitable screwdriver, coin, or similar tool.

2.5 Install the column on the skid as follows:

2.5.1 Ensure that the rubber straps on each foot support (10) are to the outside of the ball joint.

2.5.2 Hold the column upright and release the Velcro retaining strap (18) holding the three struts. Raise the longer strut (19) to about 30° from horizontal. The strut joint is adjusted to retain the strut in this position.

NOTE: Ensure that the 'V' slot in the steering tube, NOT the 'U' slot, engages with the cross-piece of the steering shaft.

2.5.3 Lift the column, holding the two shorter struts (8) out from the column. Align the long strut with the fixed leg of the skid and carefully lower the column base into the skid centre. Ensure that the steering tube locates in its socket with the cross-piece of the steering shaft engaged in the 'V' slot in the steering tube.

2.5.4 Ensure that the struts engage with the ball joints on each foot support and secure the struts to the supports with the rubber straps (10).

2.5.5 Tighten the skid clamp (9), using moderate hand pressure only. The clamp lever has a spring-loaded ratchet-type action and is operated as follows:

2.5.5.1 Turn the clamp lever clockwise as far as possible.

2.5.5.2 Pull the lever outward against the spring pressure, return it to vertical and release.

2.5.5.3 Turn lever clockwise again. Repeat until the skid clamp is sufficiently tightened.

2.5.6 Secure the Velcro retaining strap (18) clear of the skid wheels.

2.5.7 Slide the steering indicator(s) (4) to the desired position (See "Steering" on page 22).

Fitting the load

3 Fit the pan and tilt head and payload before pressurizing the pedestal. The Osprey Elite pedestal has the standard four-bolt mounting plate (1) which permits the use of various Vinten camera mounts including pan and tilt heads, Quickfix® and Mitchell adapters. The mounting bolts are captive in the pedestal and the bolt heads are accessible from the underside of the mounting plate with the column fully depressed and the safety catch engaged. However, installation of the pan and tilt head is facilitated if the column is extended.

WARNING!: A pressurized pedestal will rise rapidly when safety catch is released. Do not lean over the pedestal when releasing the safety catch. Always restrain the pedestal by hand pressure on the steering ring when the safety catch is released.

4 Fit the pan and tilt head and payload as follows:

4.1 Ensure pedestal pressure does not exceed 3.5 bar (50 psi). Reduce as necessary, using the Schrader valve cap (25),turn the shafts outwards, using the screwdriver slot on the lower end of the shaft,

4.2 Push down on the steering ring (23) against residual pressure and release the safety catch (6). Allow the column to extend under hand restraint.

4.3 Apply the on-shot clamp (22).

4.4 Fit the pan and tilt head and tighten the bolts securely using a flat-bladed screwdriver or a spanner of the correct size. A Vinten spanner, Part No. J551-001, is available for this purpose.

4.5 Set the safety catch slide (6) to ON (I), release the on-shot clamp (22) and lower the moving column under hand restraint until the safety catch engages.

4.6 Fit the camera and accessories to the mounting, ensuring that all items such as pan bars, prompters, lenses etc, are fitted. Attaching these items at a later stage may upset the pedestal balance. Install three trim weights (7) on the weight tray (3).

Pressurizing the pedestal

5 The Osprey Elite may be pressurized from an external pressure source or by using the Vinten portable pump (Part No. 3357-3). Trim weights (7) are provided for fine balance.

6 Ascertain the payload to be fitted to the pedestal (payload = pan and tilt head, camera, lens and all ancillary equipment). Referring to the graph (Fig 2.1), mark the payload on the horizontal axis then strike a vertical line from the load figure to the balance line. At the intersecting point strike a horizontal line to the vertical axis and read off the required gas pressure.

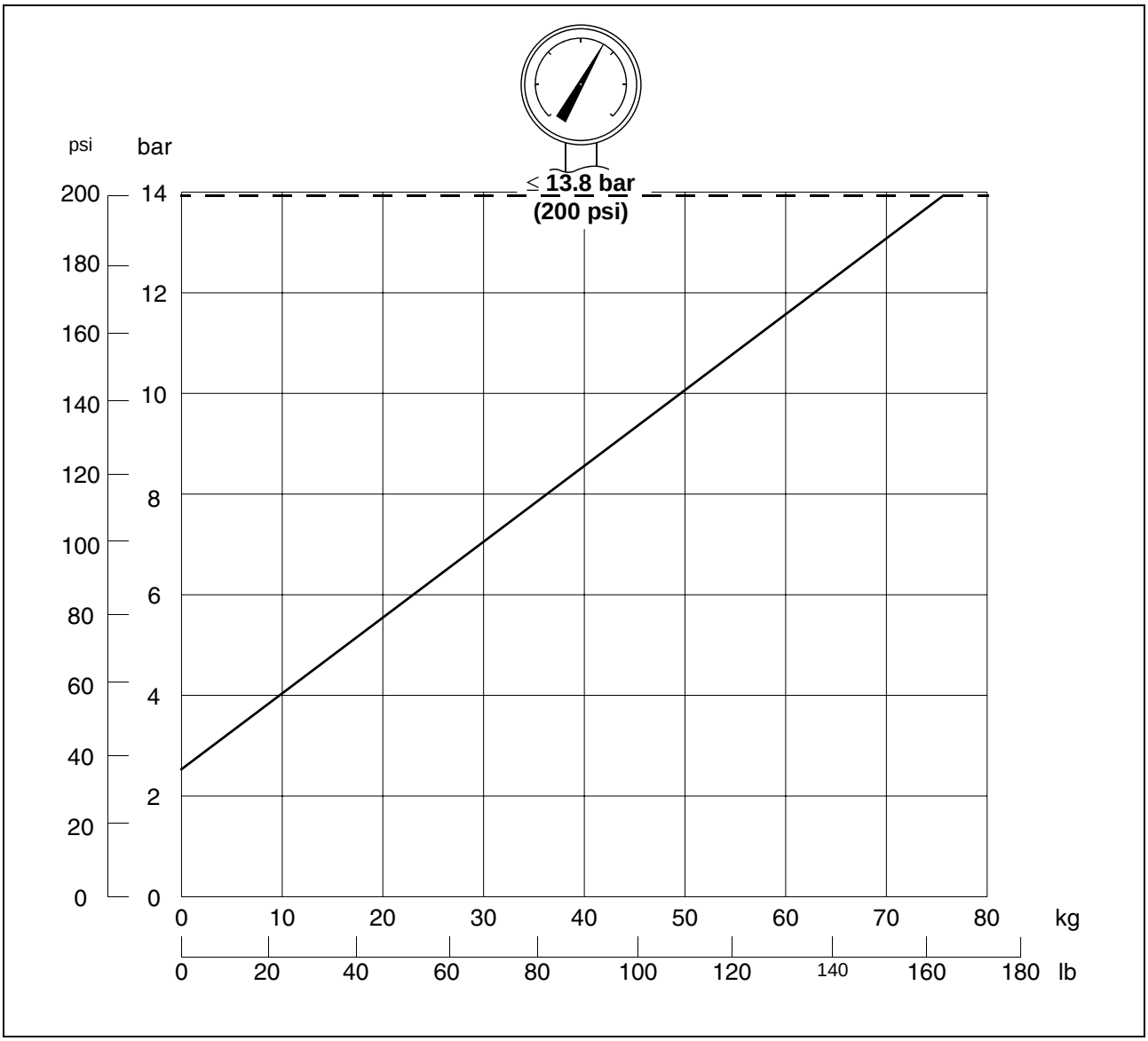


Fig 2.1 Pressurization graph

Pressurizing from an external pressure source

WARNING!: This pedestal must be pressurized only with clean, dry air or nitrogen. A pressure reducing valve must be fitted to the pressure line between the gas cylinder and the outlet connection of the hose. The reducing valve must be screwed into the gas cylinder outlet. The maximum pressure on the outlet side of the reducing valve must not exceed 13.8 bar (200 psi). Do not pressurize the pedestal beyond the maximum safe working pressure indicated by the leading edge of the red sector on the gauge.
The pedestal is fitted with a pressure relief valve as a safeguard against over-pressurization.
Do not attempt to adjust the pressure relief valve.

7 To pressurize the pedestal from an external pressure source, proceed as follows:

7.1 Set the safety catch slide (6) to ON (I) and fully depress the moving column (5) until the safety catch engages.

7.2 Remove the Schrader valve cap (25) and connect the charging line from the pressure source.

7.3 Turn on the pressure supply and slowly increase the pedestal pressure to the required pressure. Do not exceed the maximum working pressure, indicated by the leading edge of the red sector on the gauge (2).

7.4 Disconnect the charging line, but do not refit the Schrader valve cap at this stage.

Pressurizing the pedestal using the Vinten portable pump

WARNING!: Do not pressurize the pedestal beyond the maximum safe working pressure indicated by the leading edge of the red sector on the gauge. The pedestal is fitted with a pressure relief valve as a safeguard against over-pressurization.
Do not attempt to adjust the pressure relief valve.

8 To pressurize the pedestal using the Vinten portable pump, proceed as follows (Fig 2.2):

8.1 Set the safety catch slide (6) to ON (I) and fully depress the moving column (5) until the safety catch engages.

8.2 On the pump, fold down both the feet (P.3).

8.3 Push in the handle release button (P.5) and move the handle (P.1) to the horizontal position, where it will lock.

8.4 Pull the hose (P.4) out of its stowage (P.2). Connect the hose to the pedestal charging valve (25).

8.5 Position the pump between the legs, standing with both feet on the fold-down feet (P.3).

8.6 Grip the handle (P.1) with both hands and, using full steady strokes, pressurize the pedestal to the required pressure. Do not exceed the maximum working pressure, indicated by the leading edge of the red sector on the gauge (2).

8.7 Disconnect the hose (P.4) from the pedestal charging valve (25), but do not refit the Schrader valve cap at this stage. Fit the hose in its stowage (P.2).

8.8 Push the pump plunger fully down, push in the handle release button (P.5) and move the handle (P.1) to the vertical position, where it will lock the pump plunger in the closed position.

8.9 Fold up both the feet (P.3).

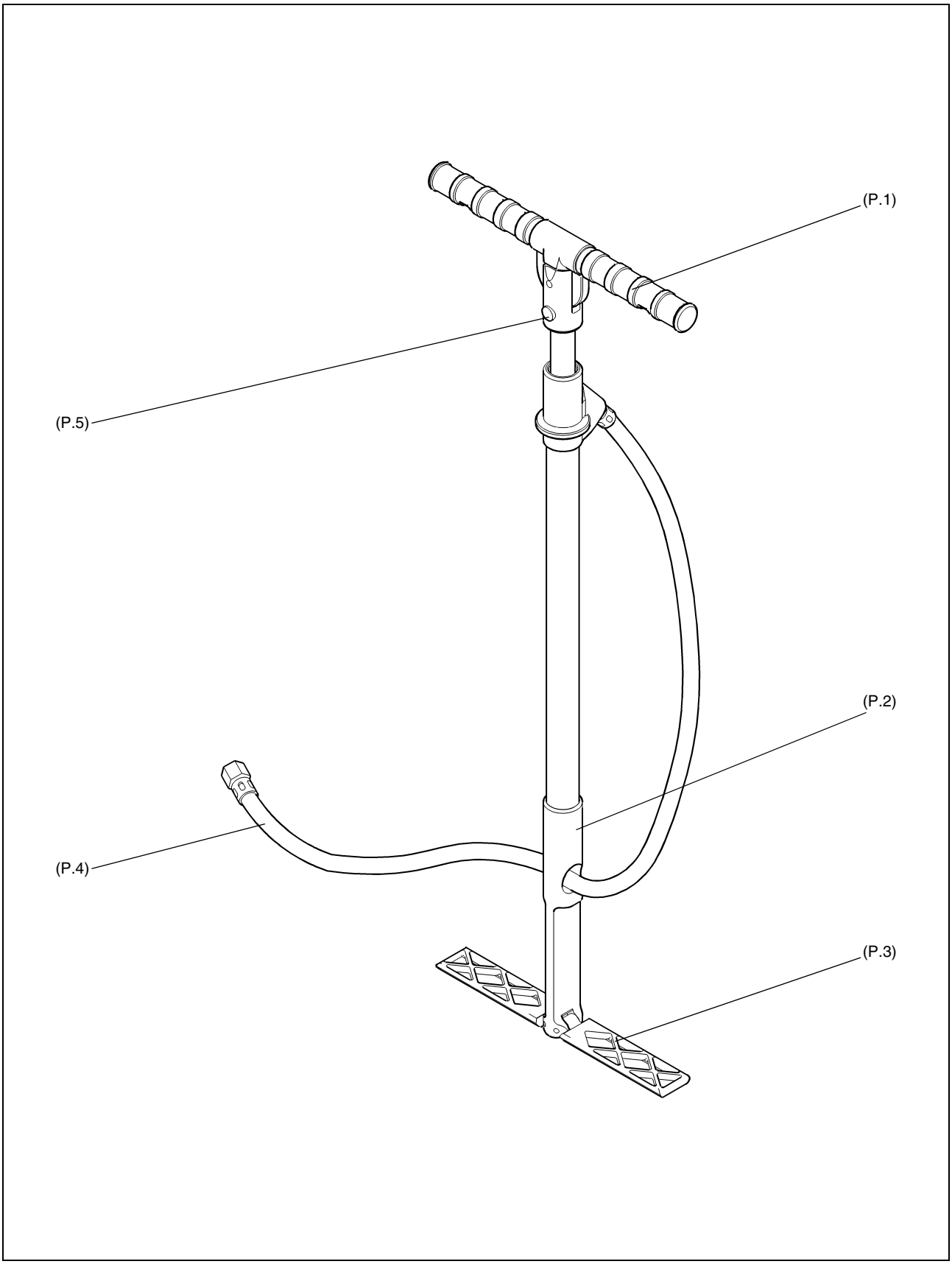


Fig 2.2 Vinten portable pump

Balancing the load

9 After pressurization of the pedestal, the pan and tilt head and payload can be accurately balanced, as follows:

9.1 Push down on the steering ring (23) against residual pressure and release the safety catch (6). Allow the column to extend under hand restraint.

9.2 Exercise the moving column (5) over its full travel at least twice, then position the column in the mid-height position.

WARNING!: Do not reduce pedestal pressure below 3.5 bar (50 psi). This ensures that the elevating mechanism remains in tension.

9.3 If the column tends to fall, remove a trim weight or increase pressure.

9.4 If the column tends to rise, reduce the pressure in steps of 0.15-0.20 bar (2-3 psi) using the Schrader valve cap (25).

9.5 A correctly pressurized pedestal will balance its payload such that it can be moved to any position over the full on-shot stroke of the moving column, with minimum effort, and it will maintain its position when the steering ring is released. Fine balance and temperature correction may be achieved by adding or removing trim weights.

Using the pedestal

Height adjustment

10 The column has an on-shot stroke of 770 mm (30 in.) and the load can be moved over this distance, in perfect balance, by raising and lowering the steering ring (23). The movement is adjustable for drag (21) and an on-shot clamp (22) can be used to hold the moving column in position if fixed height operation is required.

Drag control

11 Column movement is adjustable for drag and this is set according to operator preference by means of the drag control (21) located at the top of the outer tube. Turn the control clockwise to increase the drag setting, and counter-clockwise to decease it.

On-shot clamp

12 An on-shot clamp (22) can be used to hold the moving column in position if fixed height operation is required. Move the clamp lever fully to the left to apply the clamp. Move it fully to the right to release the clamp.

Brakes

13 The skid is fitted with brakes on the wheels on the folding legs. The brakes are operated by pressing on the foot-buttons (11) located above the wheels. Press once to apply the brake and again to release it.

Steering

14 Directional control of the pedestal is achieved by turning the steering ring (23) mounted at the top of the column. The steering system is geared so that the skid wheels turn by the same amount as the steering ring. This ensures, for example, that with the pedestal set to crab, turning the steering ring by 90° will also cause the pedestal to change direction by 90°. The steering ring is fitted with two movable indicators (4) which can be used to mark the straight-ahead position of the ring and will thus provide a reference point when steering.

15 The skid has a crab/steer arrangement with a foot-operated changeover mechanism, which provides a steer setting i.e. one wheel steering, two fixed; or a crab setting, where all three wheels turn together. Pushing the foot-button (15) operates a changeover mechanism which toggles the pedestal between crab and steer. Although the button can be pressed with the wheels in any position, the changeover will not occur until the wheels are all facing forward, so the steering ring may have to be turned by up to 180° before the changeover mechanism engages. This arrangement ensures that the rear wheels will always lock in the straight-ahead position when changing from crab to steer.

16 A clutch in each wheel unit disconnects that wheel from the steering in the event of the wheel striking an obstacle. To reconnect the wheel, hold the steering ring stationary and turn the wheel unit until the clutch re-engages.

Steering tiller

17 The steering tiller (Part No. 3329-21) provides an alternative means of steering the skid. It is particularly useful when the skid is fitted with a head-to-skid adapter or fixed column, or when a grip or assistant is required to manoeuvre the pedestal.

18 The tiller is fitted as follows:

18.1 Unscrew and remove the round cap (17) which is fitted on the tiller socket on the end of the fixed skid leg. The cap may be used to close the steering tube socket if the skid is used without the column installed.

18.2 Fit the tiller bar in the tiller socket and engage it with the drive dog.

18.3 The pedestal can now be steered by turning the tiller bar or steering ring. Crab/steer changeover is carried out in the usual manner.

Changing the skid tracking width

19 The movable skid legs can be set to either of two positions (Fig 2.3). Position 1 is for normal use and gives maximum stability. Position 2 provides a reduced width for tracking through narrow doorways etc.

WARNING!: To ensure maximum stability when the skid is set to narrow track, particularly when moving over uneven ground, reduce pedestal height to a minimum

20 To change the tracking width:

20.1 Set the column to its lowest setting and engage the safety catch (6).

20.2 Ensure that the brakes (11) are released and then turn the skid wheels so they are pointing at right angles to the skid legs.

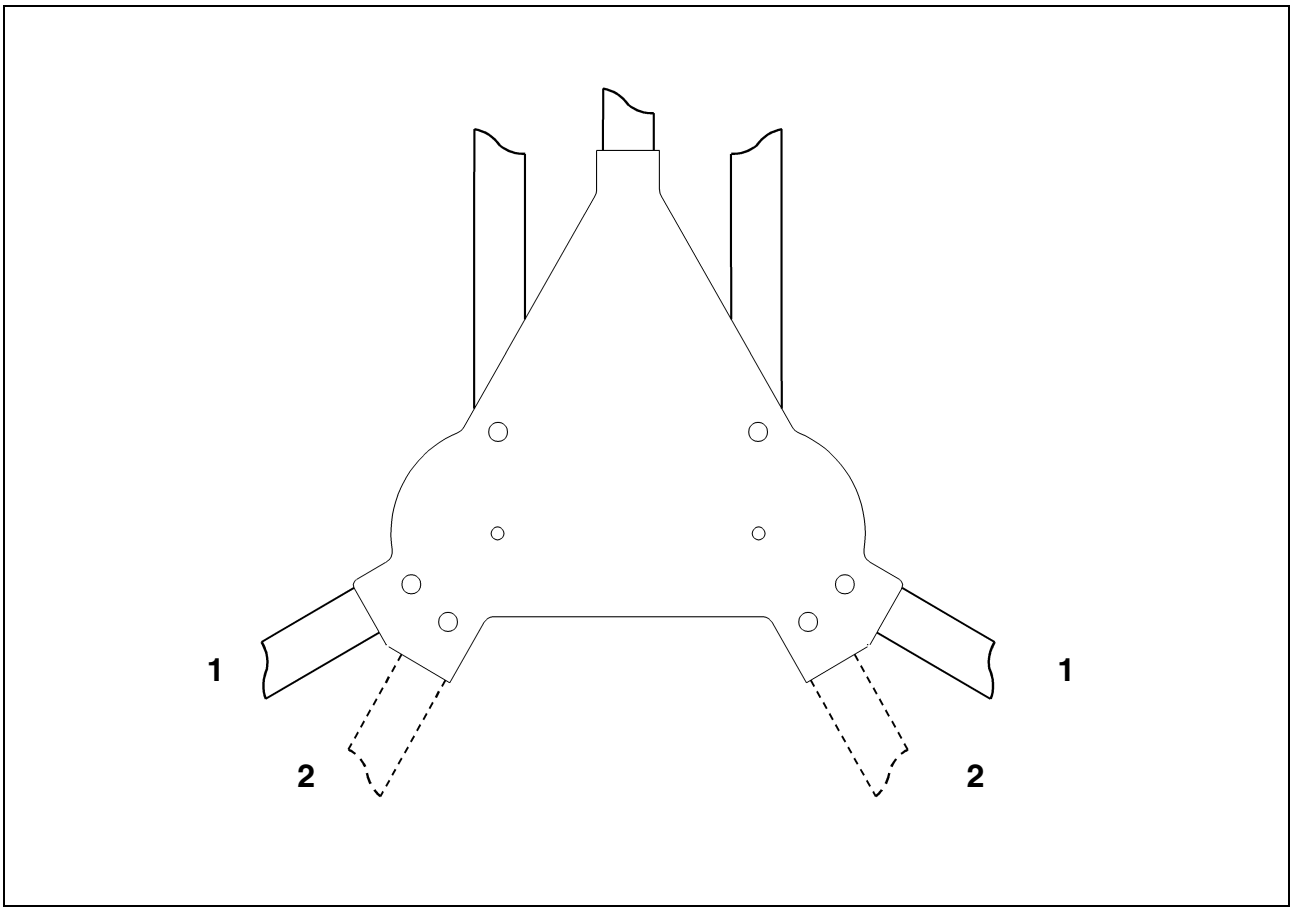


Fig 2.3 Skid tracking width

20.3 Reach under the pedestal, depress one of the spring-loaded locking plungers and move the leg to the required position, ensuring that the plunger has engaged correctly at the new location.

20.4 Repeat for the second leg.

Cable guards

21 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 guards at the required height and re-tightening the knobs.

Transportation and storage

WARNING!: Local, national or international regulations may apply to the transport and storage of pressurized pedestals.

NOTE: It is not necessary to reduce the pedestal pressure prior to transportation or storage and the pan and tilt head may be removed with the pedestal in the fully depressed and locked position. However, to facilitate removal of the camera and mounting, pressure should be reduced to 3.5 bar (50 psi).

22 The pedestal may be dismantled for transportation and storage. Proceed as follows:

22.1 Apply the brakes (11).

22.2 Set the safety catch slide (6) to ON (I) and fully depress the moving column (5) until the safety catch engages.

22.3 Remove the camera and accessories.

WARNING!: Do not reduce pedestal pressure below 3.5 bar (50 psi). This ensures that the elevating mechanism remains in tension.

22.4 Using the Schrader valve cap, reduce pedestal pressure to 3.5 bar (50 psi).

WARNING!: Ensure that the payload is removed and trim weights are secured in the trim weight stowage before dismantling the pedestal.

22.5 Release the safety catch (6) and allow the column to rise under hand restraint.

22.6 Apply the on-shot clamp (22).

22.7 Undo the four mounting bolts and remove the pan and tilt head.

22.8 To avoid the possibility of dust or abrasive particles collecting on moving components, release the on-shot clamp (22), set the column to minimum height and engage the safety catch (6).

22.9 Secure any trim weights (7) in the trim weight stowage (20).

22.10 Release the skid clamp (9).

22.11 Release the three rubber foot straps (10) from the struts.

22.12 Raise the longer strut (19)(on the fixed skid leg), which will remain raised when released. Raise and hold the two shorter struts (8), then lift the complete column vertically off the skid.

22.13 Secure the struts with the Velcro strap (18).

WARNING!: The column will be unstable if stood on its base.

22.14 Remove the steering ring (23) by unscrewing each fastener until it releases. Lift the steering ring of its mounting plate (24).

22.15 Remove the kick bar (13) from the skid by releasing the sliding catches.

22.16 Depress the locking plungers and fold the skid legs, ensuring that the plungers lock in the fully closed position.

Section 3

Tools and Materials

Special tools

1 No special tools are required

Consumable materials

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

Item	Part No.	Use
Grease, Molykote 111	Z150-096	Drag clamp pad
Grease, GP50	Z150-081	Crab/steer changeover mechanism
Grease, white bearing	Z150-085	Clamps, steering and brake mechanisms
Ropelife Lubricant	Z150-133	Lubricating wire ropes
Loctite 221	Z002-026	Screw locking
Loctite 222E	Z002-075	Screw locking
Loctite 380	Z002-078	Clamp pad
Loctite 409	Z002-076	Adhesive
Loctite 415	Z002-062	Adhesive
Loctite 542	Z002-025	Sealant
Loctite 601	Z002-020	Adhesive
Loctite Primer T	Z002-019	Primer for 542
Loctite Primer 757	Z002-087	Primer for 406
Loctite Prism 406	Z002-086	Screw locking, adhesive
Lubricant, chain	Z150-050	Steering chains
Silcoset 153	Z002-036	Control valve knob and steering gear perspex disc

Section 4

Servicing

Contents **Para**

General

1 The Osprey Elite 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.

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 tracks on the moving column.

NOTE: Do NOT use oil or grease on any exposed part of the 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. Do not allow water to enter the column. Sand and dirt acts as an abrasive and should be removed with a semi-stiff brush or vacuum cleaner.

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.

Routine checks

4 Check the following during normal use:

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

4.2 Check the effectiveness of the clamps.

4.3 Check for radial or side play in the moving column.

4.4 Check for backlash in the steering ring.

4.5 Check skid wheel alignment.

Adjustments

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

5.1 Taking up wear In the skid clamp.

5.2 Elimination of radial and side play in the moving column.

5.3 Tensioning the steering belt and eliminating backlash in the steering ring.

5.4 Wheel alignment.

Taking up wear in the skid clamp

6 To adjust the skid clamp:

6.1 The skid clamp is applied or released by turning the handle clockwise or counter-clockwise. The handle has a pull-off/push-on ratchet adjustment. To take up wear, pull the handle away from the spindle, rotate counter-clockwise and release.

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

Elimination of radial and side play in the moving column.

7 There are two adjustable rollers, mounted one above the other in a housing on the elevation tube, which engage with a track on the top stage; and two similar rollers in separate housings on the outer tube which engage with a track on the elevation tube. To eliminate radial or side play in the moving column, proceed as follows (Fig 4.1):

WARNING!: Do not reduce pedestal pressure below 3.5 bar (50 psi). This ensures that the elevating mechanism remains in tension.

7.1 Increase or reduce pedestal pressure to balance the moving column without a payload. Use trim weights if necessary to ensure pressure is not reduced below 3.5 bar (50 psi).

7.2 Adjust the rollers on the outer tube first, as follows:

7.2.1 Remove the covers (2) from the roller housings above and below the trim weight stowage below the drag knob (5). Prise the covers off with a flat-bladed screwdriver.

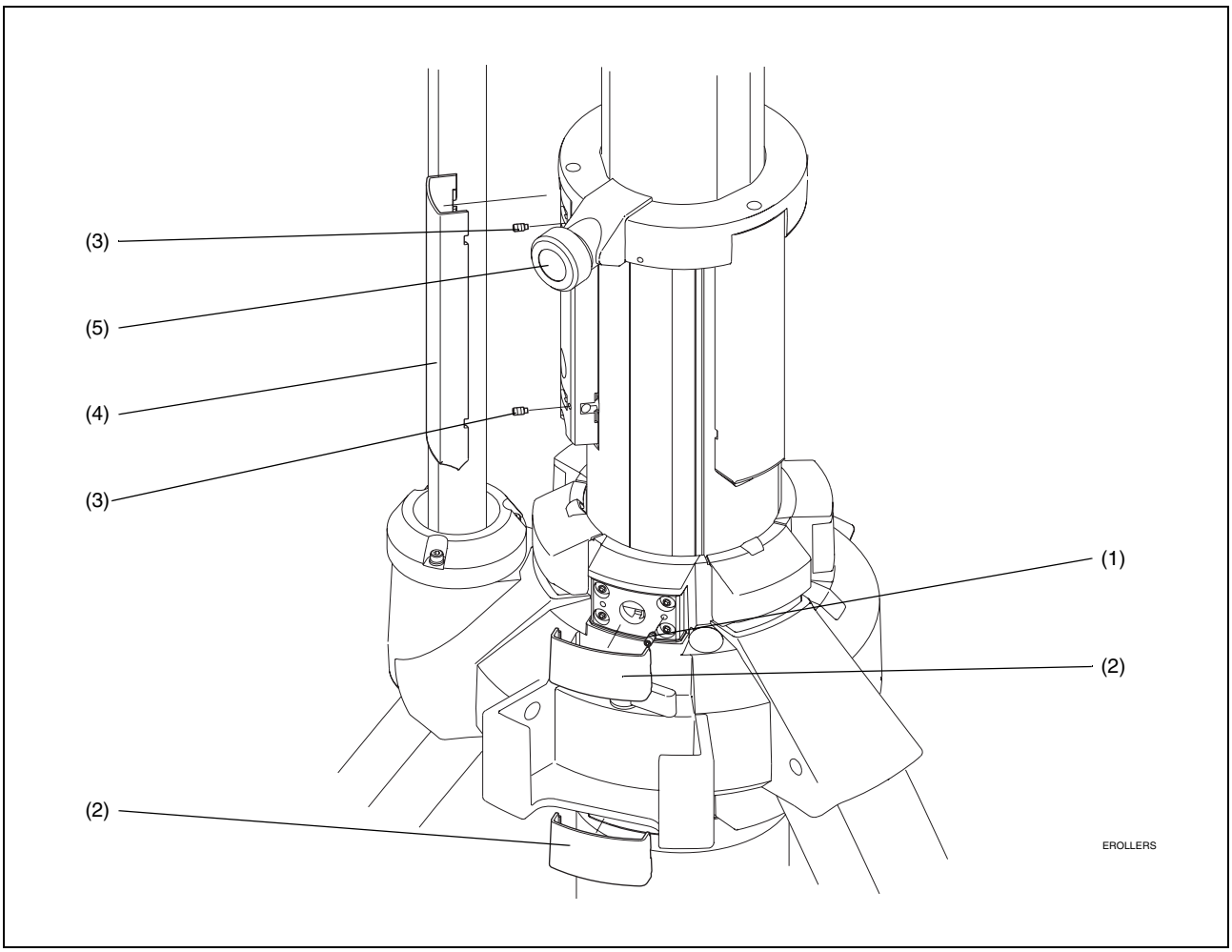


Fig 4.1 Elimination of radial and side play in the moving column

7.2.2 Remove and degrease two grub screws (1) from each housing and coat their threads with Loctite 222E.

7.2.3 Refit two grub screws (1) in the upper adjustable roller housing and tighten lightly.

7.2.4 Gradually tighten grub screws (1). Move the column over its full range and check that rollers bear evenly against the tracks and side-play is eliminated. DO NOT OVER-TIGHTEN.

7.2.5 Repeat Para 7.2.2 to Para 7.2.4 for the grub screws in the lower adjustable roller housing.

7.3 Next, adjust the rollers on the elevation tube, as follows:

7.3.1 Remove the cover (4) from the roller housing to the left of the drag knob (5). Prise the cover off with a flat-bladed screwdriver.

7.3.2 Remove and degrease four grub screws (3) and coat their threads with Loctite 222E.

7.3.3 Refit two grub screws (3) on the upper roller and tighten lightly.

7.3.4 Gradually tighten grub screws (3). Move the column over its full range and check that rollers bear evenly against the tracks and side-play is eliminated. DO NOT OVER-TIGHTEN.

7.3.5 Repeat Para 7.3.2 to Para 7.3.4 for the grub screws on the lower roller.

7.4 Refit covers (2),(4).

Steering adjustments

8 Inaccuracies in steering may be due to slackness in the steering belt or steering chains, or inaccurate tracking.

Tensioning the steering belt and eliminating backlash in the steering ring.

9 The steering ring is carried on four adjustable track rollers mounted on eccentric shafts with screwdriver slots on their lower ends. To tension the steering timing belt and eliminate backlash in the steering ring, proceed as follows (Fig 4.2):

9.1 Remove and discard four hole plugs (1) and slacken four Nyloc nuts (3).

9.2 Raise the column to maximum height and apply the on-shot clamp.

9.3 At the two track rollers (2) adjacent to the pressure gauge, turn the shafts outwards, using the screwdriver slot on the lower end of the shaft, so that the bearings move away from the column to tension the steering timing belt (4). Maintain outwards pressure and tighten Nyloc nuts (3) to secure these rollers.

9.4 At the two track rollers (6) adjacent to the steering column, turn the shafts outwards, using the screwdriver slot on the lower end of the shaft, to eliminate radial play in the steering ring (5). Maintain outwards pressure and tighten Nyloc nuts (3) to secure these rollers.

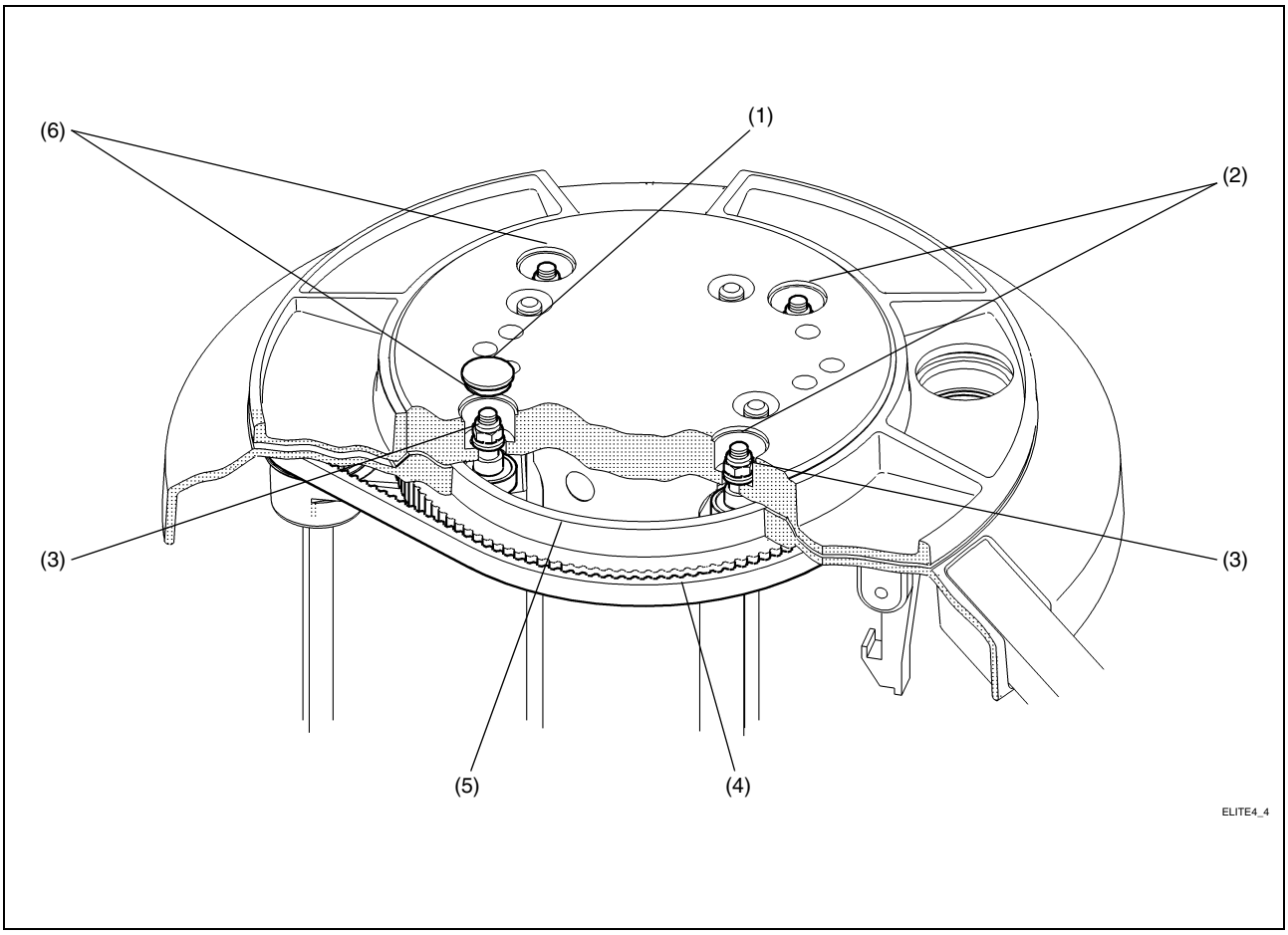


Fig 4.2 Tensioning the steering belt and eliminating backlash in the steering ring

9.5 .Turn steering ring through 360° and ensure steering ring does not bind at any point. Readjust if necessary.

9.6 Fit four new hole plugs (1) in the tank top plate.

Chain tension

10 The main steering chain (item 7, Fig 6.11) is tensioned by screwing in a grub screw. When the chain is correctly tensioned, there should be a deflection of approximately 3 mm. The chain may be accessed at the point (1) on Fig 4.3.

11 The chain in each leg (item 3, Fig 6.11) is tensioned by sliding the end housing outwards. There is no access to the leg chains.

12 Tension the chains as follows: (Fig 4.3):

12.1 Open the skid legs to the full track position.

12.2 At each end housing, remove screws (4), (5) securing foot assembly (6).

12.3 On the underside of the foot assembly, slacken two screws (11).

12.4 Pull the end housing outwards as far as possible and, while holding the end housing, retighten one of the screws (11).

12.5 Tighten screw (12) to take up any slack in the adjuster. Release screw (11), then tighten adjusting screw (12) by one half turn.

12.6 Tighten both screws (11).

12.7 Refit the foot assembly (6) and secure lightly with screws (4), (5).

12.8 Fit the column to the skid and, using the appropriate strut as a guide, position the foot assembly (6). Fully tighten screws (4), (5).

12.9 Remove the blanking plug (3) covering the main steering chain adjusting grub screw (2).

12.10 Screw in the grub screw (2) to increase chain tension. The chain may be accessed at the point (1). Increase tension until deflection at point (1) is approximately 3 mm. Do not overtighten.

12.11 Refit the blanking plug (3).

Skid tracking adjustment

13 Skid tracking should be set so that over a distance of 3.6 m (12 feet), deviation does not exceed 50 mm (2 in.). Check the tracking as follows:

13.1 Draw a straight line on the studio floor at least 4 m (13 feet) long.

13.2 Ensure that the pedestal is carrying a payload of approximately 90 kg (120 lb)

13.3 Set the pedestal to crab and carefully align the wheels on the fixed leg and one of the other wheels with the line on the studio floor.

13.4 Push the pedestal 3.6 m (12 feet) along the line. The pedestal should not deviate more than 50 mm (2 in.) from the line.

13.5 Push the pedestal back to the starting point. The pedestal should not deviate more than 50 mm (2 in.) from the line.

13.6 Reposition the pedestal to align the wheels on the fixed leg and the other wheels with the line on the studio floor and repeat the above check.

14 If necessary, adjust the skid tracking (Fig 4.3) as follows:

NOTE: Access to the screws (8) will be affected by whether the skid was built in the open or closed position.

14.1 Set the crab/steer changeover mechanism to CRAB and set the folding legs to the fully open position.

14.2 Turn the fixed leg wheel until crab engages.

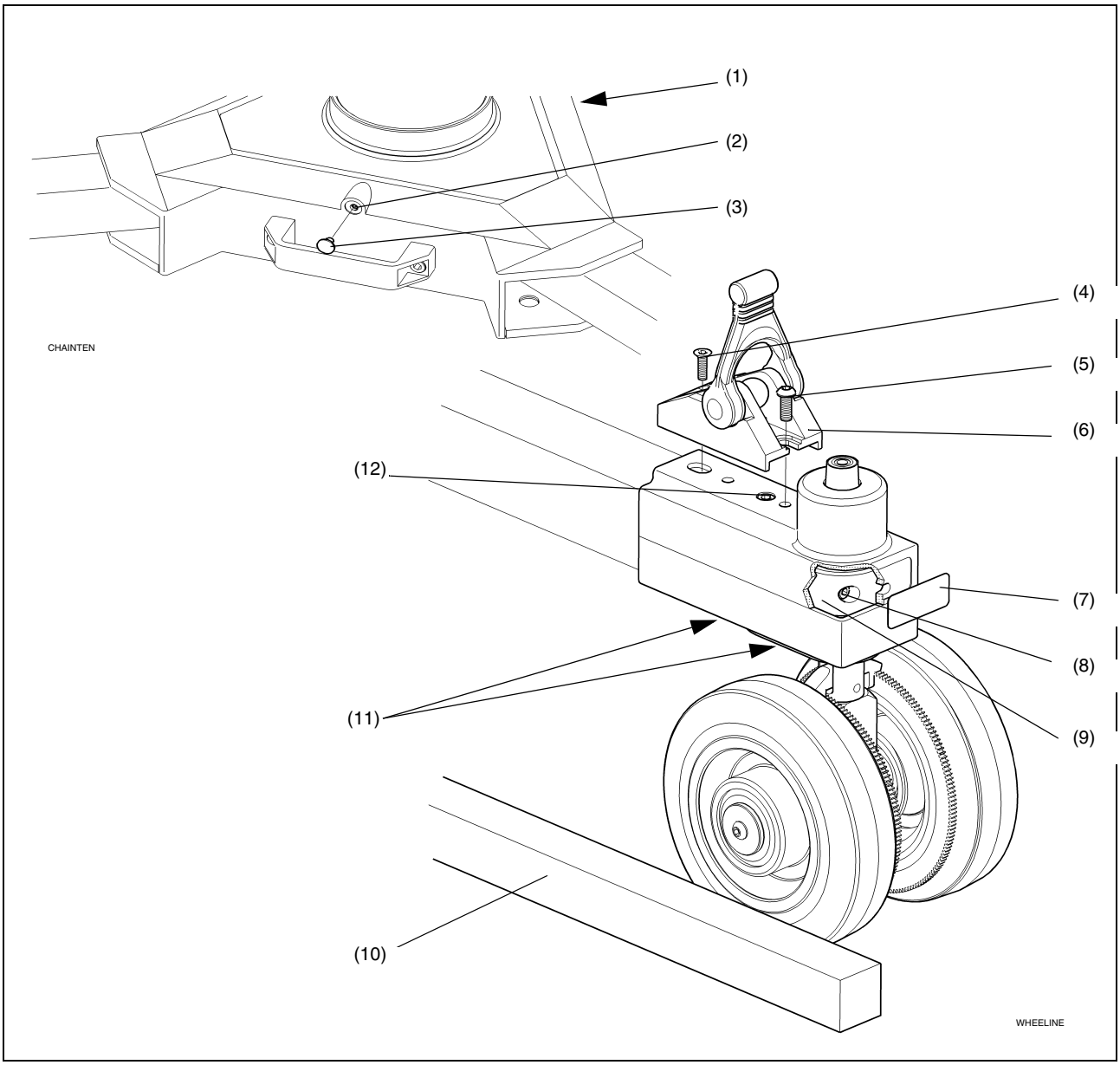


Fig 4.3 Chain tension and skid tracking

14.3 At each leg end housing carefully remove self-adhesive label (7) and ensure that the head of locking screw (8) is visible through the slot in the leg end housing. If not, turn the appropriate wheel through 180° against the action of the clutch.

14.4 If the screws (8) in the folding legs are still not visible, proceed as follows:

14.4.1 Fold each leg in turn until screw (8) becomes visible.

14.4.2 Slacken screw (8) until torque limiter sleeve (9) can just be rotated.

14.4.3 With the hexagonal wrench still in place in screw (8), move the leg to the fully open position.

14.4.4 Tighten screws (8).

14.5 Set the wheel on the fixed leg as follows:

14.5.1 Set the crab/steer changeover mechanism to STEER, rotate the wheels until the wheels on the folding legs engage in the steer position.

14.5.2 At this point the wheel on the fixed leg should be aligned for and aft. If necessary, slacken screw (8), align the wheel, then tighten screw (8) to 3.4 Nm (30 lbf in.).

14.5.3 Check by setting the crab/steer changeover mechanism to CRAB, turning the wheels and noting the alignment of the wheel on the fixed leg when all three wheels engage.

14.6 Set the wheel on each folding leg, in turn, as follows:

14.6.1 Set the crab/steer changeover mechanism to CRAB.

14.6.2 Slacken screw (8) on the folding leg.

14.6.3 Using a suitable 1 m straight-edge (10) as shown, align the wheels on the fixed and folding legs.

14.6.4 Tighten screw (8) on the folding leg to 3.4 Nm (30 lbf in.).

14.6.5 Repeat for the other folding leg.

14.7 Carry out a skid tracking check and re-adjust as necessary

14.8 Install labels (7) on each end housing.

Optional wheels

15 A set of 160 mm (6.3 in.) wheels (Part No. 3329-30) is available to convert the skid from studio to OB use. A set of 125 mm (5 in.) wheels with cable guards (Part No. 3329-43) is available to convert an OB skid to a studio skid.

16 To replace the wheels (Fig 4.4):

16.1 Remove the column from the skid and turn the skid upside-down.

16.2 Unscrew and remove the two countersunk screws (1) securing the wheel assembly (2) to the shaft (3).

16.3 Remove the wheel assembly, complete with cable guard.

16.4 Repeat for remaining two wheel assemblies. Store the wheels for future use.

16.5 Fit the replacement wheel assemblies (2) to the shafts (3) and secure each wheel assembly to the shaft with two countersunk screws (1).

Routine maintenance

Replacing the steel wire ropes

17 At three-yearly intervals, the three steel wire ropes in the column elevation mechanism should be replaced (See “Dismantling the top stage” on page 41).

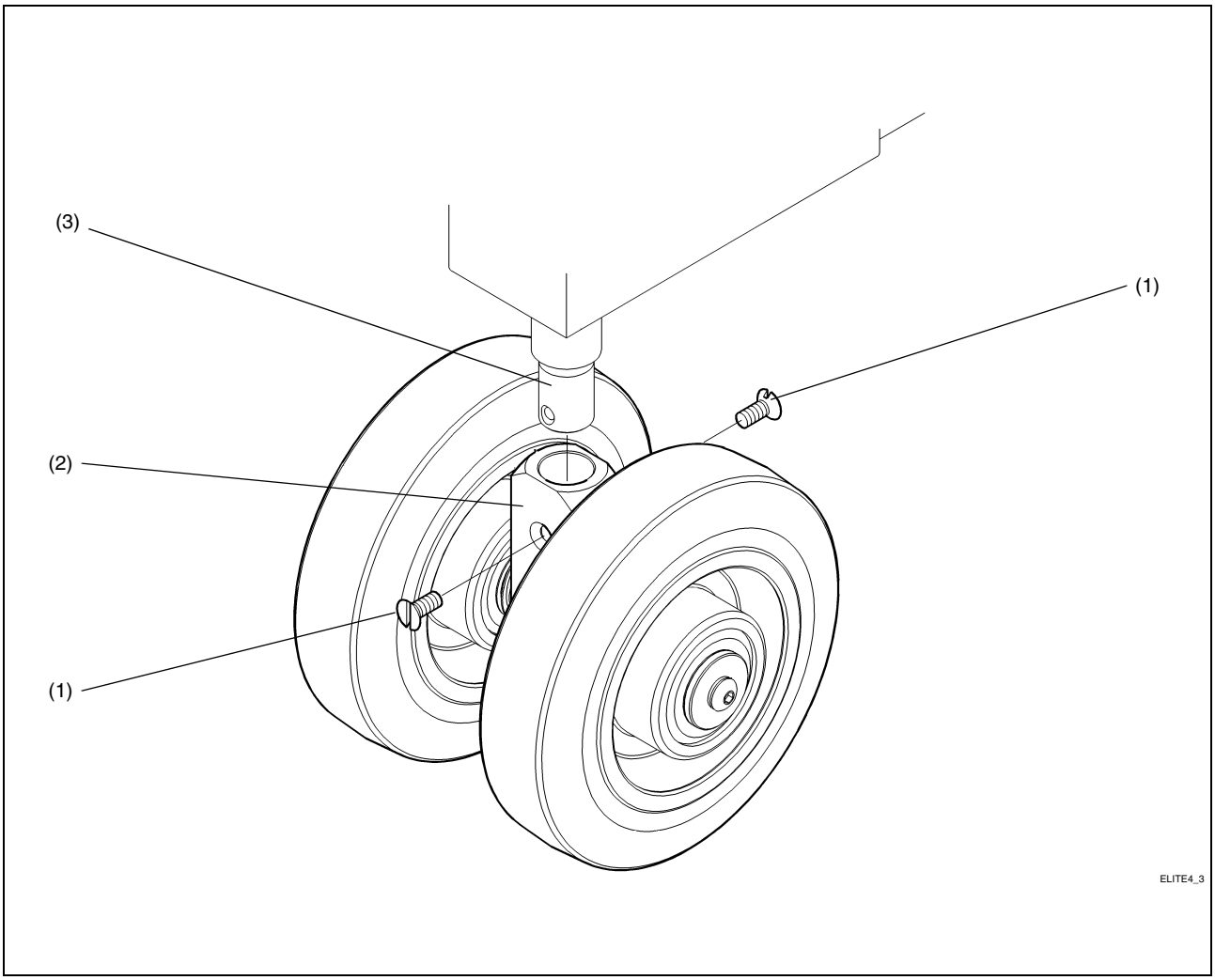


Fig 4.4 Optional wheels

Section 5

Repair

Contents **Para**

General

1 Repair and renewal of damaged items involves disassembling various assemblies 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 Section 6 - Illustrated Parts List.

WARNING!: This pedestal is pressurized to a maximum of 13.8 bar (200 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.

NOTE: Certain consumable materials are required for procedures detailed in this Section. Please refer to Section 3 - Tools and Materials. For further details, please contact Vinten Broadcast Ltd or your local distributor.

Disassembly

Column

Separating the telescopic column and skid

3 To separate the telescopic column and skid:

3.1 Apply the wheel brakes.

3.2 Set the safety catch slide to ON (I) and fully depress the moving column until the safety catch engages.

3.3 Remove the camera and accessories.

3.4 Using the Schrader valve cap, reduce pedestal pressure to 3.5 bar (50 psi).

3.5 Release the safety catch and allow the column to rise under hand restraint.

3.6 Apply the on-shot clamp.

3.7 Undo the four mounting bolts and remove the pan and tilt head.

3.8 Remove any trim weights from the weight platform and trim weight stowage.

3.9 Set the safety catch slide to ON (I) and fully depress the moving column until the safety catch engages.

3.10 Release the skid clamp.

3.11 Release the three rubber foot straps from the struts.

3.12 Raise the longer strut (on the fixed skid leg), which will remain raised when released. Raise and hold the two shorter struts, then lift the complete column vertically off the skid.

3.13 Remove the kick bar from the skid by releasing the sliding catches.

Removing the top stage and elevation tube from the outer tube

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

4 To remove the top stage and elevation tube from the outer tube:

4.1 Using the Schrader valve cap, reduce pedestal pressure to zero.

4.2 Remove the steering ring by unscrewing each fastener until it releases. Lift the steering ring off the hub assembly.

4.3 Support the column horizontally on the bench, using suitable wooden ‘V’ blocks.

4.4 Referring to Fig 6.2, remove and discard four hole plugs (45) and slacken four Nyloc nuts (44) to relieve tension on the steering timing belt (30). Slide the timing belt downwards off the steering gear (29).

4.5 Remove three screws (2) which secure the drive adaptor bracket (28) to the top plate of the tank assembly and lower the top part of the steering assembly onto the steering column support tube.

4.6 Referring to Fig 6.4, remove eight roller housing covers (13) from the outer tube

4.7 Note the type and position of each roller housing (12, 17, 44 and 45) and remove four screws (14) securing each roller housing. Remove each roller housing in turn and note the type of roller shaft (7, 16) fitted in each. Examine 'O' rings (6), bearings (8) and wipers (9) and replace as necessary.

NOTE: Two types of retaining rope have been fitted, as follows:
Pedestals Serial No. 100 to 104: Steel wire
Pedestals Serial No. 105 onwards: Nylon cord

4.8 At the base of the outer tube, remove screw (33) securing clamp plate (32) and retaining rope (31) to base of outer tube.

4.9 Pull the combined top stage and elevation tube out of the outer tube, to the extent allowed by the three rope assemblies (62).

4.10 Remove three hole plugs (59). Unscrew three Nyloc nuts (60) and remove nuts and washers (61) from rope assemblies (62). Disengage rope assemblies from outer tube.

Separating the top stage and elevation tube

5 To separate the top stage and elevation tube (Fig 6.3):

5.1 Ensure drag control is set to minimum and on-shot clamp is released. Stand the assembly up-side-down on the top plate.

NOTE: At pedestal Serial No. 105, the retaining rope was changed from steel wire to nylon cord, to reduce noise.
It is recommended that, on earlier pedestals, the nylon cord retaining rope (3374-43) and associated pulley (3374-320) are installed on assembly.

5.2 Remove two screws (22) securing pulley bracket (23) to elevation tube. Manoeuvre assembled pulley and rope out of elevation tube, remove clip (20) and pull off pulley (21) to free column retaining rope (24).

5.3 Remove three screws (31) and washers (32) securing tapered ram end ring (35) to pulley housing (33).

5.4 Remove three screws (25) which secure pulley housing (22) in elevation tube (1) and three screws (38) which secure tracks (39) through elevation tube to pulley housing.

NOTE: At pedestal Serial No. 105 the groove profile of the pulley (3374-217) was changed from 90° to 52° to reduce fatigue on the wire ropes.
It is recommended that pulleys with the 52° profile are installed on assembly.

5.5 Pull housing out of tube sufficiently for access to pulleys. Remove three pulley axles (30), six washers (27) and three pulleys (29) complete with bearings (28).

5.6 Lift the elevation tube off the top stage.

Dismantling the outer tube

6 To dismantle the outer tube (Fig 6.4):

6.1 Remove three screws (54) and washers (53) securing steering column assembly (52) to top housing assembly (1).

6.2 Remove grub screw (48) securing long strut (34) in top housing assembly. Remove strut and mounting cone (46)

6.3 Remove two screws (15), two pivot shaft sleeves (24) and two strut pivot shafts (42) securing short struts (30) to top housing assembly.

6.4 Examine the self-adhesive pads (41, 47 and NI) and replace if necessary.

6.5 Mark the position of skid clamp (38) horizontally and radially on the outer tube. Slacken retaining screw (26) and slide the skid clamp off the outer tube.

6.6 Remove three top housing covers (5) by springing the sides apart and pulling them away from the top housing. The top housing cover springs (2) are attached to bosses in the covers and should be removed with care.

6.7 Remove self-adhesive arrow graphic (23). Remove two screws (22) and washers (21) which secure spring sleeve (20), spring (19) and ball (18). Slide catch (29) down and out of top housing.

6.8 Remove circlips (39) to release springs (40) and free trim weight catches. Dismantle catches if required.

Dismantling the elevation tube

7 To dismantle the elevation tube (Fig 6.3):

7.1 Remove self-adhesive lock label (4). Remove dowel pin (3) securing clamp lever (8) to top housing (1). Remove end cap (7), screw (9), washer (10), spring plunger (6) and spring (5). Remove on-shot clamp assembly (2) from inside the top housing.

7.2 Remove screw (48) securing drag assembly in top housing (1). Unscrew and remove clamp screw (50). Remove spring (51) and drag pad (52) from top housing. Examine friction pad (53) adhered to drag pad (52).

7.3 Using a flat-bladed screwdriver, prise off three roller housing covers (12).

7.4 Note the type and position of each roller housing (11, 41) and remove three nuts (19) and washers (18) and one screw (50) securing each roller housing. Remove each roller housing in turn and note the type of roller shaft (15, 42) fitted in each. Examine ‘O’ rings (17) and bearings (16) and replace as necessary.

7.5 Examine wipers (51) and replace as necessary.

7.6 Examine three buffers (36) on underside of top housing (1) and replace as necessary.

7.7 To replace the tracks (39), remove set screw (43).

7.8 If required, remove circlip (34) securing end ring (35) to tapered ram (37). Install a temporary fixing in circlip slot to prevent ram falling inside tank. Examine three buffers (36) on end ring and replace as necessary.

Dismantling the top stage

8 To dismantle the top stage (Fig 6.2):

WARNING!: The top plate, tank tube, relief valve assembly and tapered ram assembly form the pressure vessel of the pneumatic system. These parts are supplied as a pressure-tested assembly and should not be dismantled.

8.1 Remove the elevation tube from the top stage (Para 5).

8.2 Remove six screws (39) which secure left and right weight trays (3, 38) to the top plate of tank assembly (1).

8.3 Remove three screws (2) which secure catch bracket (14) to top plate of tank. Remove and discard `O' ring (12).

8.4 Remove four Nyloc nuts (44), washers (43) and washers (42) securing 'V' bearing and shaft assembly (35) to top plate of tank assembly (1). Remove steering gear (29) and steering ring hub assembly (37). Remove six screws (11) to separate steering gear and steering ring hub. The Perspex disc (4) is retained in the steering ring hub with Silcoset 153.

8.5 Remove four circlips (46) securing washers (47), washers (34) and head fixing shafts (33) to top plate of tank assembly (1). Discard circlips (46).

8.6 To replace the tracks (27), remove screw (31), washer (32) and screw (26).

8.7 To replace the retaining rope (23), remove screw (21) and washer (22).

8.8 To replace the rope assemblies (19), remove three screws (26) securing lower end of tracks (27) (if not already removed). Remove three screws (20) and pull the anchor plate (24) out from the base of the tank assembly. Retain guide bush (25).

Dismantling the steering column assembly

9 Unless it is essential it is advisable not to dismantle the steering column. Limited dismantling is possible, as follows (Fig 6.5):

9.1 Note orientation of steering pulley (13) on steering tubes assembly (5). Drive out dowel pin (12) and pull off steering pulley.

9.2 Pull drive adaptor bracket (1) off steering tubes assembly (5) and immediately install a temporary pin in steering tubes assembly to prevent collapse of tubes. Remove bearings (2) from bracket if required.

9.3 Remove steering tube bearing sleeves (8) by prising out locators and sliding sleeves off steering tubes assembly.

9.4 Slide spring (9) and spring thrust disc (7) off steering tubes assembly.

9.5 Remove steering tubes assembly and attached parts from support tube (6). Take care that interlocking tubes do not separate. Remove ‘O’ ring (4), which is glued to support tube, if required.

9.6 Slacken two grubscrews (11) and pull steering tube upper bearing sleeve (3) off steering tubes assembly (5).

Skid

Braked end housing units

10 To remove the braked end housing units (Fig 6.7):

10.1 Remove two screws (25) securing braked wheel unit to wheel unit shaft (26). Remove wheel unit and remove and discard `O' ring (24).

10.2 Referring to Fig 6.6, remove screws (11, 12) securing foot support assembly (9) to end housing.

10.3 Referring to Fig 6.7, with the skid supported upside-down, remove chain adjuster wedge screw (1) and two screws (27).

10.4 Remove upper housing (2) complete with brake assembly. Take care to retain special nut (40) and steel ball (30) from brake assembly.

10.5 Remove circlip (28) and shaft bearing disc (29) from upper housing. Remove brake rod detent disc (31), brake button (32) and brake detent sleeve (34). Remove two `O' rings (33) and `O' ring (3). Discard circlip (38), two `O' rings (33) and `O' ring (35).

10.6 Turn the skid right-way-up. Remove and discard circlip (4) and remove and retain shim washer(s) (5). Restrain torque limiter sleeve (7) to prevent it springing off shaft and slacken locking screw (6). Remove torque limiter sleeve, taking care to retain two steel balls (9) and two springs (8).

10.7 Remove lower housing (13) complete with wheel unit shaft (26), sliding shaft out of sprocket (11).

10.8 Free sprocket (11) from chain and remove sprocket complete with bearings (10, 12). Push bearings out of sprocket if required.

10.9 From inside leg tube remove spacing sleeve (36), chain adjuster wedge (37) and chain adjuster rod (39).

10.10 Remove wheel unit shaft (26) from lower housing complete with brake mechanism. Remove bearing (14) from lower housing.

Braked wheel unit shaft

11 To dismantle the braked wheel unit shaft (Fig 6.7):

11.1 Remove the wheels and braked end housings (Para 10).

11.2 Remove spring pin (23) securing brake bar return sleeve (21) to brake push rod (20).

11.3 Pull brake push rod (20), spring (17) and spacer (18) out of wheel unit shaft. Remove `E' clip (15) and thrust washer (16) from push rod.

11.4 Slide brake bar (19) out of wheel unit shaft and remove brake bar return sleeve (21) and spring (22).

Tiller end housing unit

12 To remove the tiller end housing unit (Fig 6.8):

12.1 Remove two screws (19) securing wheel unit to wheel unit shaft (17). Remove wheel unit and remove and discard `O' ring (18).

12.2 Referring to Fig 6.6, remove screws (11, 12) securing foot support assembly (9) to end housing.

12.3 Referring to Fig 6.7, unscrew and remove tiller blanking cap (1).

12.4 Support the skid upside-down. Remove cable clamp securing screws (20) and cable clamp mounting (21). Remove chain adjuster wedge screw (28) and two screws (22).

12.5 Remove upper housing (2), taking care to retain special nut (27).

12.6 Remove circlip (5) and shaft bearing disc (4) from upper housing. Discard circlip (5).

12.7 Turn the skid right-way-up. Remove and discard circlip (6) and remove and retain shim washer(s) (7). Restrain torque limiter sleeve (9) to prevent it springing off shaft and slacken locking screw (8). Remove torque limiter sleeve, taking care to retain two steel balls (11) and two springs (10).

12.8 Remove lower housing (15) complete with wheel unit shaft, sliding shaft out of sprocket (13).

12.9 Free sprocket (13) from chain and remove sprocket complete with bearings (12) and (14). Push bearings out of sprocket if required.

12.10 From inside leg tube remove spacing sleeve (24), chain adjuster wedge (23) and chain adjuster rod (26).

12.11 Remove wheel unit shaft (17) from lower housing. Remove bearing (16) from lower housing.

Base plate

13 To remove the base plate:

13.1 Referring to Fig 6.9, remove three screws (19) securing steering gear cover (18) to base plate (9).

13.2 Remove screw (17), washer (16) and cap (15) securing steering gear (14). Pull steering gear off sprocket sleeve (8), taking care to retain key (20).

13.3 Note orientation of pinion (13) on steering shaft (1) and remove pin (12) securing pinion to steering shaft.

13.4 Referring to Fig 6.10, remove two screws (1) securing folding leg spindles to base plate. Remove screw (23) and screw (24) securing fixed leg, noting relative positions of different screw lengths. Remove four screws (25) securing base plate.

13.5 Remove leg indexing plunger (6), spring (7) and shim (8) from each folding leg.

13.6 Referring to Fig 6.9, remove three screws (21) and washers (22) securing bearing clamp ring (11) to base plate. Remove bearing (10).

13.7 The steering drive shaft (1) and sprocket sleeve (8) may be removed at this stage. The flanged bearing (2) may be removed from the base plate (9) if required, but is retained with Loctite 601.

Folding legs

14 To remove the folding legs (Fig 6.10):

14.1 Remove the braked end housings (Para 10) and base plate (Para 13).

14.2 Remove tube end plug (11) from leg (9).

14.3 Remove the joining link and remove steering chain from leg pivot sprocket sleeve (17).

14.4 Lift the legs off the sprocket sleeves. Retain shim washers (13).

14.5 Remove plunger housing (18) and two screws (10) securing leg pivot spacer (12), if required.

Fixed leg

15 To remove the fixed leg (Fig 6.10):

15.1 Remove the tiller end housing (Para 12) and base plate (Para 13).

15.2 Remove joining link and remove steering chain from crab/steer changeover mechanism (Para 17).

15.3 Remove fixed leg.

Main steering chain and leg pivot sprocket sleeves

16 To remove the main steering chain and leg pivot sprocket sleeves (Fig 6.11):

16.1 Remove and discard hole plug (15). Fully undo grub screw (14) to release main steering chain tension.

NOTE: The flanged sleeve leg pivots (11 and 17) are handed. Identify before removal.

16.2 Remove eight screws (18) securing left and right flanged sleeve leg pivots (11, 17). Remove two slipper pivot pins (12) and chain tensioner slipper (13).

16.3 Remove the joining link (16) and remove main steering chain (7).

16.4 Referring to Fig 6.10, slide leg pivot sprocket sleeves (17), complete with bearings (15) off leg pivot spindles (19). Retain shim washers (13). Remove bearings from sprocket sleeves if required.

16.5 Referring to Fig 6.6, carefully remove the self-adhesive `VINTEN' nameplate (3) from the top of the centre housing.

16.6 Referring to Fig 6.10, remove two screws (20) securing leg pivot spindles to centre housing. Remove leg pivot spindles (19).

Crab/Steer changeover mechanism

17 To dismantle the crab/steer changeover mechanism (Fig 6.9):

17.1 If not already removed, remove steering drive shaft (1) from centre housing and sprocket sleeve (8) from steering mechanism sprocket shaft (5).

17.2 The plain bearings (6, 7) may be removed from the sprocket sleeve (8) if required, but are retained with Loctite 601.

17.3 Remove four screws (37) securing bearing ring (38) to centre housing. Pull changeover mechanism out of housing, taking care to retain steel ball (28) from changeover button.

17.4 Remove and discard circlip (29) securing bearing (30) and bearing ring (39) to sprocket shaft (5).

17.5 Remove spring pin (35) securing return sleeve (36) to steering mechanism push rod (34). Pull push rod and spring (33) out of sprocket shaft. Remove `E' clip (31) and thrust washer (32) from push rod.

17.6 Disengage changeover link (23) from changeover pins (24) and remove pins and link from sprocket shaft. Remove return sleeve (36) and spring (4) from sprocket shaft.

17.7 Remove changeover detent disc (27), changeover button (26) and changeover detent sleeve (25) from centre housing. Remove and discard two `O' rings (40) and `O' ring (41).

17.8 Remove buffer pads (38) from recesses in bearing ring (39). Early skids also had buffer pads in sprocket sleeve (8). These should be discarded.

17.9 The flanged bearing (2) may be removed from the centre housing (3) if required, but is retained with Loctite 601.

Assembly

Column

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

Assembling the outer tube

18 To assemble the outer tube (Fig 6.4):

18.1 If removed, replace the self-adhesive pads (41, 47 and NI) in the strut housings.

18.2 Slide catch (29) up into top housing (1). Lubricate ball (18) and spring (19) with white bearing grease. Install ball, spring and spring sleeve catch (20) and secure with two washers (21) and screws (22). Install self-adhesive arrow graphic (23).

18.3 Install a spring (2) on the bosses in three top housing covers (5) and clip the covers into position on the top housing, engaging spring on lip in cover and against side of housing.

18.4 Slide the skid clamp (38) onto the outer tube, to the position marked in Para 6 and tighten retaining screw (26).

18.5 Install two short struts (30) in the top housing and secure with two screws (15), two pivot shaft sleeves (24) and two strut pivot shafts (42).

18.6 Lubricate the pivot points on the long strut (34) with white bearing grease. Degrease the thread of grub screw (48) and coat with Loctite 222E. Install fixed strut mounting cone (46) in the top housing. Install the long strut and secure with grub screw (48). Tighten the grub screw until the strut will hold its own weight when set at a right angle to the tube.

18.7 Assemble trim weight catches (if dismantled) and install in the top housing. Install springs (40) and secure with circlips (39)

NOTE: Do not install the roller housings at this stage.

Assembling the elevation tube

19 To assemble the elevation tube (Fig 6.3):

19.1 If removed, install tracks (39) and secure with set screws (43) at the top end.

NOTE: Do not install screws (38) at the bottom ends of tracks at this stage.

19.2 If removed, install three buffers (36) on underside of top housing (1) using Loctite 380.

19.3 Examine friction pad (49). If necessary replace, adhering friction pad to drag pad (48) using Loctite Primer T and Loctite 380.

19.4 Lightly lubricate friction pad (49) with Molykote 111.

19.5 Install drag pad (48) and spring (47) in top housing

19.6 Lightly lubricate clamp screw (46) with white bearing grease and screw into top housing until screw (44) can be installed to engage with groove in clamp screw.

19.7 Install on-shot clamp assembly (2) from inside the top housing. Lightly lubricate spring (5) and spring plunger (6) with white bearing grease and install on on-shot clamp assembly from outside the top housing. Secure with washer (10) and screw (9), using Loctite 222E.

19.8 Install new bearings (16) on roller shafts (15, 42), if necessary, as noted in Para 7. Install new ‘0’ rings (17) on roller shafts (15). Assemble roller housings (11, 41), backing-off four grub screws (40) in adjustable roller housing until the points do not project into the slots for the roller shafts. Install roller housings on elevation tube as noted in Para 7. Locate each roller housing on dowel pins (14) and secure with three washers (18) and nuts (19) and one screw (50).

NOTE: Do not install the roller housing covers (12) at this stage.

19.9 If removed, install three wipers (51) in the clamp housing using double-sided tape.

Assembling the top stagestage

WARNING!: The tank assembly, incorporating the top plate, tank tube, relief valve and tapered ram, is supplied as a pressure-tested assembly. The tank assembly should not be serviced or dismantled except as detailed in this manual.

NOTE: If refitting a steel wire retaining rope, this should also be lubricated with Ropelife lubricant.

20 Prior to assembling the top stage, lubricate the three rope assemblies as follows:

20.1 Spray the ropes with Ropelife lubricant.

20.2 Allow the lubricant to thicken, then wipe excess from the ropes using a lint-free cloth.

21 To assemble the top stage (Fig 6.2):

NOTE: A kit (3374-911SP) comprising three lubricated elevation wire ropes and a nylon cord retaining rope is available.

21.1 If removed, install three rope assemblies (19) in the anchor plate (24). Position guide bush (25) in the anchor plate and install in base of the tank assembly. Secure with three screws (21).

21.2 If removed, install tracks (27) and secure with screws (31) and washers (32) at the top end

21.3 Install three screws (26) and Loctite 222E at the bottom ends of tracks (27).

NOTE: Two types of retaining rope have been fitted, as follows:
Pedestals Serial No. 100 to 104: Steel wire
At pedestal Serial No. 105 the retaining rope was changed from steel wire to nylon cord, to reduce noise.
It is recommended that, on earlier pedestals, the nylon cord retaining rope (3374-43) and associated pulley (3374-320) are installed on assembly.

21.4 If removed, install retaining rope (23) on the anchor plate (24) and secure with screw (21) and washer (22).

21.5 If removed, install Perspex disc (4) in steering ring hub (37) and secure with Silcoset 153.

21.6 Position steering gear (29) on underside of steering ring hub (37) and secure with six screws (10).

21.7 Position steering gear and steering ring hub assembly on underside of top plate. Ensure ‘V’ bearing and shaft assemblies (35) are correctly assembled and install in top plate to retain steering gear and steering ring hub assembly. Secure with four washers (42), washers (43) and Nyloc nuts (44). Do not tighten nuts (44) fully.

21.8 Lay the timing belt (30) into position round the steering gear (29).

21.9 Install `O' ring (12) and safety catch bracket (14) on tank top plate and secure with three screws (2). If the pressure gauge (13) was removed, degrease and prime thread of pressure gauge with Loctite

Primer T and allow to dry. Coat thread with Loctite 542 and install pressure gauge on catch bracket, ensuring face of gauge is horizontal and uppermost.

21.10 Install left and right weight trays (3, 38) on top plate, ensuring hole in left weight tray aligns with pressure gauge and secure with six screws (39).

Installing the top stage in the elevation tube

22 To install the top stage in the elevation tube:

22.1 Assemble the top stage (Para 20).

22.2 Assemble the elevation tube (Para 19).

22.3 Referring to Fig 6.2, stand the top stage assembly vertically on the top plate. Ensure that the timing belt (30) has been laid in position round the steering gear ring (29).

22.4 Position the retaining rope (23) in the cut-out in the top stage. Using adhesive tape, secure the loop in the retaining rope at the end of the cut-out and the free end at the anchor plate (24)

22.5 Referring to Fig 6.3, ensure the drag clamp screw (64) and on-shot clamp (8) are released and the on-shot clamp assembly(2) and drag pad (49) are positioned in the top housing.

22.6 Position the elevation tube so that the hole for the retaining rope pulley aligns with the cut-out in the top stage. Lower the elevation tube on to the tank assembly, ensuring that rope assemblies (26) and retaining rope (24) are not tangled and that the retaining rope lays in its cut-out.

22.7 Hook the retaining rope out through the pulley hole and ensure adhesive tape is removed.

22.8 Position pulley (21) in loop in rope (24), install on pulley bracket (23) and secure with clip (20). Whilst maintaining tension on retaining rope, manoeuvre pulley assembly into position and secure to elevation tube with two screws (23). Fully tighten screws (23).

22.9 At the adjustable roller housing (41), remove and degrease four grub screws (40) and coat their threads with Loctite 222E.

22.10 Refit two grub screws on the upper roller and tighten fully and evenly.

22.11 Refit two grub screws on the lower roller and tighten fully and evenly. Ensure that top stage is central in the elevation tube. Adjust grub screws until this is achieved.

22.12 Move the elevation tube over its complete range and ensure that all rollers rotate throughout. Slacken or tighten grub screws until this is achieved.

22.13 If removed, install three buffers (36) on tapered ram end ring (35) using Loctite 380. Remove temporary fitting installed in Para 8 and position tapered ram end ring (35) on tapered ram (37), ensuring pin in tapered ram aligns with slot in end ring and rope assemblies and retaining rope align with cut-outs in end ring. Secure with circlip (34).

NOTE: At pedestal Serial No. 105, the groove profile of the pulley (3374-217) was changed from 90° to 52° to reduce fatigue on the wire ropes.
It is recommended that pulleys with the 52° profile are installed on assembly.

22.14 Examine bearings (28) in pulleys (29) and replace as necessary.

22.15 At each rope assembly in turn, position rope assembly in slot in pulley housing (33) and install a pulley and bearing and two washers (27). Push in a pulley axle (30) to secure.

22.16 Pass retaining rope (24) through pulley housing (23), ensuring ropes are not tangled.

22.17 Loosely install three washers (32) and screws (31) to secure tapered ram end ring (35) to pulley housing (33).

22.18 Position pulley housing (33) in end of elevation tube, ensuring ropes are not tangled. Secure pulley housing in elevation tube with three screws (25), using Loctite 222E. Secure lower ends of tracks (39) with screws (38), using Loctite 222E.

22.19 Fully tighten screws (31) securing tapered ram end ring (35) to pulley housing (33).

Installing the top stage and elevation tube in the outer tube

23 To install the top stage and elevation tube in the outer tube (Fig 6.4):

23.1 Install the top stage in the elevation tube (Para 22).

23.2 On the elevation unit, apply the on-shot clamp.

23.3 Feed a 0.5 m (20 in.) length of thin, strong thread or cotton through the retaining rope hole in the base of the outer tube (1).

23.4 Support the outer tube and elevation tube/top stage horizontally on the bench, using suitable wooden ‘V’ blocks.

23.5 Rotate the elevation tube/top stage so that the safety catch on the pressure gauge bracket aligns with safety catch on the top housing.

23.6 Carefully feed the rope assemblies (62) into the top housing and out through the appropriate hole, ensuring rope assemblies are not tangled. Install a washer (61) and nut (60) on each rope assembly. Do not fit hole plugs (59) at this stage.

23.7 Free the retaining rope (31) from the end of the elevation tube and attach to the thread.

23.8 Maintain tension on the thread and push elevation tube/top stage fully into the outer tube. Pull the retaining rope (31) through the hole in the base of the outer tube and secure with screw (33) and clamp plate (34).

23.9 Loosely tighten three nuts (60) to take up any slack in wire rope assemblies.

23.10 On three upper roller housings (12, 45), examine wipers (9). Replace if necessary, securing wipers to mounting brackets (10) using double-sided tape.

23.11 Install new bearings (8) on roller shafts (7, 16), if necessary, as noted in Para 8. Install new ‘0’ rings (6) on all roller shafts. Assemble roller housings (12, 17, 44, 45), backing off four grub screws (43) in adjustable roller housings until the points do not project into the slots for the roller shafts. Install roller housings on top housing as noted in Para 8 and secure each with four screws (14). Do not install covers (13) at this stage.

23.12 At the adjustable roller housings (44, 45), remove and degrease four grub screws (43) and coat their threads with Loctite 222E.

23.13 Refit two grub screws on the upper roller and tighten fully and evenly.

23.14 Refit two grub screws on the lower roller and tighten fully and evenly. Move the column over its complete range and ensure that all rollers rotate throughout. Slacken or tighten grub screws until this is achieved.

Tensioning the rope assemblies

24 Tension the rope assemblies as follows:

24.1 Install the column in the skid (Section 2).

24.2 Pressurize the pedestal to 3.5 bar (50 psi).

NOTE: Ensure rope assemblies are tensioned evenly.

24.3 Depress the column fully and engage the safety catch. Referring to Fig 6.4, evenly tighten three nuts (60) to take up any slack in the rope assemblies.

24.4 Press down on the steering ring and ensure that there is sufficient travel in the column to allow the safety catch to be released. If the safety catch cannot be released, tighten three nuts (60) by an equal amount until the safety catch can be released.

24.5 Install three hole plugs (59) in the top housing (1).

25 The retaining rope is tensioned to eliminate any noise as follows (Fig 6.4):

25.1 At the base of the outer tube, slacken screw (33), pull the retaining cable tight and retighten screw (33). Move the column over its whole range and listen for noise from the pulley. If noise is apparent, slacken screw (33) to relieve tension on the rope, retighten screw (33) and repeat until pulley is silent.

Assembling the steering column assembly

26 To assemble the steering column assembly (Fig 6.5):

26.1 If removed, degrease ‘O’ ring (4) and contact surfaces of support tube (6) and bond ‘O’ ring to support tube using Loctite 409.

26.2 Install steering tube upper bearing sleeve (3) on steering tubes assembly, ensuring locators engage with hole in outer steering tube. Using Loctite 242E, tighten grubscrews (11) to clamp sleeve legs firmly against outer tube without distortion. Lubricate sleeve with white bearing grease.

26.3 Install steering tubes assembly and attached parts in support tube (6).

26.4 Lubricate bearing sleeves (8) and spring thrust disc (7) with white bearing grease. Slide disc, spring (9) and bearing sleeves onto steering tubes assembly (5), ensuring locators on bearing sleeves engage in holes in outer steering tube.

26.5 If removed, install bearings (2) in drive adaptor bracket (1).

26.6 Install assembled drive adaptor bracket (1) on steering tubes assembly and fit steering pulley in orientation noted during disassembly. Secure pulley with dowel pin (12) and Loctite 242E, ensuring pin is underflush with pulley.

Installing the steering column assembly

27 To install the steering column assembly:

27.1 Fully extend the column.

27.2 Referring to Fig 6.4, install steering column assembly (52) and secure with three washers (53) and screws (54).Do not tighten screws at this stage.

27.3 Referring to Fig 6.2, extend the steering column (28) and engage the timing belt (30) with the steering pulley. Ensure timing belt is correctly seated on steering pulley and steering gear (29).

27.4 Align the drive bracket with its fixing holes in the tank assembly top plate and secure with three screws (2).Do not tighten screws at this stage.

27.5 Fully depress the column and tighten screws in top plate and top housing. Adjust timing belt tension and remove backlash from steering ring (Section 4). Install four hole plugs (45) in tank top plate.

Final assembly

28 Referring to Fig 6.2, install a washer (34) on each fixing shaft (33) and secure in the top plate with a washer (47) and circlip (46).

29 Referring to Fig 6.3, install three roller housing covers (12) on the elevation tube.

30 Referring to Fig 6.4, install six roller housing covers (13) on the outer tube.

Skid

Crab/Steer changeover mechanism

31 To assemble the crab/steer changeover mechanism (Fig 6.9):

31.1 If buffer pads (38) were removed, degrease recesses for buffer pads in bearing ring (39) and prime with Loctite Primer 757. Allow primer to dry then install two buffer pads using Loctite Prism 406.

31.2 If the plain bearings (6, 7) were removed from the sprocket sleeve (8), degrease the bearings and sprocket sleeve and secure bearings with Loctite 601.

31.3 If the flanged bearing (2) was removed from the centre housing (3), degrease the bearing and centre housing and secure bearing with Loctite 601.

31.4 Install spring (4) and return sleeve (23) in sprocket shaft (5). Lubricate two changeover pins (24) with GP50 grease and insert pins and changeover link (23) in sprocket shaft.

31.5 Install `E' clip (31), thrust washer (32) and spring (33) on steering mechanism push rod (34). Install push rod in sprocket shaft and secure return sleeve (36) to push rod with spring pin (35).

31.6 Lubricate changeover detent disc (27), changeover button (26), changeover detent sleeve (25), `O' ring (41) and two `O' rings (40) with white bearing grease and install in centre housing (3).

31.7 Degrease bearing ring (39) and four screws (37). Install bearing (30) and sprocket shaft (5) in bearing ring and secure with new circlip (29).

31.8 Install steel ball (28) in changeover button (27). Install sprocket and bearing ring assembly in centre housing (3) and secure with four screws (37), using Loctite 221 under screw heads.

Leg pivot sprocket sleeves

32 To install the leg pivot sprocket sleeves (Fig 6.10):

32.1 Set crab/steer changeover mechanism to STEER (selector button up).

32.2 If removed, install leg pivot spindle (19) and two bearings (15) in leg pivot sprocket sleeve (17).

32.3 Degrease two screws (20) and contact area on centre housing. Install leg pivot sprocket sleeves on centre housing, using two shim washers (13). Secure with two screws (20), using Loctite 221 under screw heads.

Main steering chain

33 To install the main steering chain (Fig 6.11):

33.1 Install main steering chain (7) by passing it round the lower sprocket on the leg pivot sprocket sleeves and the steering mechanism sprocket shaft. Secure with joining link (16).

33.2 Install chain tensioner slipper (13) and two slipper pivot pins (12).

NOTE: The flanged sleeve leg pivots (10, 17) are handed. Ensure they are installed correctly.

33.3 Degrease left and right flanged sleeve leg pivots (10, 17) and eight screws (18). Install leg pivots and secure with eight screws, using Loctite 221 under screw heads.

33.4 Install grub screw (14) and tighten until slipper is in contact with chain. Do not fit hole plug (15) at this stage.

33.5 Install the self-adhesive `VINTEN' nameplate on the top of the centre housing.

Fixed leg

34 To install the fixed leg (Fig 6.10):

34.1 Install fixed leg (22) on bosses on centre housing (21).

34.2 Thread steering chain through leg and engage with upper sprocket on steering mechanism sprocket shaft.(Fig 6.10 item 1) so that ends of chain at outer end of leg are of equal length. Tie or tape ends of chain to leg end.

Folding legs

35 To install the folding legs (Fig 6.10):

35.1 Degrease plunger housings (18) and contact areas in folding legs (9). Secure housings in legs with Loctite 601.

35.2 Degrease two leg pivot spacers (12) and four screws (10) and secure pivot spacers to legs using Loctite 221.

35.3 Install two shim washers (13) on each leg pivot spindle (19). Install the folding legs over flanged sleeve leg pivots (17).

35.4 Install shim (8) on each folding leg.

35.5 Set legs to the fully open position

35.6 Thread steering chains through legs and engage with upper sprockets on sprocket sleeves (17) so that ends of chains at outer end of each leg are of equal length. Tie or tape ends of chains to leg ends.

35.7 Install tube end plugs (11) in legs.

Base plate

36 To install the base plate (Fig 6.10)

36.1 Lubricate spring (7) and plunger (6) with white bearing grease and install in each folding leg.

36.2 Degrease contact areas on base plate, two screws (1), screw (23) and screw (24).

36.3 Install base plate and secure with four screws (25). Install screw (23) and screw (24) to secure fixed leg and two screws (1) to secure folding leg pivots, using Loctite 221 under screw heads.

36.4 Referring to Fig 6.9, install bearing (10) on steering mechanism sprocket sleeve 8) and secure with bearing ring (11), three washers (22) and three screws (20).

36.5 If the flanged bearing (2) was removed from the base plate, degrease the bearing and base plate and secure bearing with Loctite 601.

36.6 Degrease steering shaft (1), pinion (13) and pin (12). Install steering shaft in crab/steer changeover mechanism housing. Install pinion on steering shaft in correct orientation and secure with pin, using Loctite 601.

36.7 Install key (20) and steering gear (14) on sprocket sleeve and secure with cap (15), washer (16) and screw (17).

36.8 Install steering gear cover (18) on base plate and secure with three screws (19), using Loctite 221.

Braked wheel unit shaft

37 To assemble the braked wheel unit shaft (Fig 6.7):

37.1 Install spring (22), brake bar return sleeve (21) and brake bar (19) in wheel unit shaft (26).

37.2 Install spacer (18), spring (17), thrust washer (16) and `E' clip (15) on brake push rod (20).

37.3 Install push rod assembly in wheel unit shaft and secure with spring pin (23) through brake bar return sleeve (21).

End housing units

NOTE: To facilitate tracking adjustment, both braked end housings (folding legs) and the tiller end housing (fixed leg) are installed at the same time.

38 To install the end housing units:

38.1 Ensure folding legs are fully opened.

38.2 Set crab/steer changeover mechanism to STEER (selector button up).

38.3 Referring to Fig 6.11, connect the ends of the folding leg steering chains (3) together using joining links (5), ensuring chains do not disengage from sprocket sleeves (10).

38.4 Referring to Fig 6.7, install chain adjuster rod (39), chain adjuster wedge (37) and spacing sleeve (36) in each folding leg, holding wedge temporarily with a suitable screw and large washer.

38.5 If bearings (10) and (12) were removed, push them into sprockets (11). Hook sprockets into chains so that when chains are pulled taut, countersunk holes in sprockets are in line with centre lines of legs.

38.6 Install bearings (14) in lower housings (13). Slide wheel unit shaft assemblies into lower housings.

38.7 Slide wheel unit shafts through sprockets and position lower housings on legs. Hold in position with elastic bands or tape.

38.8 Apply white bearing grease to steel balls (9), springs (8) and the MATING FACES ONLY of torque limiter sleeves (7) and wheel shaft sprockets (11). Install two springs and two steel balls in each torque limiter sleeve and slide the sleeves onto the wheel unit shafts. Secure with retained shim washers (5) and new circlips (4). Tighten locking screw (6).

38.9 Set the crab/steer changeover mechanism to CRAB (selector button down).

38.10 Referring to Fig 6.11, connect the ends of the fixed leg steering chain (3) together using joining link (5), ensuring chain does not disengage from the sprocket shaft (1). Turn the chain until crab/steer changeover mechanism engages. DO NOT cause folding leg shafts to turn.

38.11 Referring to Fig 6.8, install chain adjuster rod (26), chain adjuster wedge (23) and spacing sleeve (24) in the fixed leg, holding wedge temporarily with a suitable screw and large washer.

38.12 If bearings (12) and (14) were removed, push them into sprocket (13). Hook sprocket into chain so that when chain is pulled taut, countersunk holes in sprocket are in line with centre line of leg.

38.13 Install bearing (16) in lower housing (15). Slide wheel unit shaft (17) into lower housing.

38.14 Slide wheel unit shaft through wheel shaft sprocket (13) and position lower housing on fixed leg. Hold housing in position with elastic bands or tape.

38.15 Apply white bearing grease to steel balls (11), springs (10) and the MATING FACES ONLY of the torque limiter sleeve (9) and wheel shaft sprocket (13). Install two springs and two steel balls in torque limiter sleeve and slide the sleeve onto the wheel unit shaft. Secure with retained shim washers (7) and new circlip (6). Tighten locking screw (8).

38.16 Turn skid assembly upside-down and extend the folding legs.

38.17 Referring to Fig 6.7, lubricate `O' rings (33), `O' ring (35), brake rod detent disc (31), brake button (32) and brake detent sleeve (34) with white bearing grease and install in each braked end upper housing (2). Secure with shaft bearing disc (29) and new circlip (28).

38.18 Hold braked end upper housings upside-down and insert steel ball (30) in brake buttons and special nut (40) in housings. Ensure pointed corners of nut are towards casting. Position upper housings on folding legs.

38.19 Degrease screw (1), screws (27) and contact areas on braked end upper and lower housings.

38.20 Remove elastic bands/tape from braked end lower housings. Remove temporary screws and washers retaining wedges in folding legs.

38.21 Position upper housings on folding legs. Using Loctite 221 under screw heads, install screw (1) in chain adjuster wedges (37) and screws (27) to connect upper and lower housings. Do not tighten screws at this stage.

38.22 Referring to Fig 6.8, lubricate shaft bearing disc (4) with white bearing grease and install in tiller end upper housing (2) and secure with new circlip (5).

38.23 Hold tiller end upper housing upside-down and insert special nut (27) in housing. Ensure pointed corners of nut are towards casting.

38.24 Degrease two screws (22), screw (28) and contact areas on tiller end upper and lower housings.

38.25 Remove elastic bands/tape from tiller end lower housing. Remove temporary screw and washer retaining wedge in fixed leg.

38.26 Position upper housing on fixed leg. Using Loctite 221 under screw heads, install screw (28) in chain adjuster wedge (23) and screws (22) to connect upper and lower housings. Do not tighten screws at this stage.

38.27 Install tiller blanking cap (1) in tiller end housing.

38.28 At each end housing, push housing units onto legs, then pull out to maximum travel, thus taking up slack in steering chain. Tighten one securing screw (22 or 27) while holding chain taut.

38.29 Carefully tighten each adjuster wedge screw (1 or 28) until resistance is felt.

38.30 Slacken securing screws (22 or 27) and tighten adjuster wedge screws (1 or 28) one half turn only.

38.31 Tighten all securing screws and take up any slack in adjuster wedge screws, but do not over tighten.

38.32 Install an `O' ring and wheel pivot block on each wheel unit shaft. Secure each wheel pivot block with two screws.

38.33 Set crab/steer changeover mechanism to STEER and set the folding legs to the narrow doorway track width.

38.34 Turn one folding leg wheel pivot block until it locks. Turn the block backwards and forwards, at the same time observing the main drive chain at the inner end of the leg. This will be seen to rise and fall laterally.

38.35 Still turning the wheel pivot block backwards and forwards, slowly screw in the chain tension grub screw (Fig 6.11 item 14) until lateral movement of the main drive chain stops. Screw in the grub screw a further half turn. The main drive chain is now correctly tensioned. Install hole plug (Fig 6.9 item 15).

38.36 Perform tracking adjustment (Section 4).

38.37 Referring to Fig 6.6, install a foot support assembly (9) on each end housing unit. Degrease thread of screw (12) and coat with Loctite 221. Loosely install screw (11) and screw (12).

38.38 Install the column and adjust the position of the foot supports. Tighten screws (11) to 5.6Nm (50lbf in.). Tighten screws (12).

38.39 Referring to Fig 6.6, install cable clamp assembly (21) to tiller end housing and secure with two screws (20).

Section 6

Illustrated Parts List

Contents **Para**

Introduction

1 This parts list is issued for the Osprey Elite pedestal, manufactured by VINTEN BROADCAST LIMITED, Western Way, Bury St. Edmunds, Suffolk, IP33 3TB, England.

2 This parts list shows those components that can be removed, replaced or repaired without the use of special tools or training.

Ordering spare parts

3 When ordering a spare part, please quote the part number, NOT the item number.

4 Due to restrictions placed on the transportation of adhesives and other materials, please obtain supplies of consumable materials from your local distributor.

Main assembly part numbers

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

Assembly	Part No.
Osprey Elite pedestal (OB)	3574-3B
Osprey Elite pedestal (Studio)	3574-3C
Skid assembly (OB)	3573-11B
Skid assembly (Studio)	3573-11C
Column assembly	3574-11
Wheel unit (Studio) (Three per skid)	3329-40
Wheel unit (OB - braked) (Two per skid)	3329-19
Wheel unit (OB - tiller) (One per skid)	3329-20

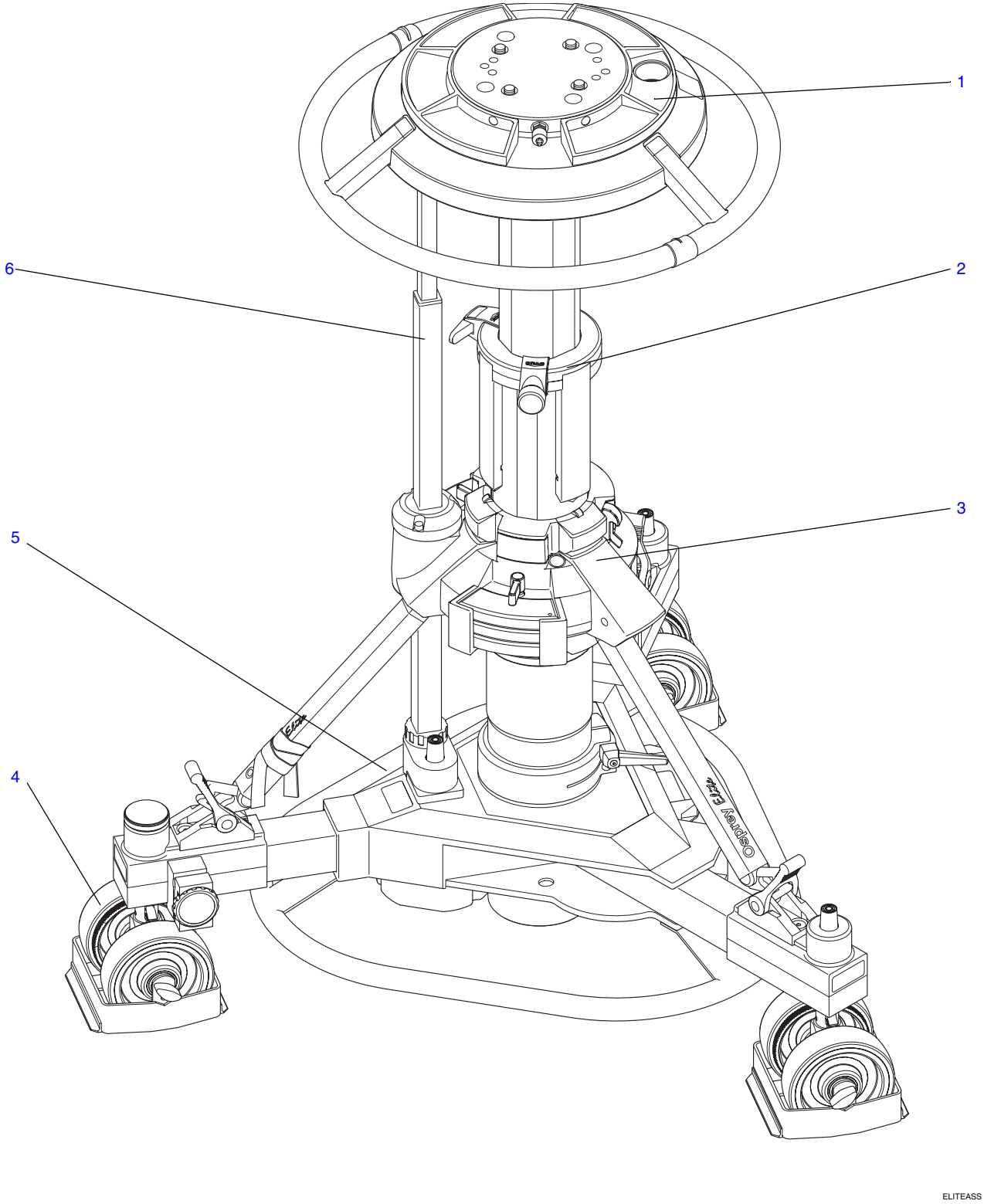


Fig 6.1 Osprey Elite Pedestal

Fig 6.1 Osprey Elite Pedestal

Item	Nomenclature
1	Top stage (Fig 6.2)
2	Elevation tube (Fig 6.3)
3	Outer tube (Fig 6.4)
4	Wheels and cable guards (Fig 6.12)
5	Skid (Fig 6.6)(Fig 6.7)(Fig 6.8)(Fig 6.9)(Fig 6.10)(Fig 6.11)
6	Steering column assembly (Fig 6.5)

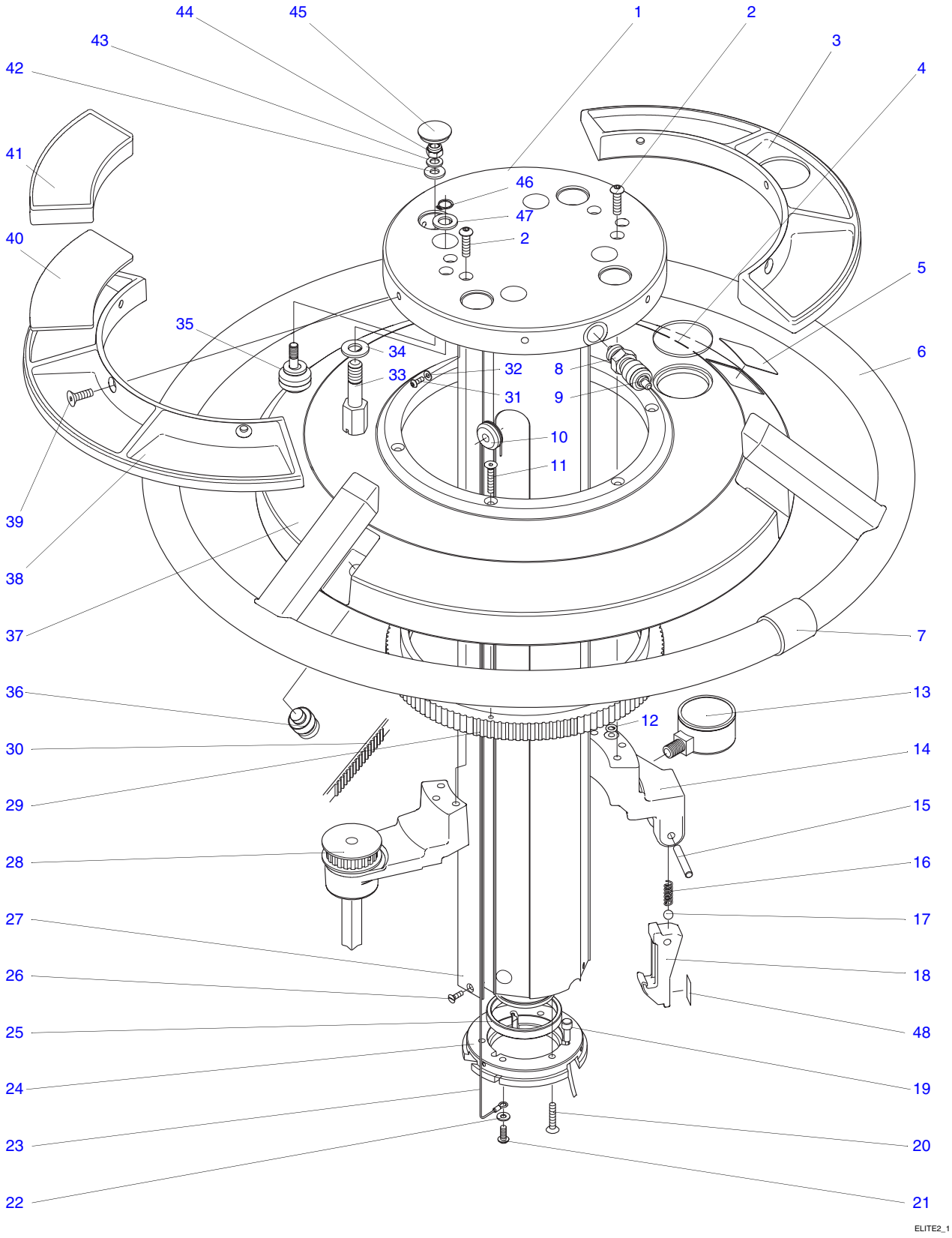


Fig 6.2 Osprey Elite Pedestal - Top Stage

Fig 6.2 Osprey Elite Pedestal - Top Stage

Item	Part No.	Nomenclature	Qty
1	3574-26	Tank assembly (leak tested), includes items 2, 8, 9, 12, 13, 14, 19, 20, 21, 22, 23, 24, 25, 26, 27 31 and 32	1
2	M006-714	Screw, cap head, socket, M5 x 25 mm long	6
3	3574-261	Weight tray	1
4	3328-258	Perspex disc	1
5	3374-271	Pressure warning label	1
6	3374-17	Steering ring assembly	1
7	3328-29	Indicator assembly	2
8	3328-303	Schrader valve assembly	1
9	3328-304	Pressure release button	1
10	3374-311	Pulley roller (Serial No. 100 - 104)(Fig 6.3))	1
	or		
	3374-320	Pulley Roller-Cord Version (Serial No. 105 onwards)(Fig 6.3)	
11	M005-914	Screw, countersunk head, socket, M4 x 20 mm long	6
12	Q001-011*	'O'-Ring, 3/16 in. nominal ID x 0.070 in. section, hardness 60 IRHD	1
13	3374-296	Pressure gauge	1
14	3374-212	Catch bracket	1
15	3374-243	Catch lever spindle	1
16	J532-090	Spring, compression, 3/4 in. free length, 1/4 in. hole dia., 60.0 lbf/in. rate	1
17	N600-016	Steel ball, 1/4 in. dia	1
18	3374-229	Catch lever	1
19	3374-911SP	Cord/Wire Assembly	3
20	M005-914	Screw, countersunk head, socket, M4 x 20 mm long	3
21	M005-502	Screw, button head, socket, M4 x 10 mm long	1
22	M600-021	Washer, M4	1
23	3374-31	Rope assembly, column retaining (Serial No. 100 - 104)(Fig 6.3)	1
	or		
	3374-911SP	Cord/Wire Assembly (Serial No. 105 onwards)(Fig 6.3)	
24	3374-209	Anchor plate	1
25	3374-208	Guide bush	1
26	M004-222	Screw, countersunk head, slotted, M3 x 10 mm long	3
27	3374-236	Track. tank tube	3
28	3374-15	Steering column assembly (Fig 6.5)	1

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Fig 6.2 Osprey Elite Pedestal - Top Stage (Cont)

Item	Part No.	Nomenclature	Qty
29	3374-308	Steering gear ('V' groove)	1
30	J201-043	Belt, timing, 26 in. long, 1/5 in. pitch, 130 teeth, 3/8 in. wide	1
31	L602-031	Washer, plain, large, 6 BA	3
32	M004-503	Screw, button head, socket, M3 x 8 mm long	3
33	3328-350	Head fixing shaft	4
34	L602-123	Washer, plain, small, light, 3/8 in.	4
35	3374-33	V-Bearing Shaft and assembly	4
	3574-19	Steering hub assembly, comprising:	1
36	L860-065	Low Profile Panel Fastener	3
37	3574-232	Steering hub	1
38	3574-260	Weight tray RH	1
39	M006-904	Screw, countersunk head, socket, M5 x 16 mm long	6
40	3328-344	Weight tray lining	6
41	3429-17	Trim weight assembly	6
42	M600-007	Washer, plain, heavy, M6	4
43	L602-101	Washer, plain, small, 1/4 in.	4
44	M501-206	Nut, M6, nyloc, lock	4
45	J550-068	Hole-plug, dome head, 15.9 mm hole dia. x 18.2 mm head dia.	4
46	L701-025	Circlip, external, standard, 0.375 in. shaft dia. x 0.025 in. thick	4
47	3064-227	Brake washer	4
48	3423-38	Warning label - catch (Osprey Elite / Quartz 2)	1

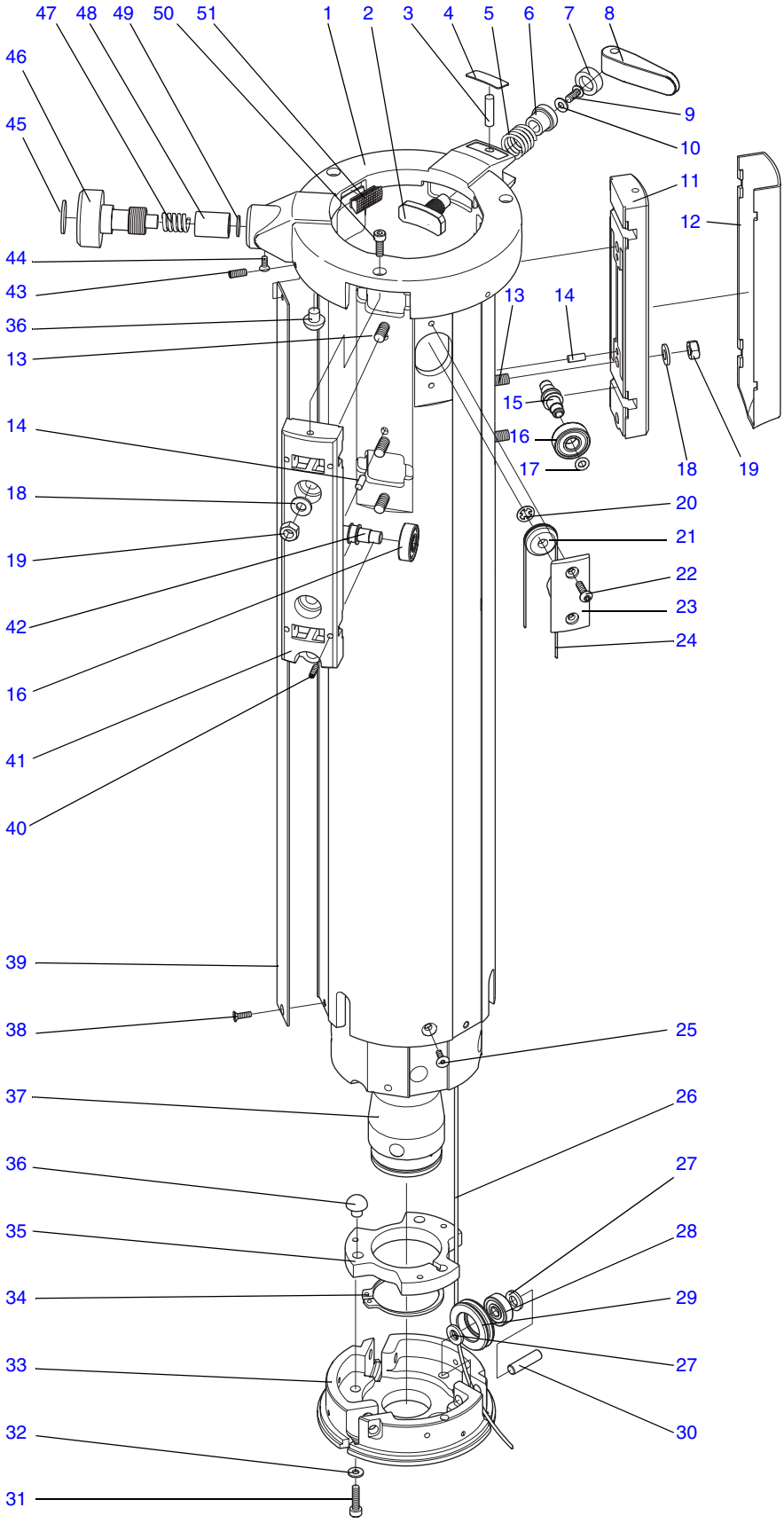

Fig 6.3 Osprey Elite Pedestal - Elevation Tube

Fig 6.3 Osprey Elite Pedestal - Elevation Tube

Item	Part No.	Nomenclature	Qty
1	3574-32	Elevation tube / clamp housing assembly (cable retaining) (includes 3 off item 36)	1
2	3328-903SP	On shot clamp assembly	1
3	M801-015	Pin, dowel, 5 mm dia. x 20 mm long	1
4	3423-64	Lock pin cover	1
5	J532-136	Spring, compression, 0.500 in. free length, 0.600 in. OD x 0.625 in. hole dia., 21.70 lbf/in. rate	1
6	3328-239	Clamp spring plunger	1
7	3328-341	End cap. on shot lock	1
8	3328-252	Clamp lever	1
9	M005-513	Screw, button head, socket, M4 x 6 mm long	1
10	M600-021	Washer, plain, M4	1
11	3374-219	Roller housing	2
12	3374-221	Roller housing cover	3
13	M100-002	Stud, captive, M6 thread x 18 mm long	9
14	M801-006	Pin, dowel, 4 mm dia. x 10 mm long	6
15	3328-370	Roller shaft	4
16	P300-012	Bearing, ball, radial, 8 mm ID x 22 mm OD x 7 mm long, two shields	12
17	Q001-007*	'O'-Ring, 5/32 in. nominal ID x 0.070 in. section, hardness 70 IRHD	8
18	M605-004	Washer, fibre spacer, M6	9
19	M500-090	Nut, M6, standard (hex), full	9
20	M701-071	Fastener, push-on, reinforced, 6.0 mm shaft dia. x 0.40 mm thick	1
21	3374-31	Rope assembly, column retaining (Serial No. 100 - 104)(Fig 6.3)	1
	or 3374-911SP	Cord/Wire Assembly (Serial No. 105 onwards)(Fig 6.3)	
22	M005-511	Screw, button head, socket, M4 x 8 mm long	4
23	3374-310	Pulley bracket	1
24	3374-31	Rope assembly, column retaining (Serial No. 100-104)(Fig 6.2)	1
	or 3374-34	Cord Assembly (Column Retaining) (Serial No. 105 onwards)(Fig 6.2)	
25	M005-903	Screw, countersunk head, socket, M4 x 12 mm long	3
26	3374-27*	Wire rope assembly (galvanised) (part of 3374-12) (Fig 6.2)	3

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Fig 6.3 Osprey Elite Pedestal - Elevation Tube (Cont)

Item	Part No.	Nomenclature	Qty
27	M606-013	Washer, nylon spacer, 6.4 mm ID x 12 mm OD x 1.6 mm thick	6
28	P200-242	Bearing, ball, radial, 6 mm ID x 19 mm OD x 6 mm long, two shields	3
29	3374-217	Pulley	3
30	3374-218	Pulley axle	3
31	M005-706	Screw, cap head, socket, M4 x 16 mm long	3
32	L602-051	Washer, plain, large, 2 BA	3
33	3374-223	Pulley housing (with cable retainer hole)	1
34	M701-062	Circlip, external, standard, 42 mm shaft dia. x 1.75 mm thick	1
35	3374-215	Tapered ram end ring	1
36	J550-061	Buffer, mushroom, 1/4 in. stem dia. x 1/2 in. head dia. x 7/16 in. overall depth	6
37	3574-26	Leak test assembly (Fig 6.2)	1
38	M004-222	Screw, countersunk head, slotted, M3 x 10 mm long	3
39	3374-222	Track. elevation tube	3
40	M005-803	Screw, grub, dog point, socket head, M4 x 8 mm long	4
41	3374-220	Roller housing. adjustable	1
42	3328-360	Roller shaft	2
43	M005-818	Screw, grub, cone point, socket head, M4 x 16 mm long	3
44	M004-110	Screw, countersunk head, pozidrive, M3 x 5 mm long	1
45	3513-209	Knob label	1
46	3374-290	Drag clamp screw	1
47	K532-006	Spring, compression, 14.5 mm free length, 9.6 mm OD x 10.1 mm hole dia., 37.27 N/mm rate	1
48	3374-293	Friction pad holder	1
49	3328-309	Friction pad	1
50	M005-718	Screw, cap head, socket, M4 x 12 mm long	3
51	3328-287	Wiper	3

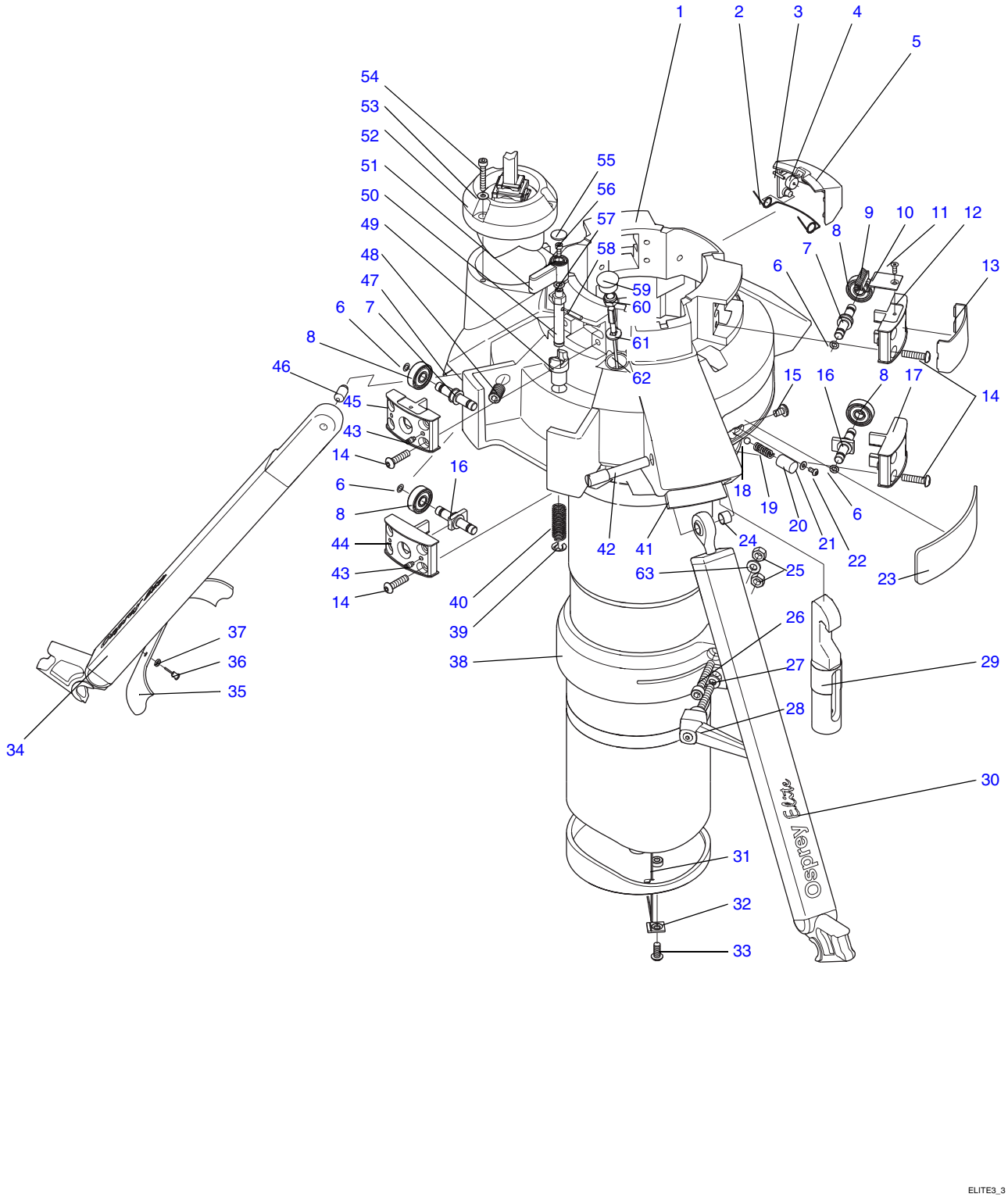

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Fig 6.4 Osprey Elite Pedestal - Outer Tube

Fig 6.4 Osprey Elite Pedestal - Outer Tube

Item	Part No.	Nomenclature	Qty
1	3574-30	Top housing assembly (cable retaining)	1
2	3374-263	Cover return spring	3
3	3374-265	Cover wheel axle	3
4	3374-264	Cover wheel	3
5	3574-224	Main housing cover	3
6	Q001-007*	'O'-Ring, 5/32 in. nominal ID x 0.070 in. section, hardness 70 IRHD	12
7	3323-239	Roller shaft	3
8	P300-012	Bearing, ball, radial, 8 mm ID x 22 mm OD x 7 mm long, two shields INA No.608-2Z EMG SRL50	12
9	3328-287	Wiper	3
10	3374-278	Wiper mounting bracket	3
11	M004-110	Screw, countersunk head, pozidrive, M3 x 5 mm long	3
12	3374-226	Roller housing. fixed	2
13	3323-216	Roller housing cover	6
14	M006-514	Screw, button head, socket, M5 x 16 mm long	24
15	M006-015	Screw, pan head, pozidrive, M5 x 8 mm long	2
16	3374-280	Roller shaft	3
17	3374-283	Roller housing. fixed (bottom)	2
18	P900-010	Ball, steel, 5 mm dia.	1
19	J532-073	Spring, compression, 3/4 in. free length, 3/16 in. OD x 3/16 in. hole dia., 11.0 lbf/in. rate	1
20	3374-291	Spring sleeve. catch	1
21	M600-019	Washer, plain, M3	2
22	M004-512	Screw, button head, socket, M3 x 6 mm long	2
23	3374-288	Arrow graphic	1
24	3374-277	Pivot shaft sleeve	1
25	M500-090	Nut, M6, standard (hex), full	2
26	M007-723	Screw, cap head, socket, M6 x 40 mm long	1
27	M600-007	Washer, plain, heavy, M6	1
28	J402-046	Lever, adjustable clamp, 42 mm long, M6, male thread	1
29	3374-266	Catch	1

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Fig 6.4 Osprey Elite Pedestal - Outer Tube (Cont)

Item	Part No.	Nomenclature	Qty
30	3374-21	Strut assembly.(adjustable)	2
31	3374-31 or 3374-911SP	Rope assembly, column retaining (Serial No. 100 - 104)(Fig 6.3) Cord/Wire Assembly (Serial No. 105 onwards)(Fig 6.3)	1
32	3374-305	Clamp Plate - Retaining Rope	1
33	M006-511	Screw, skt butt hd, M5 x 10 mm lg	1
34	3374-20	Strut assembly (fixed), including:	1
35	3328-378	Strap	1
36	L804-126	Rivet, blind-captive, domed head, open type, 1/8 in. dia. x 0.423 in. long x 0.258 / 0.242 in. head dia.	1
37	L602-041	Washer, plain, large, 4 BA	
38	3328-31	Skid clamp assembly	1
39	M701-018	'E'-Clip, standard, 8.00 mm shaft dia. x 0.70 mm thick	2
40	J532-054	Spring, compression, 1-1/2 in. free length, 7/16 in. hole dia., 5.9 lbf/in. rate	2
41	3374-319	Pad L.H.	1
NI	3374-318	Pad R.H.	1
42	3374-269	Strut pivot shaft	2
43	M005-813	Screw, grub, dog point, socket head, M4 x 10 mm long	4
44	3374-284	Roller housing. adjustable bottom	1
45	3374-282	Roller housing. adjustable (top)	1
46	3374-292	Fixed strut mounting cone. (short)	1
47	3374-317	Pad	1
48	M009-802	Screw, grub, cone point, socket head, M10 x 16 mm long	1
49	3374-268	Weight pocket insert	2
50	3328-327	Shaft. clamp lever	2
51	3219-225	Pan bar clamp knob (Vision 10)	2
52	3374-15	Steering Column assembly (Fig 6.5)	1
53	M600-021	Washer, plain, M4	3
54	M005-721	Screw, cap head, socket, M4 x 25 mm long	3
55	3364-343	Brake knob cap	2
56	M004-703	Screw, cap head, socket, M3 x 8 mm long	2

Fig 6.4 Osprey Elite Pedestal - Outer Tube (Cont)

Item	Part No.	Nomenclature	Qty
57	Q001-010*	'O'-Ring, 1/4 in. nominal ID x 0.070 in. section, hardness 70 IRHD	2
58	M801-033	Pin, dowel, 3 mm dia. x 14 mm long	2
59	J550-068	Hole-plug, dome head, 15.9 mm hole dia. x 18.2 mm head dia.	3
60	M501-009	Nut, M6, nyloc, full	3
61	3374-230	Washer	3
62	3374-27	Wire rope assembly (galvanised) (part of 3374-12) (Fig 6.2)	3
63	M600-007	Washer, plain, heavy, M6	1

*** Available as part of 3374-903SP - Customer seal kit**

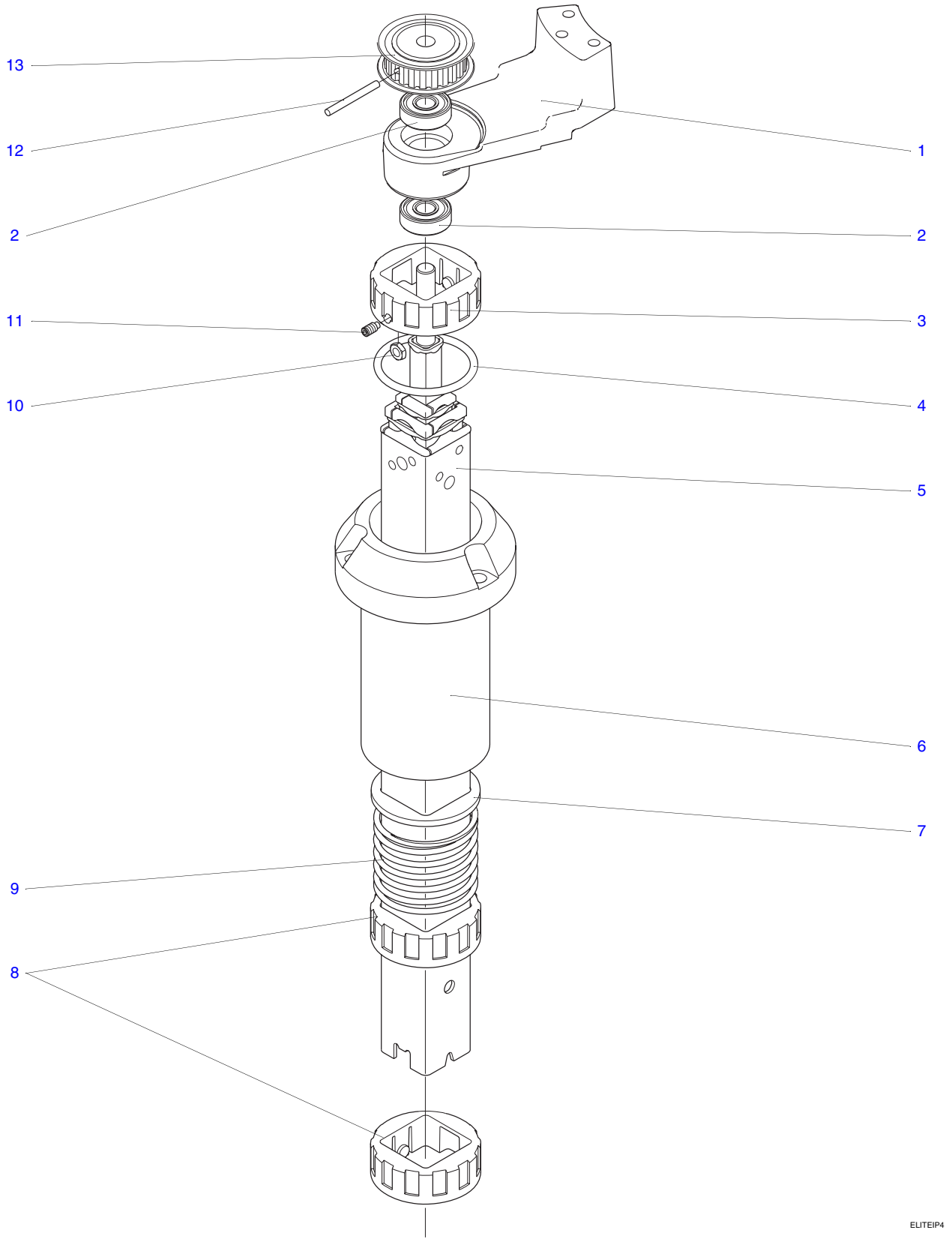

Fig 6.5 Osprey Elite Pedestal - Steering Column Assembly

Fig 6.5 Osprey Elite Pedestal - Steering Column Assembly

Item	Part No.	Nomenclature	Qty
1	3328-211	Drive adapter bracket	1
2	P300-012	Bearing, ball, radial, 8 mm ID x 22 mm OD x 7 mm long, two shields INA No.608-2Z EMG SRL50	2
3	3328-364	Sleeve	1
4	Q001-051*	'O'-Ring, 1-5/8 in. nominal ID x 0.139 in. section, hardness 70 IRHD	1
5	3374-22	Steering tubes assembly	1
6	3374-261	Steering column support tube	1
7	3328-298	Disc - spring thrust	1
8	3328-278	Sleeve - steering tube bearing	2
9	3328-299	Spring - steering tube loading	1
10	M500-072	Nut, M4, standard (hex), lock	2
11	M005-814	Screw, grub, flat point, socket head, M4 x 6 mm long	2
12	M801-027	Pin, dowel, 3 mm dia. x 30 mm long	1
13	3328-264	Steering pulley	1

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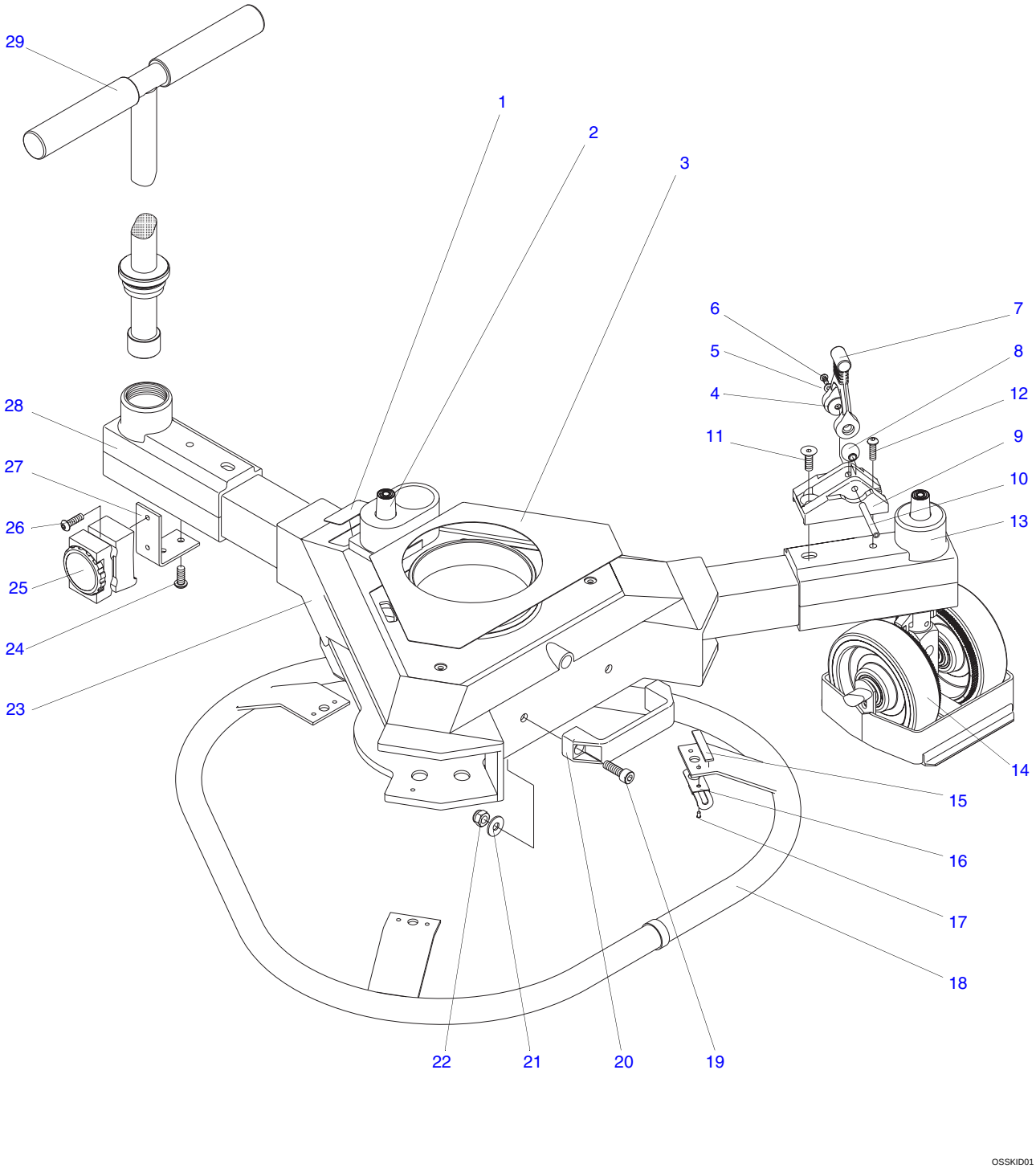

Fig 6.6 Osprey Elite Pedestal - Skid

Fig 6.6 Osprey Elite Pedestal - Skid

Item	Part No.	Nomenclature	Qty
1	3329-261	Label - changeover button	1
2	—	Crab/steer changeover mechanism (Fig 6.9)	
3	3329-245	Nameplate "Vinten"	1
	3329-31	Foot support assembly, comprising:	3
4	3313-208	Washer	2
5	M600-004	Washer, plain, heavy, M4	2
6	M005-511	Screw, button head, socket, M4 x 8 mm long	2
7	3316-14	Strap assembly	1
8	3313-207	Foot locating sphere	1
9	3315-201	Foot support	1
10	3315-202	Shaft	1
11	L078-007	Screw, cap head, socket, 3/8-24UNC x 3/4 in. long	3
12	M007-501	Screw, button head, socket, M6 x 10 mm long	3
13	—	Braked end housing (Fig 6.8)	
14	—	Wheels (Fig 6.12)	
	3329-32	Kick ring (rivet) assembly, comprising:	1
15	Z001-059	Foam, neoprene, black, adhesive-backed, 50 mm x 100 mm x 2 mm	A/R
16	L860-053	Fastener, slide-latch spacer, for 2.5mm/3.5mm panel, Dzus	3
17	L804-157	Rivet, snap head, 1/8 in. dia. x 3/16 in. long	6
18	3329-33	Kick ring (weld) assembly	1
19	M008-720	Screw, cap head, socket, M8 x 25 mm long	2
20	J402-050	Handle, 'U' shape, front fixing, 134 mm long	1
21	M600-308	Washer, plain, large, M8, E-cote polyseal (black)	2
22	M501-016	Nut, M8, nyloc, full	2
23	—	Legs and pivots (Fig 6.10), Chains (Fig 6.11)	
24	M007-502	Screw, button head, socket, M6 x 12 mm long	2
25	3382-3	Cable Clamp (Osprey), including:	1
26	M006-514	Screw, button head, socket, M5 x 16 mm long	2
27	3382-205	Mounting plate (osprey)	1
28	—	Tiller end housing (Fig 6.8)	
29	3329-21	Steering tiller assembly	1

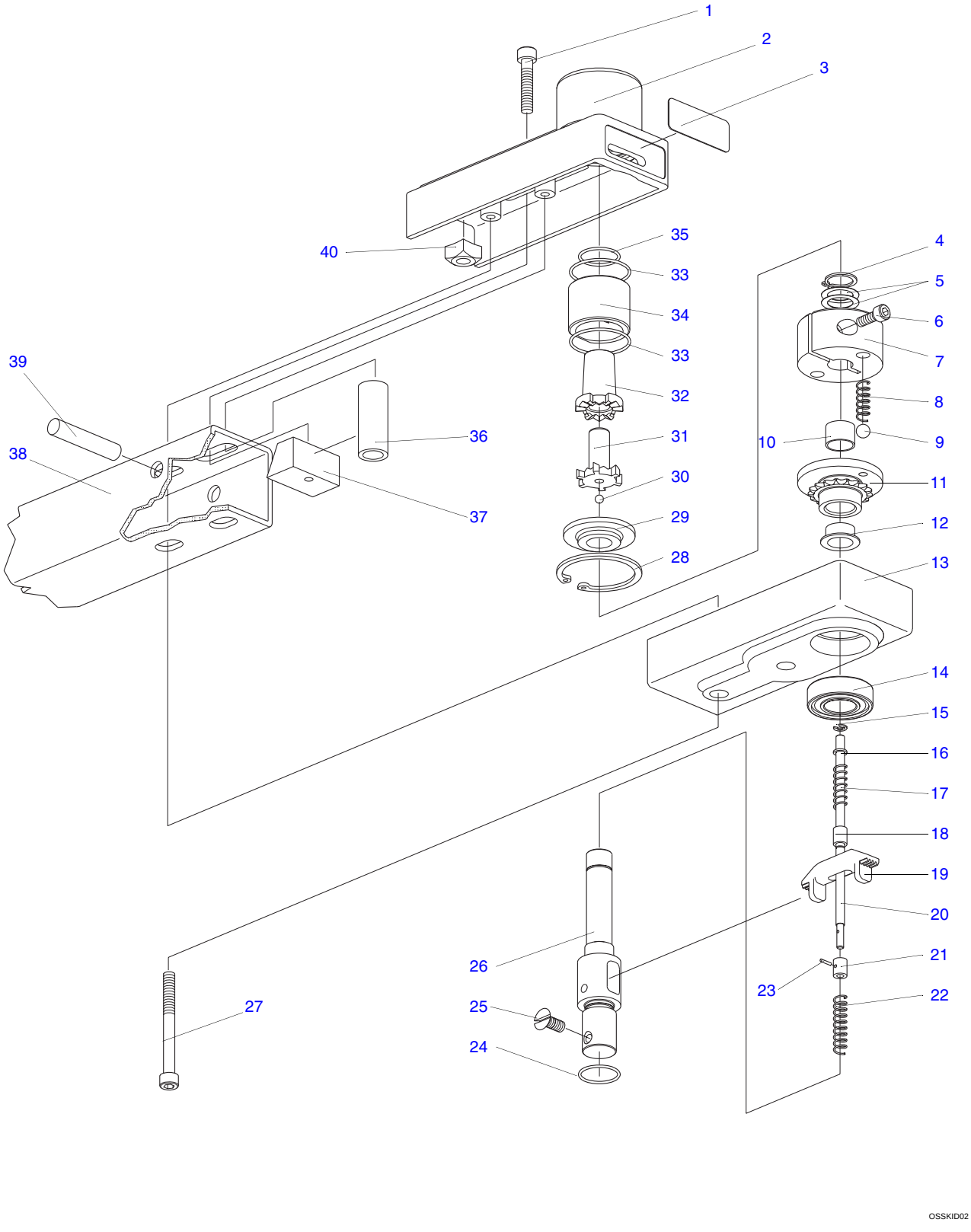

Fig 6.7 Osprey Elite Pedestal - Skid - Braked End Housing

Fig 6.7 Osprey Elite Pedestal - Skid - Braked End Housing

Item	Part No.	Nomenclature	Qty
1	M007-720	Screw, special, cap head, socket, M6 x 30 mm long	1
2	3573-201	Wheel unit housing upper (braked)	1
3	3423-55	Label -wheel housing	1
4	M701-009	Circlip, external, standard, 15 mm shaft dia. x 1.00 mm thick	1
5	M602-001	Shim, 15 mm ID x 22 mm OD x 0.20 mm thick	A/R
6	M006-706	Screw, cap head, socket, M5 x 25 mm long	1
7	3329-207	Sprocket torque limiter sleeve	1
8	J532-202	Spring, compression, 28.58mm free length, 7.62mm OD * 7.94mm hole dia., 10.75 N/mm rate	2
9	N600-017	Ball, steel, 5/16 in. dia.	2
10	P001-005	Bearing, plain, du bush, 15 mm ID x 17 mm OD x 12 mm long	1
11	3329-206	Wheel shaft sprocket	1
12	P001-008	Bearing, plain, du bush, 15 mm ID x 17 mm OD x 9 mm long	1
13	3573-203	Wheel unit housing lower	1
14	P200-240	Bearing, ball, radial, 17 mm ID x 35 mm OD x 10 mm long, two shields	1
15	M701-017	'E'-Clip, standard, 4.50 mm shaft dia. x 0.6 mm thick	1
16	3329-284	Washer - spring thrust	1
17	J532-143	Spring, compression, 1-1/4 in. free length, 5/16 in. hole dia., 22.0 lbf/in. rate	1
18	D496-015	Spacer, 8 mm OD x 5.3 mm ID x 10 mm long	1
19	3329-211	Bar - wheel brake actuation	1
20	3329-210	Spindle - wheel brake actuation	1
21	3429-284	Sleeve wheel lock return	1
22	J532-131	Spring, compression, 1-1/2 in. free length, 5/16 in. hole dia., 4.3 lbf/in. rate	1
23	L800-015	Pin, coiled-spring, 1/16 in. dia. x 5/16 in. long, mbt	1
24	R900H028*	'O'-Ring, 16 mm ID x 2.4 mm section, hardness 70 IRHD	1
25	M007-150	Screw, countersunk head, slotted, M6 x 14 mm long	2
26	3329-204	Wheel pivot shaft (braked)	1
27	M007-718	Screw, cap head, socket, M6 x 60 mm long (black)	2
28	M700-019	Circlip, internal, standard, 42 mm bore dia. x 1.75 mm thick	1

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Fig 6.7 Osprey Elite Pedestal - Skid - Braked End Housing (Cont)

Item	Part No.	Nomenclature	Qty
29	3329-217	Bearing disc	1
30	N600-001	Ball, steel, 3/16 in. dia.	1
31	3329-212	Disc - shaft detent	1
32	3329-209	Button - wheel brake actuation (black)	1
33	R900H012*	'O'-Ring, 33 mm ID x 1.50 mm section, hardness 70 IRHD	2
34	3329-213	Sleeve - button detent	1
35	R900H011*	'O'-Ring, 20 mm ID x 1.50 mm section, hardness 70 IRHD	1
36	3329-276	Sleeve - wheel housing spacer	1
37	3329-281	Wedge - chain adjuster	1
38	3573-275	Tube - folding leg (Fig 6.10)	1
39	3329-282	Rod - chain adjuster	1
40	3329-298	Square nut (modified)	1

*** Available as part of 3374-903SP - Customer seal kit**

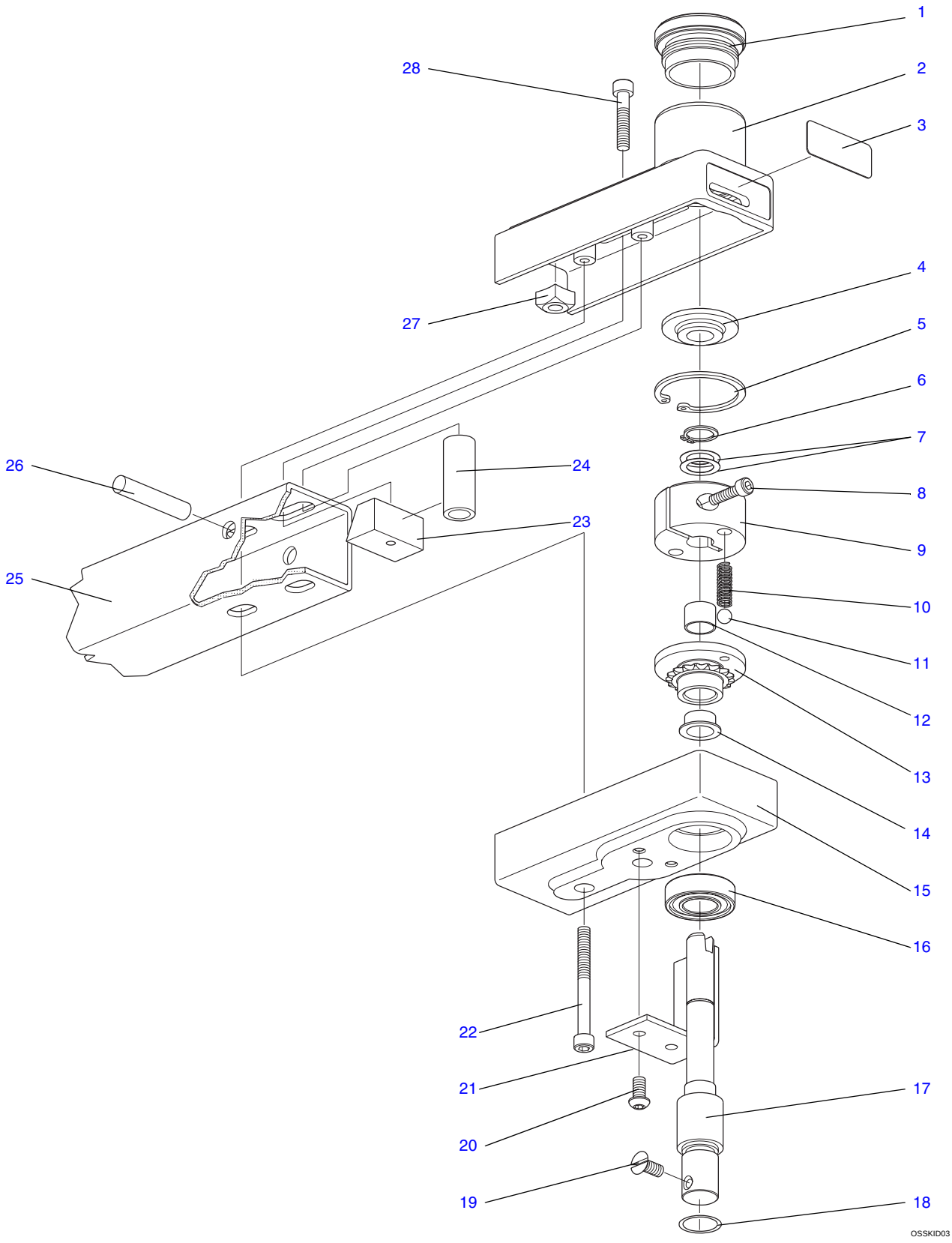

Fig 6.8 Osprey Elite Pedestal - Skid - Tiller End Housing

Fig 6.8 Osprey Elite Pedestal - Skid - Tiller End Housing

Item	Part No.	Nomenclature	Qty
1	3329-253	Screw cap - hole blanking	1
2	3573-202	Wheel unit housing upper (steering)	1
3	3423-55	Label -wheel housing	1
4	3329-217	Bearing disc	1
5	M700-019	Circlip, internal, standard, 42 mm bore dia. x 1.75 mm thick	1
6	M701-009	Circlip, external, standard, 15 mm shaft dia. x 1.00 mm thick	1
7	M602-001	Shim, 15 mm ID x 22 mm OD x 0.20 mm thick	A/R
8	M006-706	Screw, cap head, socket, M5 x 25 mm long	1
9	3329-207	Sleeve, torque limiter	1
10	J532-202	Spring, compression, 28.58mm free length, 7.62mm OD * 7.94mm hole dia., 10.75 N/mm rate	2
11	N600-017	Ball, steel, 5/16 in. dia.	2
12	P001-005	Bearing, plain, du bush, 15 mm ID x 17 mm OD x 12 mm long	1
13	3329-206	Wheel shaft sprocket	1
14	P001-008	Bearing, plain, du bush, 15 mm ID x 17 mm OD x 9 mm long	1
15	3573-324	Lower wheel unit housing - fixed leg	1
16	P200-240	Bearing, ball, radial, 17 mm ID x 35 mm OD x 10 mm long, two shields	1
17	3329-205	Wheel pivot shaft (steering)	1
18	R900H028*	'O'-Ring, 16 mm ID x 2.4 mm section, hardness 70 IRHD	1
19	M007-150	Screw, countersunk head, slotted, M6 x 14 mm long	2
20	M007-502	Screw, button head, socket, M6 x 12 mm long	2
21	3382-205	Mounting plate (osprey) (Fig 6.9)	1
22	M007-718	Screw, cap head, socket, M6 x 60 mm long	2
23	3329-276	Sleeve - wheel housing spacer	1
24	3329-281	Wedge - chain adjuster	1
25	3573-274	Tube - fixed leg (Fig 6.10)	1
26	3329-282	Rod - chain adjuster	1
27	3329-298	Square nut (modified)	1
28	M007-720	Screw, special, cap head, socket, M6 x 30 mm long	1

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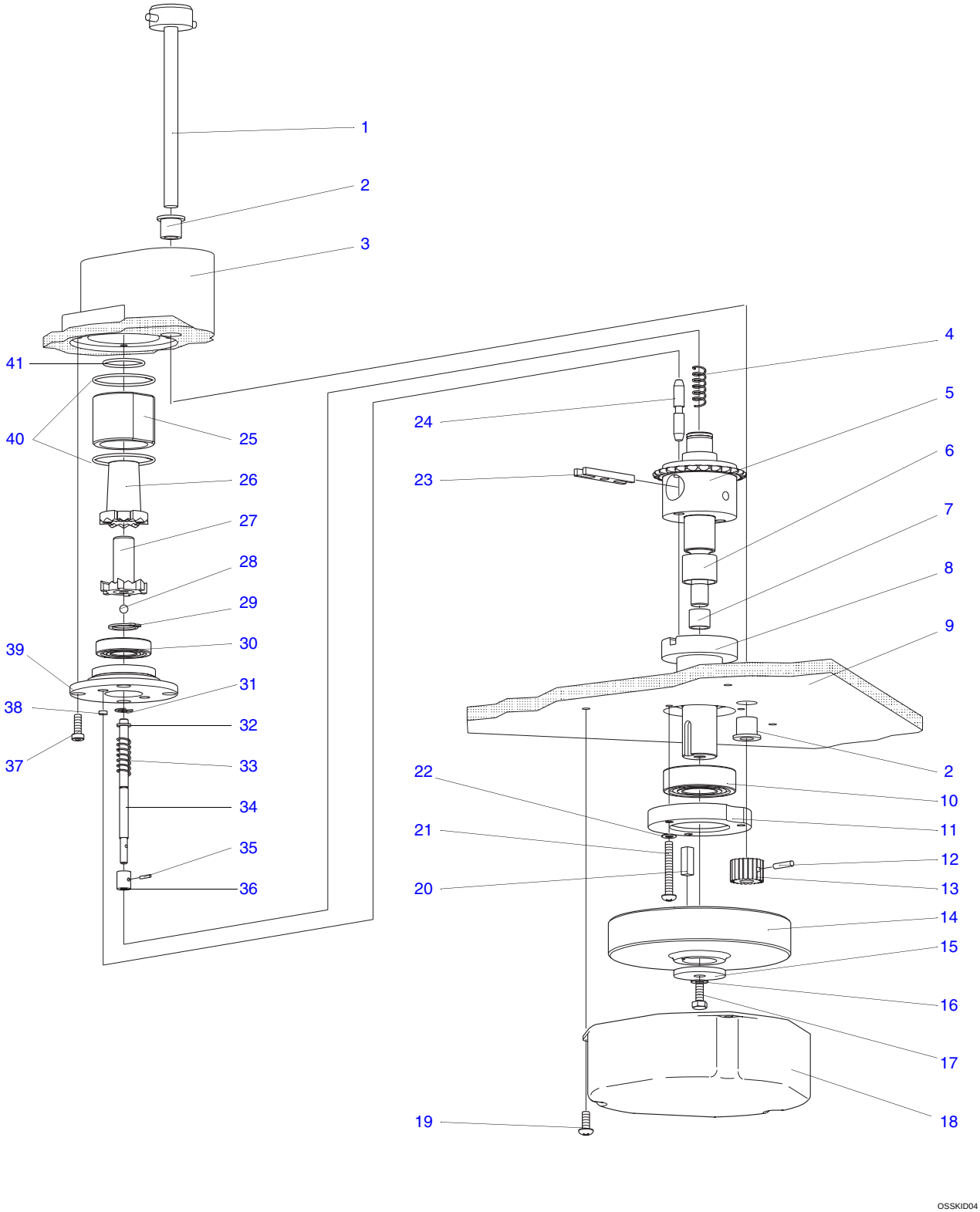

Fig 6.9 Osprey Elite Pedestal - Skid - Crab/Steer Changeover Mechanism

Fig 6.9 Osprey Elite Pedestal - Skid - Crab/Steer Changeover Mechanism

Item	Part No.	Nomenclature	Qty
1	3329-26	Steering shaft /gear sub-assembly (includes item13)	1
2	P002-014	Bearing, plain flanged, oilite, 8 mm ID x 12 mm OD x 12 mm long	2
3	3573-13	Centre Housing assembly (Fig 6.11)	1
4	J532-131	Spring, compression, 1-1/2 in. free length, 5/16 in. hole dia., 4.3 lbf/ in. rate	1
5	3329-224	Sprocket shaft (steering mechanism)	1
6	P001-007	Bearing, plain, du bush, 18 mm ID x 20 mm OD x 15 mm long	1
7	P001-004	Bearing, plain, du bush, 10 mm ID x 12 mm OD x 10 mm long	1
8	3329-223	Sprocket sleeve (steering mechanism)	1
9	3573-48	Base Plate (Rivet Bush) Assy. Small Slot (Fig 6.11)	1
10	P200-241	Bearing, ball, radial, 20 mm ID x 42 mm OD x 12 mm long, two shields	1
11	3329-229	Ring - bearing clamp (steering gear)	1
12	M801-033	Pin, dowel, 3 mm dia. x 14 mm long	1
13	3329-221	Pinion (steering mechanism) (part of item 1)	1
14	3329-220	Internal gear (steering mechanism)	1
15	3329-219	Cap - steering gear	1
16	M601-008	Washer, shakeproof, internal, M6	1
17	M007-603	Screw, hex head, M6 x 20 mm long	1
18	3329-244	Cover (steering gear)	1
19	M005-004	Screw, pan head, pozidrive, M4 x 10 mm long	3
20	M805-001	Key, parallel, square ends, 5 mm x 16 mm long	1
21	M005-007	Screw, pan head, pozidrive, M4 x 20 mm long	3
22	M601-006	Washer, shakeproof, internal, M4	3
23	3329-226	Changeover link (steering mechanism)	1
24	3329-225	Changeover pin (steering mechanism)	2
25	3329-213	Sleeve - button detent	1
26	3329-208	Button - changeover actuation (red)	1
27	3329-212	Disc - shaft detent	1
28	N600-001	Ball, steel, 3/16 in. dia.	1
29	M701-009	Circlip, external, standard, 15 mm shaft dia. x 1.00 mm thick	1

Fig 6.9 Osprey Elite Pedestal - Skid - Crab/Steer Changeover Mechanism (Cont)

Item	Part No.	Nomenclature	Qty
30	P200-232	Bearing, ball, radial, 15 mm ID x 32 mm OD x 9 mm long, two shields	1
31	M701-017	'E'-Clip, standard, 4.50 mm shaft dia. x 0.6 mm thick	1
32	3329-284	Washer - spring thrust	1
33	J532-143	Spring, compression, 1-1/4 in. free length, 5/16 in. hole dia., 22.0 lbf/in. rate	1
34	3329-227	Changeover push rod (steering mechanism)	1
35	L800-015	Pin, coiled-spring, 1/16 in. dia. x 5/16 in. long, mbt	1
36	3329-215	Sleeve - wheel lock return	1
37	M005-734	Screw, low-profile, cap head, socket, M4 x 10 mm long	4
38	3329-285	Pad - changeover pin buffer	2
39	3329-228	Ring - bearing clamp / pin anchor	1
40	R900H012*	'O'-Ring, 33 mm ID x 1.50 mm section, hardness 70 IRHD	2
41	R900H011*	'O'-Ring, 20 mm ID x 1.50 mm section, hardness 70 IRHD	1

*** Available as part of 3374-903SP - Customer seal kit**

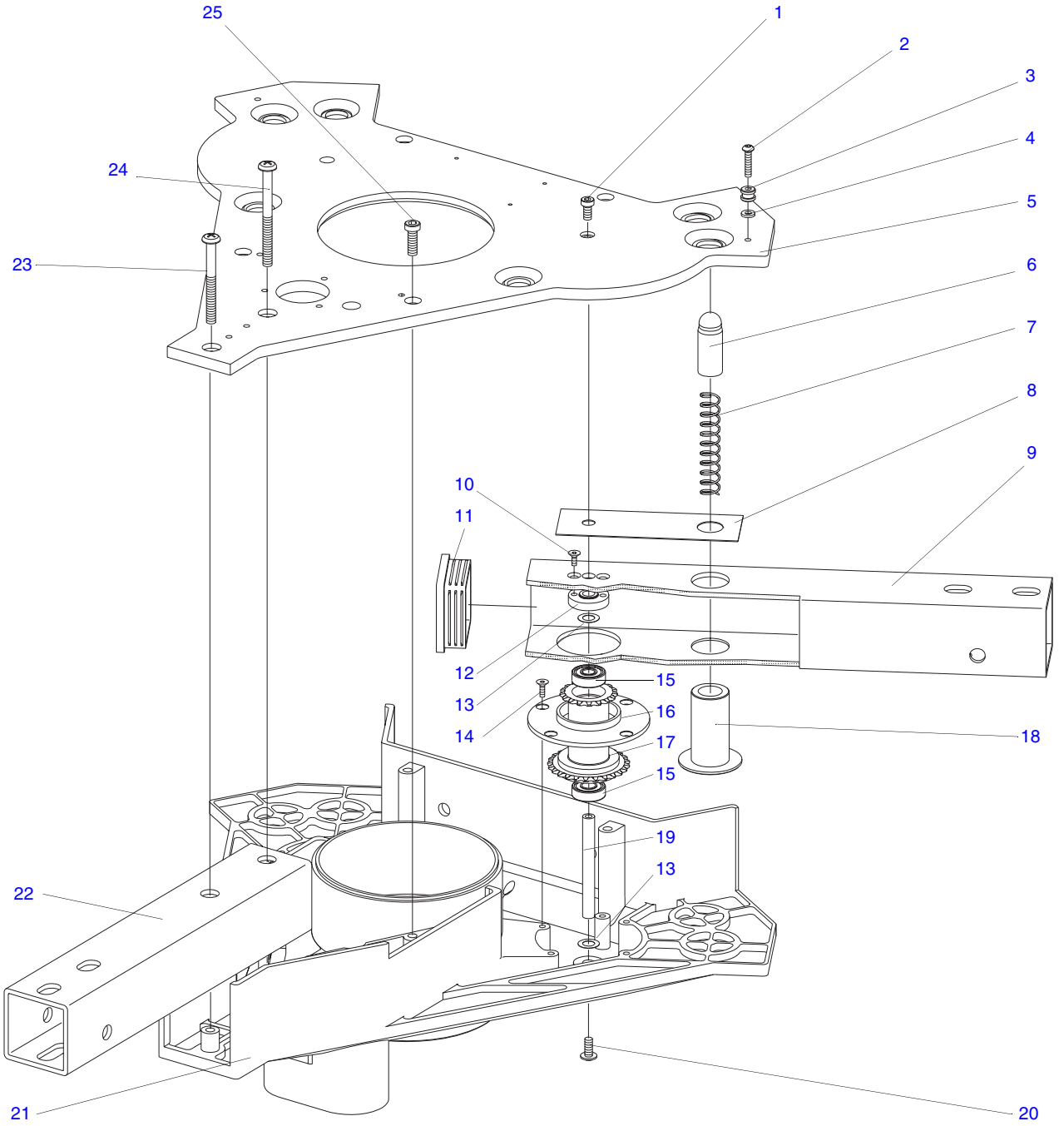

Fig 6.10 Osprey Elite Pedestal - Skid - Legs and Pivots

Fig 6.10 Osprey Elite Pedestal - Skid - Legs and Pivots

Item	Part No.	Nomenclature	Qty
1	M006-735	Screw, low-profile, cap head, socket, M5 x 12 mm long	2
2	M005-514	Screw, button head, socket, M4 x 16 mm long	3
3	L860-052	Fastener, slide latch bush, for 2.5mm/3.5mm panel, Dzus	3
4	M606-006	Washer, nylon spacer, 4.3 mm ID x 9.0 mm OD x 1.4 mm thick	3
5	3573-48	Base Plate (Rivet Bush) Assy. Small Slot.	1
6	3329-331	Plunger, leg indexing (small slot)	2
7	J532-130	Spring, compression, 3 in. free length, 15/32 in. hole dia., 3.5 lbf/in. rate	2
8	3329-246	Shim washer - leg pivot	2
9	3573-275	Tube - folding leg	2
10	M005-908	Screw, countersunk head, socket, M4 x 8 mm long	4
11	J550-091	Plug, tube-end, to fit 50 mm tube OD	2
12	3329-277	Spacer - leg pivot bearing lower	2
13	M602-002	Shim, 8 mm ID x 14 mm OD x 0.20 mm thick	A/R
14	M005-903	Screw, countersunk head, socket, M4 x 12 mm long	8
15	P300-012	Bearing, ball, radial, 8 mm ID x 22 mm OD x 7 mm long, two shields INA No.608-2Z EMG SRL50	4
16	3329-278 3329-279	Flanged sleeve - leg pivot right hand Flanged sleeve - leg pivot left hand	1 1
17	3329-240	Sleeve sprocket - leg pivot	2
18	3329-272	Plunger housing	2
19	3329-241	Spindle - leg pivot bearings	2
20	M006-550	Screw, flanged, button head, socket, M5 x 12 mm long	2
21	3573-13	Centre Housing assembly	1
22	3573-274	Tube - fixed leg	1
23	M007-013	Screw, pan head, pozidrive, M6 x 50 mm long	1
24	M007-014	Screw, pan head, pozidrive, M6 x 60 mm long	1
25	M007-729	Screw, low-profile, cap head, socket, M6 x 16 mm long	4

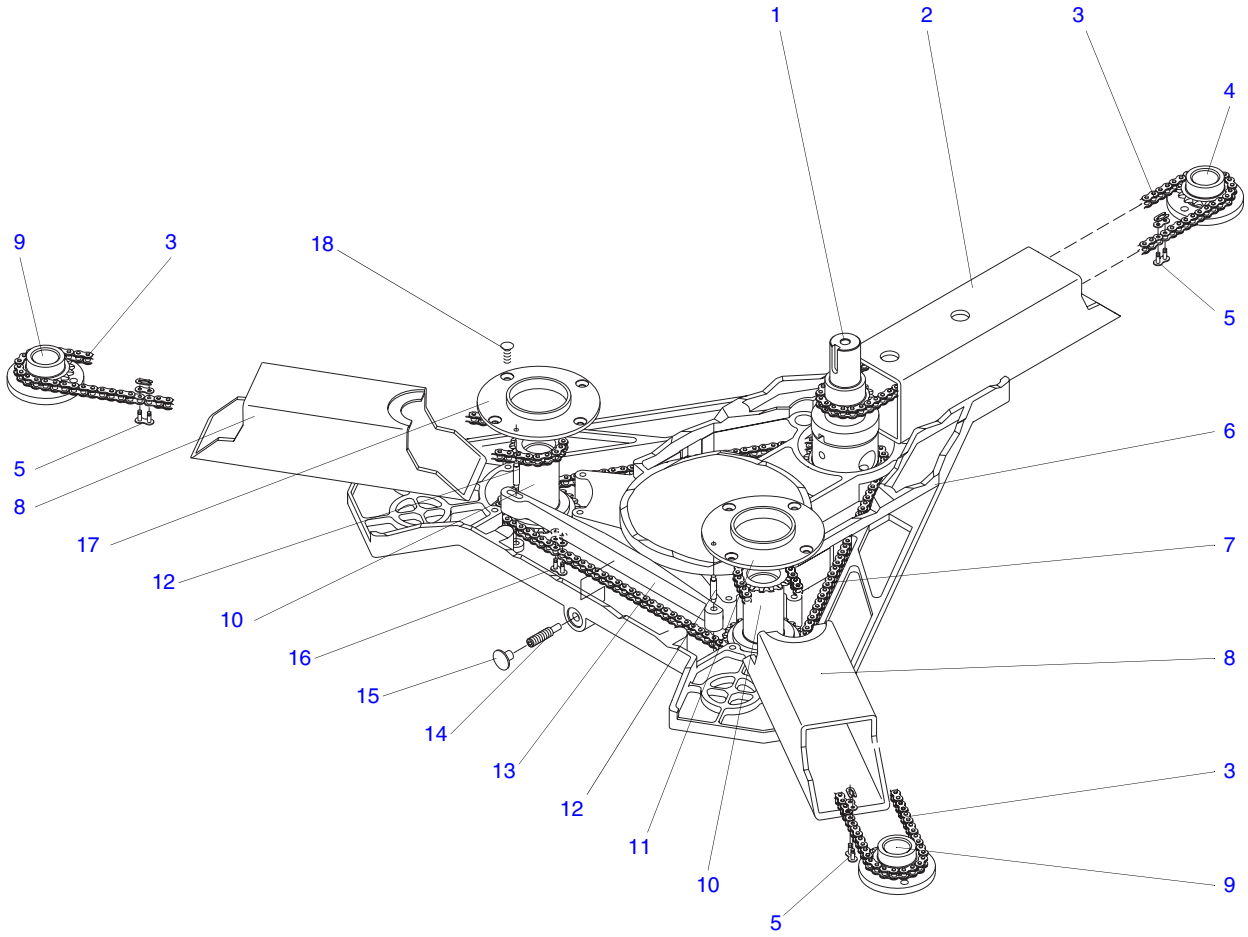

Fig 6.11 Osprey Elite Pedestal - Skid - Chains

Fig 6.11 Osprey Elite Pedestal - Skid - Chains

Item	Part No.	Nomenclature	Qty
1	3329-224	Sprocket shaft (steering mechanism) (Fig 6.9)	1
2	3573-274	Tube - fixed leg (Fig 6.10)	1
3	J202-051	Chain, roller, simple, 121 links, 1/4 in. pitch, 0.130 in. roller dia.	3
4	3329-206	Wheel shaft sprocket (Fig 6.8)	1
5	J202-059	Chain, link, (connecting), 1/4 in. pitch	3
6	3573-13	Centre Housing assembly (Fig 6.10)	1
7	J202-052	Chain, roller, simple, 119 links, 1/4 in. pitch, 0.130 in. roller dia.	1
8	3573-275	Tube - folding leg ((Fig 6.10)	2
9	3329-206	Wheel shaft sprocket (Fig 6.9)	2
10	3329-240	Sleeve sprocket - leg pivot (Fig 6.10)	2
11	3329-279	Flanged sleeve - leg pivot left hand ((Fig 6.10)	1
12	3329-231	Pin -slipper pivot	2
13	3329-230	Slipper - chain tensioner	1
14	M007-807	Screw, grub, dog point, socket head, M6 x 30 mm long	1
15	J550-090	Hole plug, 3/8 in. hole	1
16		J202-059 joining link, 1/4 in. pitch (2 off), OR J202-057 cranked link (double), 1/4 in. pitch (1 off) and J202-059joining link, 1/4 in. pitch (1 off)	
17	3329-278	Flanged sleeve - leg pivot right hand (Fig 6.10)	1
18	M005-903	Screw, countersunk head, socket, M4 x 12 mm long	8

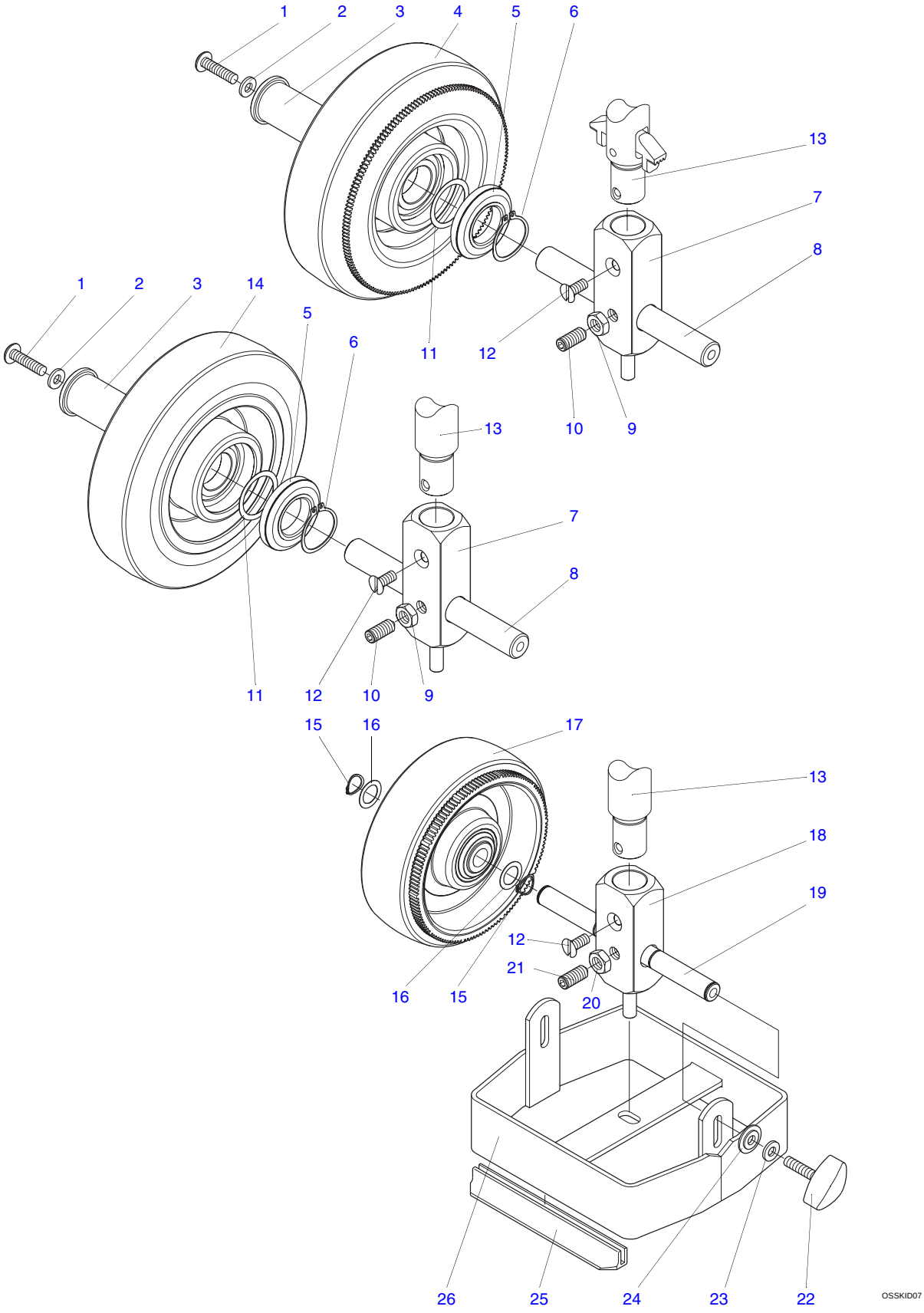

Fig 6.12 Osprey Elite Pedestal - Skid - Wheels

Fig 6.12 Osprey Elite Pedestal - Skid - Wheels

Item	Part No.	Nomenclature	Qty
	3329-19	Wheel unit assembly (160mm diameter braked) (OB skid), comprising:	2 per skid
1	M007-524	Screw, button head, socket, M6 x 25 mm long	2
2	M601-008	Washer, shakeproof, internal, M6	2
3	3329-266	Sleeve - wheel mounting (160mm diameter wheel)	2
4	3329-29	Wheel / disc (bonding) assembly (160mm diameter), including:	2
5	—	Dust cover	2
6	M701-038	Circlip, external, bowed, 25 mm shaft dia. x 0.64 mm thick	4
7	3329-264	Block - wheel pivot lower (160mm diameter wheels)	1
8	3329-265	Spindle - wheel mounting (160mm diameter wheel)	1
9	M500-098	Nut, M8, standard (hex), lock	2
10	M008-818	Screw, grub, cone point, socket head, M8 x 20 mm long	2
11	3329-306	Shim	A/R
12	M007-150	Screw, countersunk head, slotted, M6 x 14 mm long	6 per skid
13	—	Wheel unit shaft (Fig 6.7)(Fig 6.8)	—
	3329-20	Wheel unit assembly (160mm diameter tiller) (OB skid), comprising:	1 per skid
1	M007-524	Screw, button head, socket, M6 x 25 mm long	2
2	M601-008	Washer, shakeproof, internal, M6	2
3	3329-266	Sleeve - wheel mounting (160mm diameter wheel)	2
14	3329-267	Wheel (modified - 160mm diameter), including:	2
5	—	Dust cover	2
6	M701-038	Circlip, external, bowed, 25 mm shaft dia. x 0.64 mm thick	4
7	3329-264	Block - wheel pivot lower (160mm diameter wheels)	1
8	3329-265	Spindle - wheel mounting (160mm diameter wheel)	1
9	M500-098	Nut, M8, standard (hex), lock	2
10	M008-818	Screw, grub, cone point, socket head, M8 x 20 mm long	2
11	3329-306	Shim	A/R
12	M007-150	Screw, countersunk head, slotted, M6 x 14 mm long	6 per skid
13	—	Wheel unit shaft (Fig 6.7)(Fig 6.8)	—

Fig 6.12 Osprey Elite Pedestal - Skid - Wheels (Cont)

Item	Part No.	Nomenclature	Qty
	3329-40	Wheel Unit Assembly (Studio skid), comprising:	3 per skid
15	M701-037	Circlip, external, bowed, 11.9 mm shaft dia. x 0.64 mm thick	4
16	M602-003	Shim, 12 mm ID x 18 mm OD x 0.3 mm thick	A/R
17	3329-310	Wheel (125mm polyurethane tyre with integral brake)	2
18	3329-312	Block - wheel pivot	1
19	3329-311	Spindle - wheel mounting	1
20	M500-087	Nut, M6, standard (hex), lock	2
21	M007-821	Screw, grub, cone point, socket head, M6 x 20 mm long	2
12	M007-150	Screw, countersunk head, slotted, M6 x 14 mm long	6 per skid
13	—	Wheel unit shaft (Fig 6.7)(Fig 6.8)	—
	3329-41	Cable guard (bonding) assembly (125mm polyurethane tyre with integral brake disc), comprising:	3 per skid
22	K403-005	Knob, locking-key, male, M6 thread, 32 mm wide	2
23	M600-007	Washer, plain, heavy, M6	
24	3329-307	Spacer	2
25	3329-314	Scoop strip	2
26	3329-42	Cable guard (weld) assembly (125mm polyurethane tyre with integral brake disc)	1