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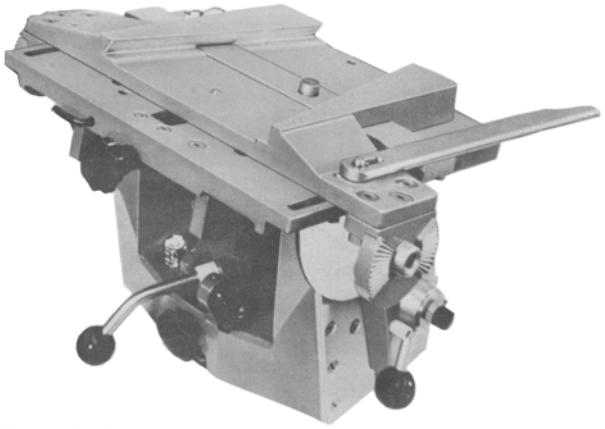
Maintenance Manual

Mk 5

Pan and Tilt Head



Vinten

Camera Control Solutions

MK 5

PAN AND TILT HEAD
3716

MAINTENANCE MANUAL
AND
ILLUSTRATED PARTS LIST

PUBLICATION PART No. 3716-9

Issue 2

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Foreword

This manual provides full and detailed maintenance and spare parts information for the Vinten® Mk 5 pan and tilt head. The Mk 5 pan and tilt head. is an obsolete product and this Maintenance Manual is provide for the final production version.

WARNING!: Read the Safety Section on page 5 before using this head 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 head. Attention to the details contained herein will ensure that the head 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.

Notes to readers

This is an on-line version of ‘Mk 5 Pan and Tilt Head Maintenance Manual’ (3716-9). The Mk 5 pan and tilt head. is an obsolete product and this Maintenance Manual is provide for the final production version.

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.

Clicking here will take you to the previous page.

Clicking here will take you to the next page.

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 head or associated equipment, comments appear, highlighted by the word **WARNING!** and supported by the warning triangle symbol.

Critical data

Mass

Mass (with one pan bar)	**11 kg**	**(24 lb)**

Load

Maximum Load	**81.65 kg**	**(180 lb)**

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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

Height	180 mm (7 in.)
Width (Excluding pan bar)	380 mm (15 in.)
Length (Excluding pan bar)	230 mm (9 in.)
Weight	11 kg (24 lb)
Load capacity	81.65 kg (180 lb)
Tilt range	120° (±60°) for cameras with a C of G 140 mm (5.5in.) or less

Design Improvements

Details	Serial No. Information

Section 1

Introduction and Description

Contents **Para**

Introduction

1 The Vinten Mk 5 Pan and Tilt Head (Fig 1.1) is a light-weight unit designed with the modern compact broadcast camera in mind. The Mk 5 incorporates the well proven Vinten cam and roller bearing system, which provides a smooth positive action, coupled with perfect balance throughout the operable tilt range of 120°. The operating capacity of the Mk 5 is designed for loads up to 81.65 kg (180 lb), and this is achieved with a unit weight of 11 kg (24 lb). The design embodies the latest Vinten developments in pan and tilt friction mechanisms

Description

2 The head consists basically of the three following main parts:

2.1 Wedge adaptor assembly

2.2 Head assembly

2.3 Body assembly

Wedge adaptor assembly

3 A Vinten wedge adaptor assembly is fitted to the head assembly. The wedge adaptor assembly functions as a locator and locking unit for the camera when this is fitted with a standard camera wedge. e.g. Vinten Type 417/1A. It consists of a wedge adaptor, which receives the camera wedge, and a locking bar which retains the wedge in position. The wedge adaptor assembly is attached to the head assembly by three socket headed screws passing through slots in the head assembly and screwing into the wedge adaptor plate. The adaptor assembly is free to move in a fore and aft direction on the top surface of the head assembly, under the influence of the leadscrew when the socket headed screws are loose. These screws are fitted and tightened or slackened and removed using an Allen key wrench that is housed in a recess in the rear of the platform of the head assembly.

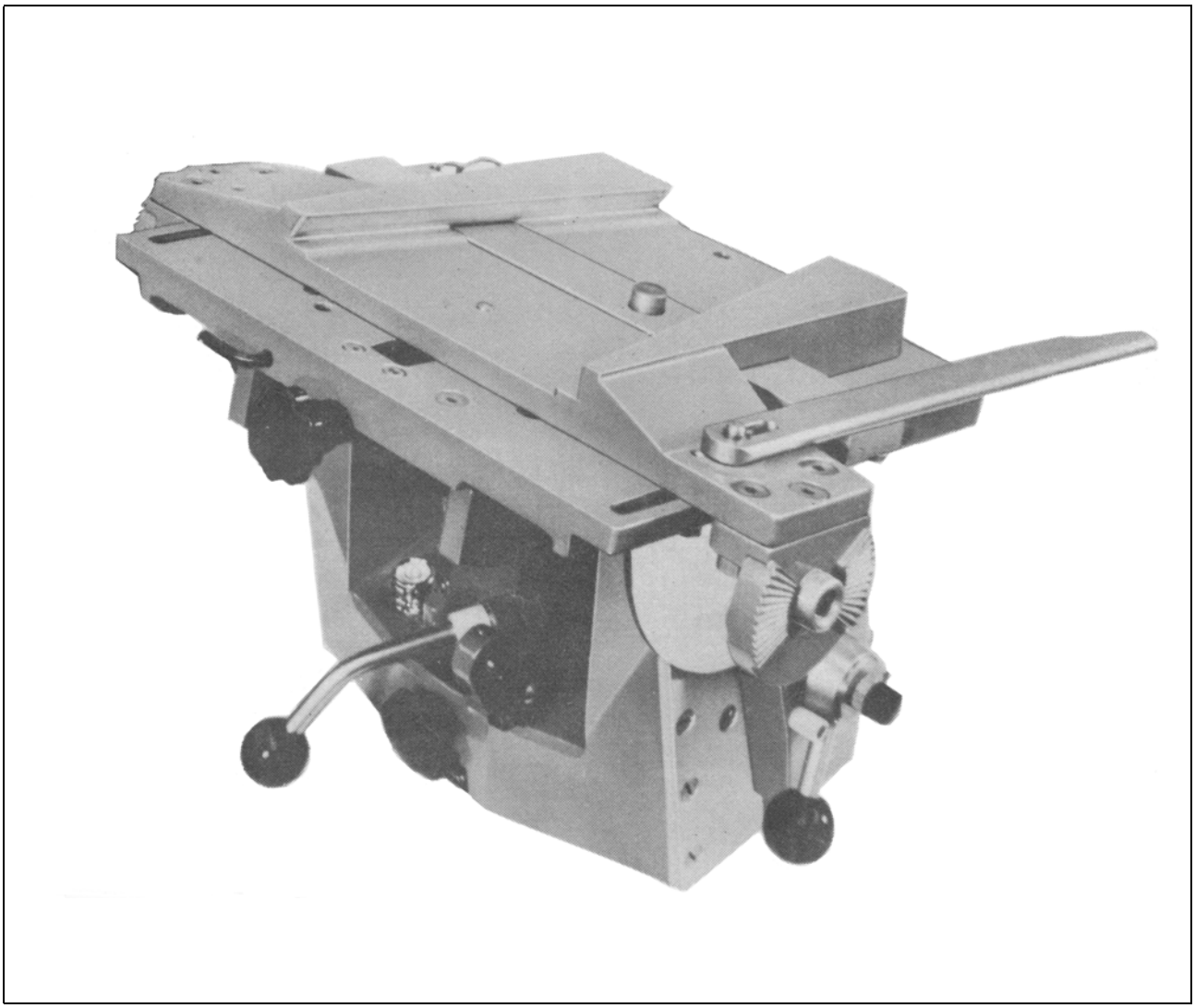

Fig 1.1 Mk 5 Pan and Tilt Head

Head assembly

4 The head assembly is a machined alloy casting in plate form, with slots and recesses milled out for the installation of the side guide bars, the fine C of G adjustment block and the wedge adaptor securing screws. The following items are secured to the head platform.

Side guide bars

5 These are of square section with a channel milled out on one bearing edge and a limit slot milled out on the inside face. The guide bars are secured by spirol pins to a pair of steel pivot pins which are in turn housed in a pivot pin bearings; these being secured to the underside of the platform by socket headed screws passing through the platform from the top face.

Cams

6 These are installed as matched pairs and are secured to the underside of the platform by socket headed screws, each cam requiring 6 screws passing through the platform from the top face.

Fine adjustment screw

7 This is a leadscrew mounted in a pair of bearer blocks that are fixed to the underside of the platform, each by four socket headed screws passing through the platform from the top face. The leadscrew is provided with a knurled thumb nut that projects clear of the rear of the platform. A block with a steel spigot runs along the thread of the screw; the spigot projects above the top face of the platform and engages with a recess in the wedge adaptor plate

Locking plates

8 Two locking stays are fitted on the underside of the platform. Each stay is secured to a mounting block by a shouldered bolt and locked by a hexagon nut. Each block is secured by two countersunk screws passing through the platform from the top face. Each locking stay is retained in the folded position by a spring clip. The locking stays match up with locking s

Tilt friction

9 This consists of a quadrant plate secured to the left side of platform (view from rear) by four countersunk screws. The friction pads are fitted, one to a fixed block attached to the side guide bar, and the other attached to the adjustable block. Friction is applied by turning the knurled thumb nut in a clockwise direction. The friction pads are of leather and are attached to the block by adhesive and are pinned. The tilt lock is similar to the tilt friction except that it is fitted to the right hand side and is operated by a simple ON/OFF lever. The lock pads are of standard brake lining material.

Body assembly

10 The body assembly is a robust alloy casting providing the location for the side bar mechanism in the integral arms, and the panning mechanism in the base. Each integral side member provides the recess in which the bearing system is installed. These bearings support and position the side guide bars. Each bearing system consists of two ballraces with fixed mountings and two ballraces on eccentric screws. One end of each ballrace spigot is mounted in the side member of the casting whilst the other end is carried in the closing plates. On the inner section of each integral side member location is provided for a cam roller, which consists of a ballrace positioned on a shaft by spacers, the shaft being secured in place by a socket set screw. Immediately below the cam roller a recess is provided for the side bar stop pin, this is held in place by a socket set screw. The stop pin projects through the side arm and into a slot in the side guide bar, thus the limit of travel is defined by the length of the slot. On the upper surface of the body casting are two small projections, each of which carries a threaded stud with a knurled thumb nut the resultant action of which forms a clamping device for the head locking plates. Finally a spirit level is mounted on the top face of the body, near to the pan and tilt controls.

Base

11 The base is a machined cast alloy unit which provides the mounting face and pivot for the complete assembly. The base takes the form of a thick circular disc with a deep flange on the upper surface and four threaded holes on the underside, together with mounting bolt holes in the centre. Each mounting hole has a 3/8 in. BSW wire thread insert.

Panning

12 The base top face is fitted with a thin crush washer, a needle thrust cage and a housing washer. This forms the bearing assembly on which the body turns. The base, together with the friction and lock assembly, are fitted to the body by a special bolt passing from the bottom of the base through to the top side of the body.

The upper end of the bolt is centralised by a ballrace, and this is secured in place by a special nut. Both nut and bolt are positively locked by countersunk screws.

Pan lock

13 This consists of a pair of brake shoes complete with linings, pivoted on the pan lock adjuster assembly, and expanded by the brake cam.

14 The shoes are tensioned away from the raised section of the flange of the base plate by two springs. The assembly is fitted to the underside of the body and retained in place by a thin plate. The brake shoes operate against the inside face of the flange. The adjuster protrudes through the top face of the body and terminates as an adjuster screw with a 2BA locknut. The brake cam is located within a bush and is retained by an external circlip. The pan lock lever assembly is attached to the head of the brake cam spindle, and travel is limited by raised portions of the body.

Friction

15 This consists of two brake segments, pivoted at one end on pins that are fixed to the body. The segments bear against the outer periphery of the flange of the base under the influence of a pair of springs that are tensioned by the action of the friction screw thumb nut screws on the body assembly e flange of the base under the influence of a pair of springs that are tensioned by the action of the friction screw thumb nut

Section 2

Operation

Contents **Para**

Head attachment

1 The head is attached to its support by four 3/8in. BSW bolts (these bolts are supplied with each head). Alternatively a MITCHELL centre fixing unit (Part No. 3724-3) may be used.

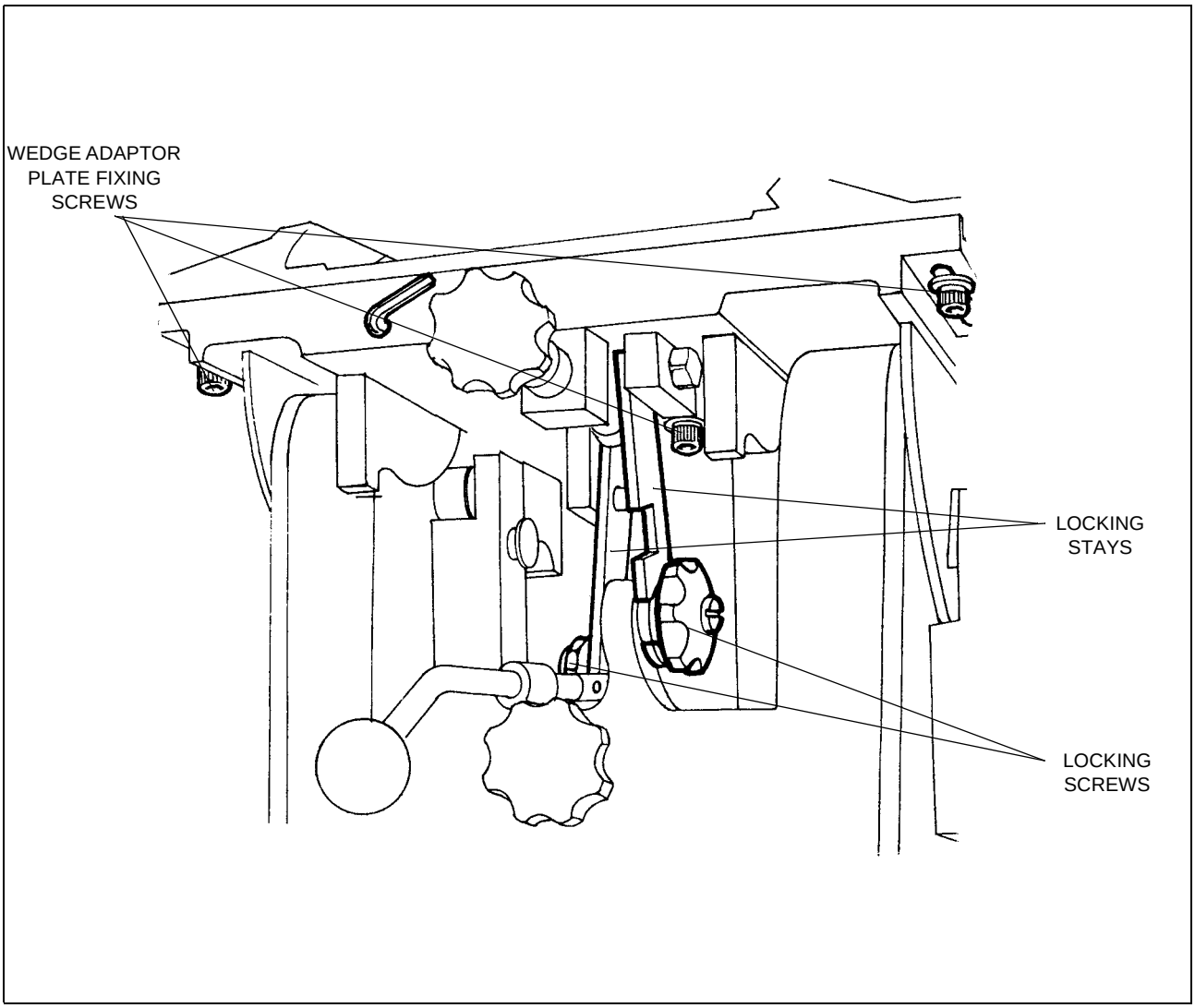

Fig 2.1 Camera fitting

Camera fitting

2 Move head locking stays from the folded position to the locking screws and tighten thumb nuts (Fig 2.1).

3 Ensure that the socket headed screws holding the wedge adaptor plate to the head plate are tight.

4 Remove pip pin from wedge locking bar and extend bar handle to its full travel.

5 With the camera wedge fitted to the base of the camera, fit to the head by inserting wedge into adaptor and close locking bar lever to the head.

NOTE: 1. Insert pip pin to its full limit of travel (Fig 2.2).
2. Before proceeding further ensure that camera is complete with all its ancillary equipment i.e. lens, co-axial cable etc. and that pan bar(s) is (are) fitted to the head.

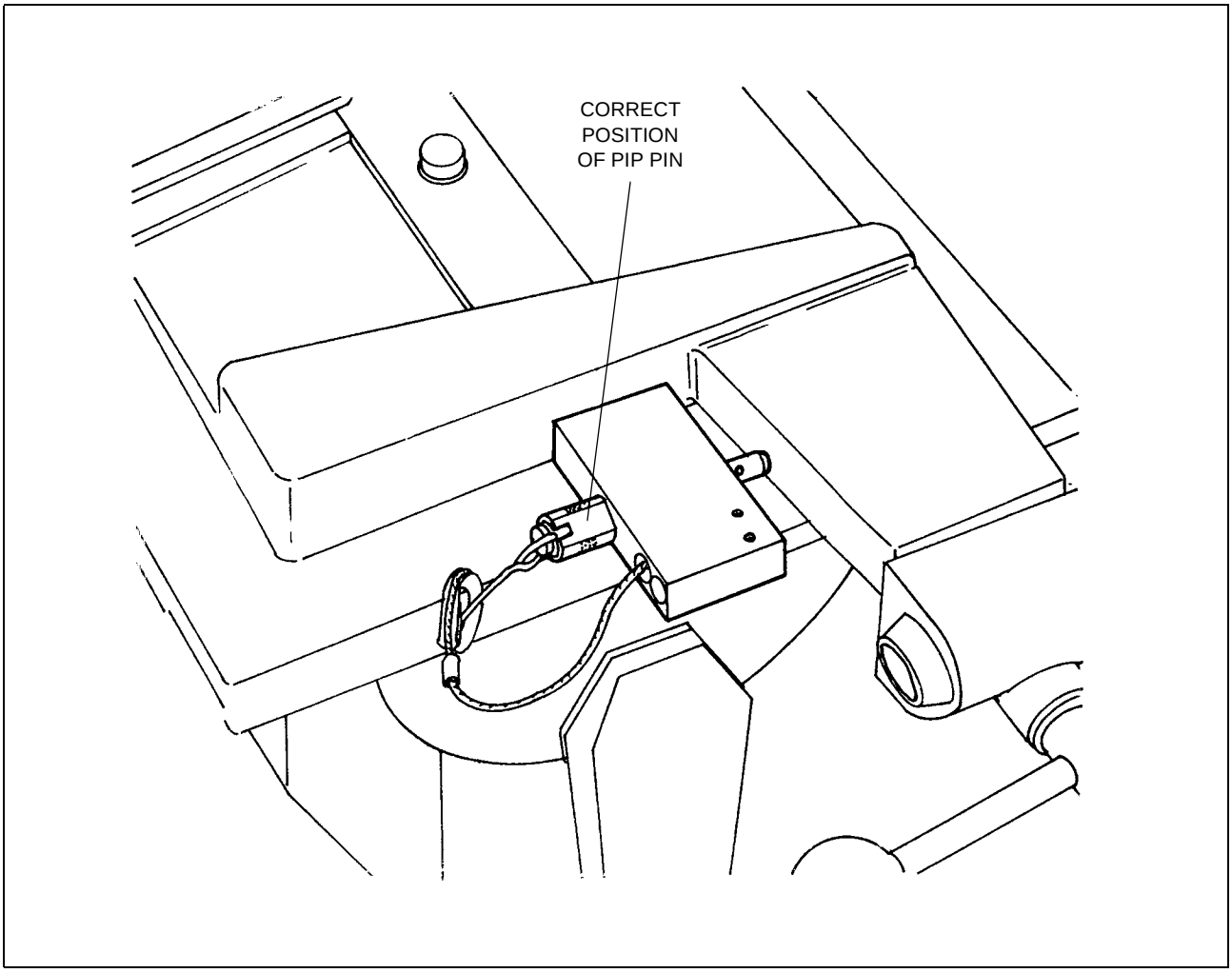

Fig 2.2 Pip pin

Balancing head/camera

6 To balance head/camera release and stow locking stays at the same time restraining any excessive movement of the head by holding the pan bar. Centralise the camera to the level position and under restraint allow camera to tilt. When tendency to fall away in one direction is noted, adjust C of G as follows:

6.1 Ensure friction and lock of tilt assembly are released.

6.2 Using Allen key slacken off three socket headed screws just sufficient to permit movement of wedge adaptor relative to head (Fig 2.2). If tendency of camera is to tilt forward turn thumb nut at rear of head clockwise to bring wedge adaptor rearward. Counter clockwise movement of thumb nut is required to move head forwards.

NOTE: It is essential to ensure that socket set screws are completely tight after adjustments are carried out.

6.3 When balance is achieved tighten socket set screws and stow Allen key in its position on the head platform.

7 If, when adjustments outlined in 3a to e have been carried out, the camera falls forward and backward heavily, the C of G of the camera is too high for the cams fitted. If the camera centres heavily the centre of gravity is too low for the cams fitted.

NOTE: t is necessary to ensure that the locking plates are in the locked position whenever:
1. An out of balance load is put on or taken off the head.
2. The camera is out of use for any prolonged period.
3. The mounting and camera are moved over long distances when in studios or vehicles.

Adjustment of controls

8 Controls are adjusted as follows:

8.1 Tilt friction is applied by turning thumb nut clockwise.

8.2 Tilt lock is applied by moving lever rearwards.

8.3 Pan friction is applied by turning thumb nut clockwise.

8.4 Pan lock is applied by moving lever from right to left.

Section 3

Tools and Materials

Special tools

1 No special tools are required

Consumable materials

2 The following consumable materials are required.

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

Item	Part No.	Use
Ko-Cho-Line leather dressing	Z150-010	Faces of pan and tilt friction shoes
Grease, Castrol LM	Z150-123	Pan bearing
Grease, Chesterton	Z150-105	Wedge adaptor locking bar ‘O’ ring

Section 4

Servicing

Contents **Para**

Introduction

1 The Mk 5 Pan and Tilt Head 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. If the head becomes faulty reference should be made to Section 5 of this manual, or the unit may be returned to Vinten Broadcasting limited or your local dealer for repair.

Cleaning

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

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

---

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

Adjustments

4 The following adjustments may be necessary after considerable usage:

4.1 Elimination of fore and aft play in the side guide bars.

4.2 Compensation for wear in the friction pads of the tilt friction and lock and the pan friction and lock.

Side guide bar adjustment

5 Eliminate fore and aft play in the side guide bars as follows (Fig 4.1):

5.1 Remove camera.

5.2 Remove locking plates and stow.

5.3 Tilt head to maximum front elevation (nose up).

5.4 Slacken clamp screw (3).

5.5 Turn eccentric adjusters (1) until fore and aft play is eliminated.

5.6 Tighten clamp screw (2).

5.7 Repeat the above operations on each side of head.

NOTE: It is unnecessary to lubricate side guide bars, cam faces or rollers. As only a rolling action occurs at these points any oil or grease will only attract dust and dirt, to the detriment of the surfaces and the operation of the unit. Wipe the aforementioned faces over with a dry cloth as and when necessary.

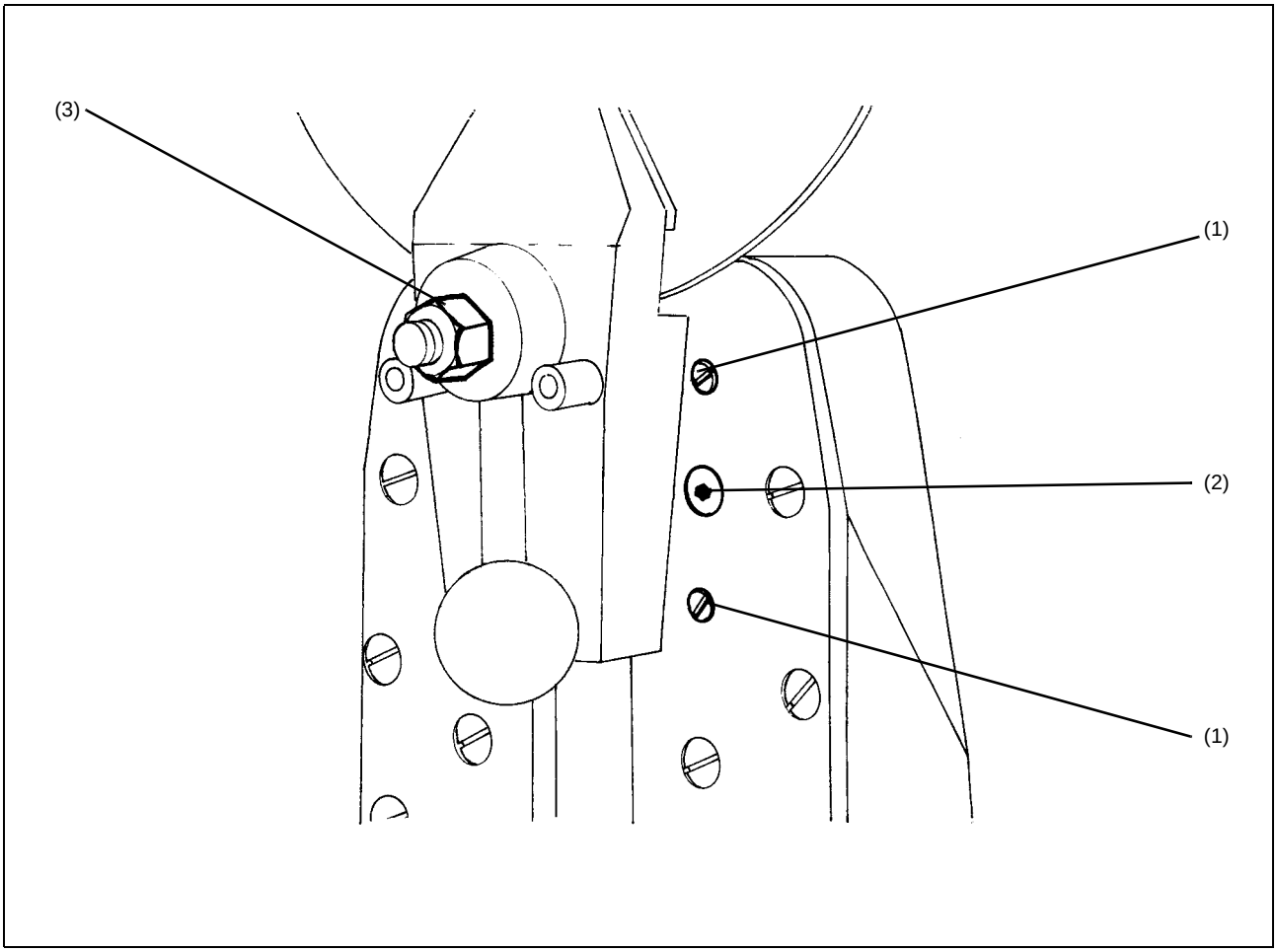

Fig 4.1 Side guide bar and tilt lock adjustment

Tilt lock adjustment

6 Should it become apparent that the tilt lock is ineffective it may be adjusted as follows (Fig 4.1):

6.1 Turn tilt lock adjuster nut (3) at the end of the lock shaft in a clockwise direction one flat at a time, positioning the tilt lock lever in the “unlock” (lever forward point) before each adjustment is made

Pan lock adjustment

7 Should it become apparent that the pan lock is ineffective it may be adjusted as follows (Fig 4.2):

7.1 Tilt head to maximum nose up position.

7.2 Set the pan lock lever to the right hand position.

7.3 Slacken the adjuster locknut (1).

7.4 Using a small screwdriver turn centre screw (2) clockwise checking pan lock from time to time.

7.5 When lock is satisfactory hold screw in position with screwdriver and tighten locknut.

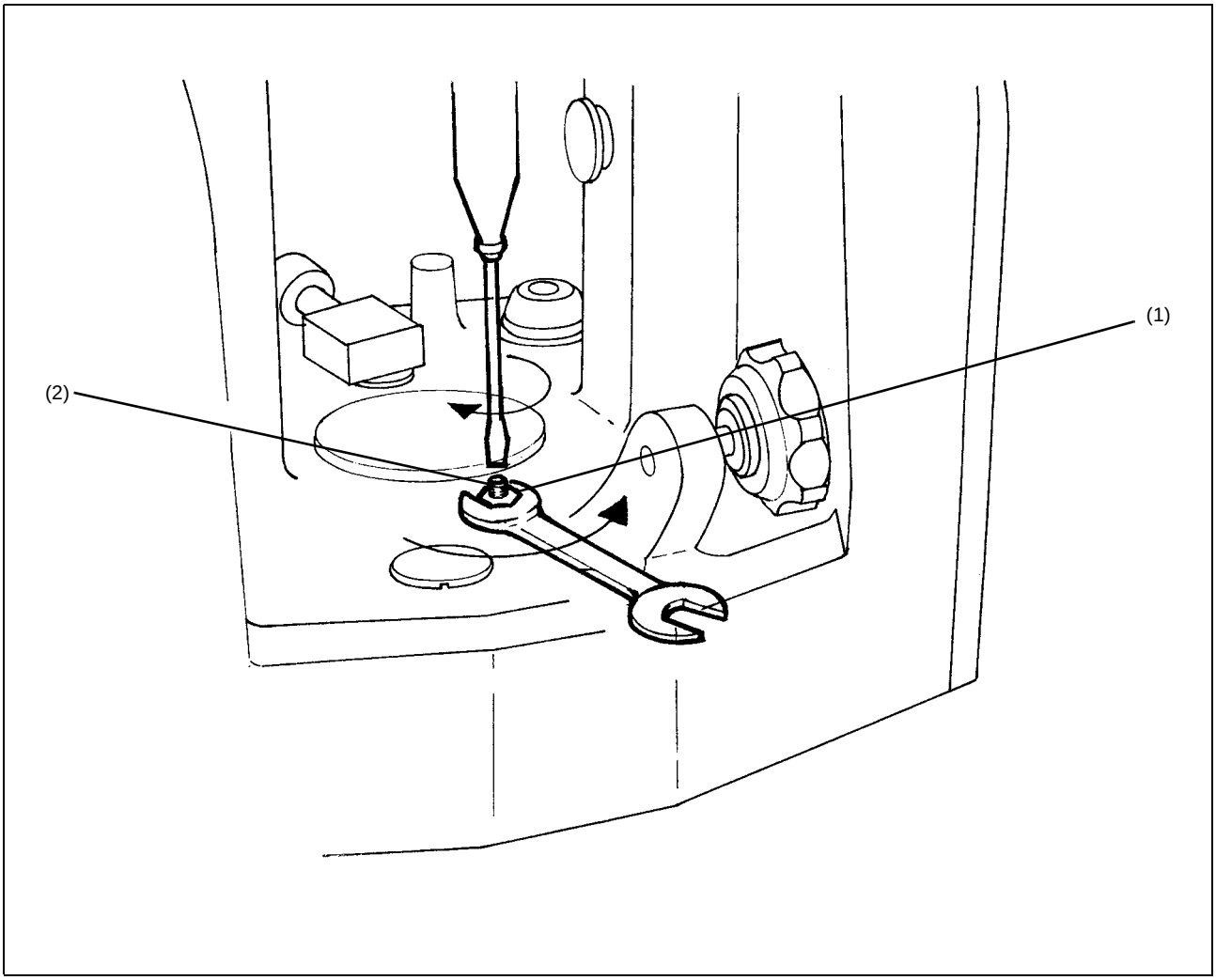

Fig 4.2 Pan lock adjustment

Lubrication

8 Ballraces are lubricated during assembly and do not normally require any further attention unless unit is stripped down for overhaul.

9 Application of a lubricant is necessary only to the pan and tilt friction pads. Apply Lewmarlube sparingly to pads as follows:

9.1 Pan friction pads - Six monthly or as required.

9.2 Tilt friction pads - Six monthly or as required.

NOTE: Tilt and pan lock pads do not require lubrication

Section 5

Repair

Contents **Para**

General

1 Should it become necessary to replace or gain access to any part, it is recommended that the following procedures be adhered to. Refer to illustrations in Section 6 - Illustrated Parts List.

Head removal

2 To remove the head proceed as follows:

2.1 Remove socket headed screw from side bar stop pin (2 off).

2.2 Remove side bar stop pin.

2.3 Lift head assembly clear.

2.4 Remove hole plug and release lock and friction.

2.5 Remove countersunk locking screw.

2.6 Using box spanner remove nut.

2.7 Lift body assembly clear of base unit and turn body upside down.

2.8 To remove friction shoes slacken off friction thumb nut and remove plate springs.

2.9 Lift out brake shoes.

2.10 To remove pan lock shoes, remove two screws and retaining plate.

2.11 Lift out shoes complete with springs. A light lever action may be necessary.

2.12 Refitting is the reverse of the above.

Head dismantling

3 If it is considered necessary to dismantle the head, the method will, in general, be evident. If the vertical guide bars are removed from the head it should be noted that the left hand side (viewed from rear) channel faces forward.

Cam removal and fitting

4 Each cam is fitted to a cast web on the underside of the body and is retained in place by six socket headed screws. In order to change cams from one size to another:

4.1 Remove three socket headed screws retaining adaptor plate and lift adaptor plate clear.

4.2 Remove six socket headed screws from top surface of head platform and lift platform to extent of side guide arm travel.

4.3 Remove cams.

4.4 Fit new cams ensuring that they are a matched pair. A numeral appears on one end of each cam. These numerals must be identical and, when fitted, are to be facing the rear of the head.

4.5 Refitting is the reverse of the above.

Section 6

Illustrated Parts List

Contents Para

Illustrations Page

Introduction

1. This parts list is issued for the Mk 5 pan and tilt head, manufactured by Vinten Broadcast Limited, Western Way, Bury St. Edmunds, Suffolk, IP33 3TB, England.

Ordering spare parts

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

2 Certain items form part of -900SP series composite spare parts. These are detailed in Fig 6.5 and are indicated in the parts list by an asterisk (*) against the part number

3 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

4 Ensure that the correct serial and part numbers are quoted when ordering main assemblies.s

Assembly	Part No.
Mk 5 pan and tilt head	3716-3
Mk 5 pan and tilt head - without cams	3716-4
Mk 5 pan and tilt head - body assembly	3716-11
Mk 5 pan and tilt head - platform assembly	3716-12
Mk 5 pan and tilt head - wedge adaptor	3716-13
Pan bar	3219-62

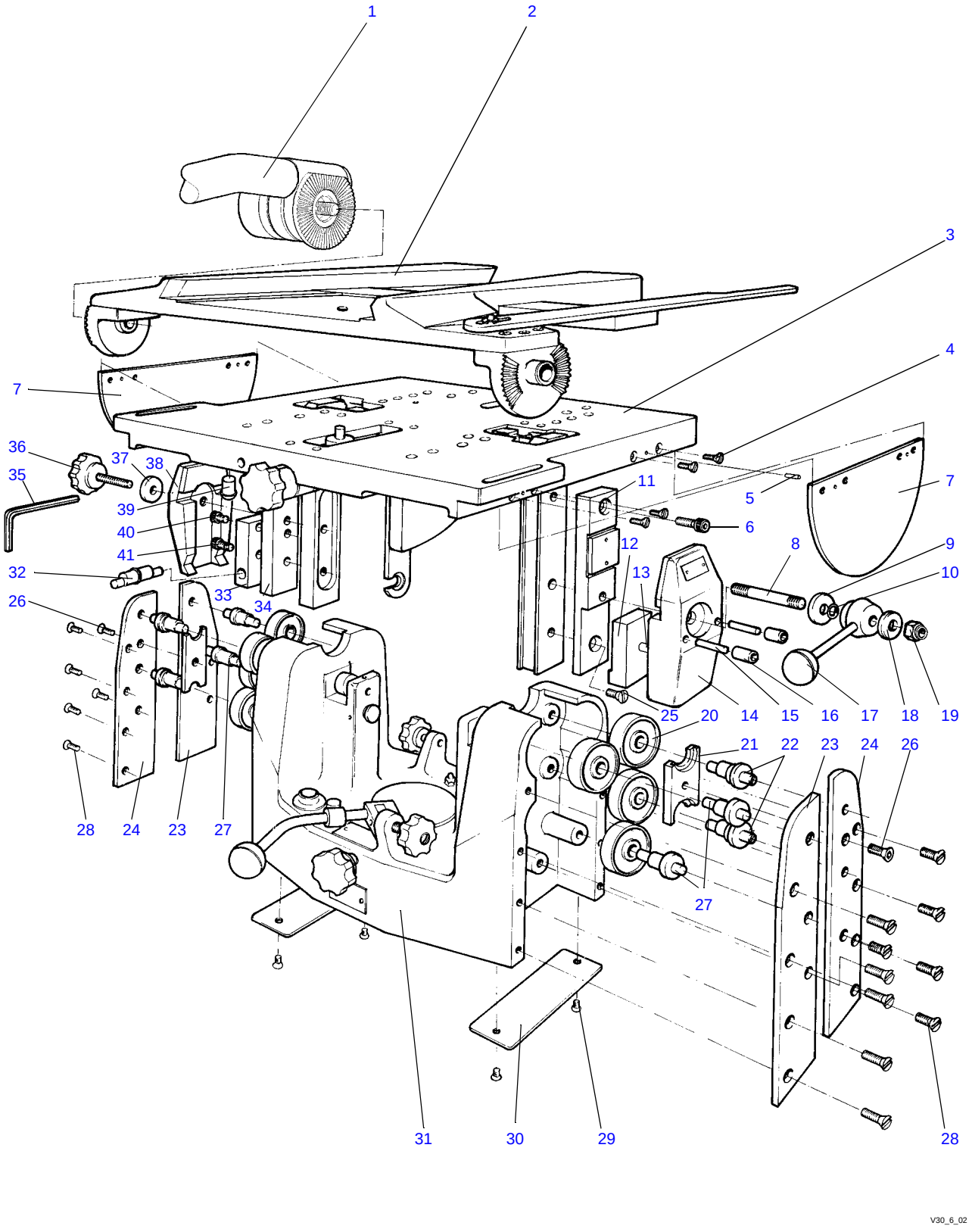

Fig 6.1 Mk 5 Pan and Tilt Head - General Assembly

Fig 6.1 Mk 5 Pan and Tilt Head - General Assembly

Item	Part No.	Nomenclature	Qty
1	3219-62	Pan bar and clamp	1
2	3716-13	Wedge adaptor assembly (Fig 6.4)	1
3	3716-12	Platform assembly (Fig 6.3)	1
4	L073-010	Screw, csk hd, 6-32 UNC x 1/4 in. lg	8
5	L007-920	Screw, skt cap hd, 5/16 UNF x 7/8 in. lg	2
6	M806-015	Spirol pin, 3 mm dia x 8 mm lg	4
7	3716-220	Quadrant	2
8	3716-250	Stud	1
9	N552-011	Thrust race, TRB613	1
10	Q001-015	'O' ring, Dowty 109	1
11	3716-23	Tilt brake block assembly, with:	1
NI	3716-239	Shim, 0.005 in.	A/R
NI	3716-240	Shim, 0.010 in.	A/R
NI	3419-111	Shim, 0.012 in.	A/R
12	3716-284	Block	1
13	L800-035	Spirol pin, 3/32 in. dia x 5/8 in. lg	1
14	3716-20	Bracket assembly (tilt brake)	1
15	L801-032	Dowel, 3/16 in. dia x 1 1/4 in. lg	2
16	3716-256	Stop, tilt brake	2
17	3716-17	Knob assembly, tilt brake	1
18	3716-254	Washer, brake thrust	1
19	L501-170	Nut, Nyloc,5/16 UNF	1
20	P202-002	Ballrace, BRM010	8
21	3716-283	Clamp, roller	2
22	3716-213	Pin, guide roller adjuster	4
23	3716-237	Plate, side	2
24	3716-269	Plate, side	2
25	L077-927	Screw, csk skt hd, 5/16 UNF x 1/2 in. lg	1
26	L075-023	Screw, csk skt hd, 10-32 UNF x 1/2 in. lg	2
27	3716-212	Pin, guide roller, with:	4
NI	3716-259	Shim, 0.005 in.	A/R
28	L075-025	Screw, csk hd, 10-32 UNF x 1/2 in. lg	20

Fig 6.1 Mk 5 Pan and Tilt Head - General Assembly (Cont)

Item	Part No.	Nomenclature	Qty
29	L072-003	Screw, csk hd, 4-40 UNF x 1/4 in. lg	4
30	3716-262	Cover	2
31	3716-11	Body assembly (Fig 6.2)	1
32	3716-241	Eccentric, fitted with:	1
NI	Q001-010	'O' ring, R2025	1
33	3716-234	Block, pivot	1
34	3716-22	Rear block assembly	1
35	J551-011	Wrench, hexagonal, 3/16 in. AF	1
36	3716-14	Knob assembly, friction	1
37	L601-256	Belleville washer	6
38	3716-19	Bracket assembly, adjusting	1
39	Q300-112	Plug, 3009	1
40	L007-919	Screw, skt cap hd, 5/16 UNF x 1/2 in. lg	1
41	L007-921	Screw, skt cap hd, 5/16 UNF x 7/8 in. lg	1
NI	L054-714	Screw, hex hd, 3/8 in. BSW x 1 in. lg - head fixing	4
NI	J551-001	Spanner - head fixing	1

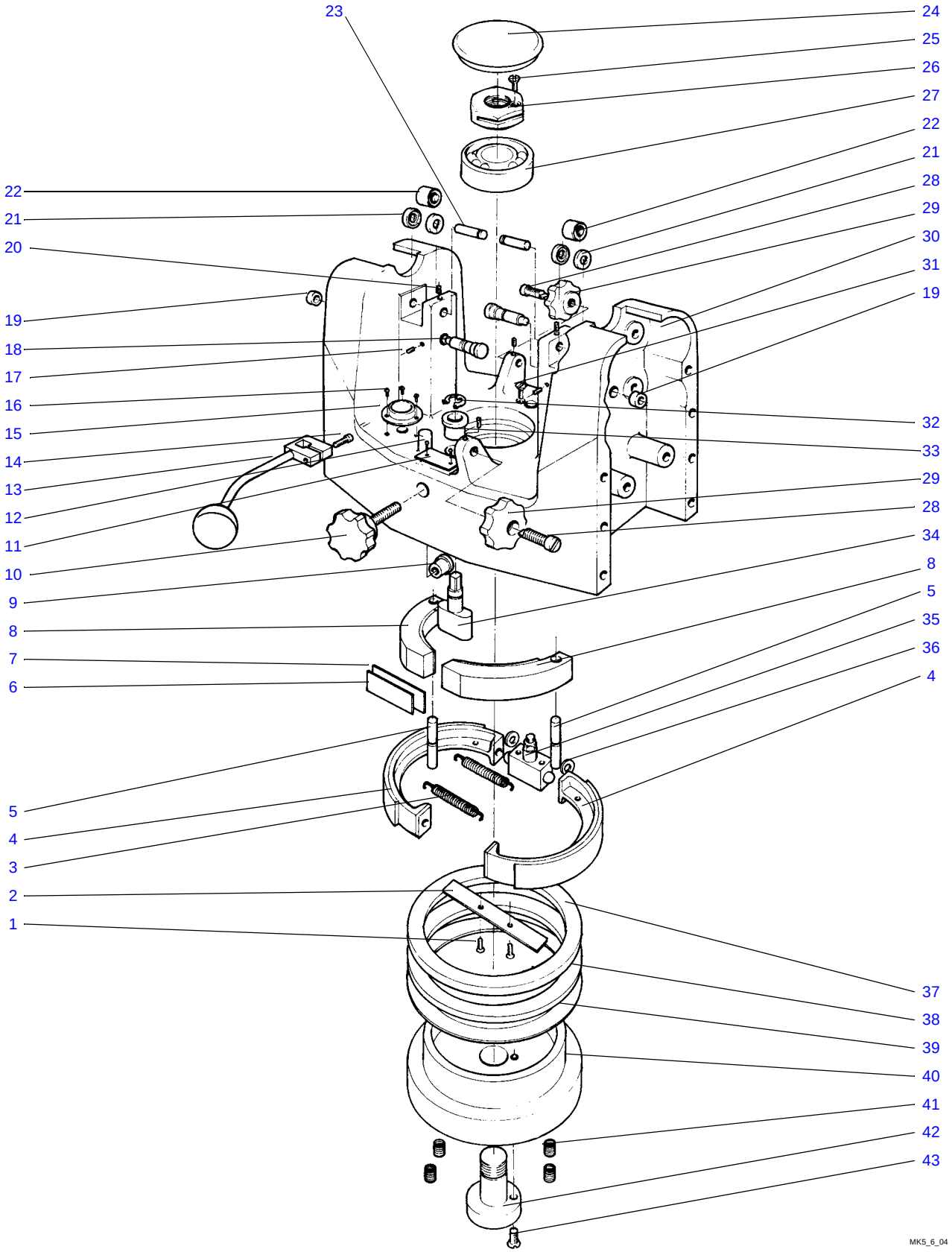

Fig 6.2 Mk 5 Pan and Tilt Head - Body Assembly (3716-11)

Fig 6.2 Mk 5 Pan and Tilt Head - Body Assembly (3716-11)

Item	Part No.	Nomenclature	Qty
1	L702-004	Screw, csk hd, 4-40 UNC x 5/16 in. lg	2
2	3716-242	Retainer, pan lock	1
3	3716-233	Spring	2
4	3716-33	Pan brake shoe assembly	2
5	3716-285	Pin	2
6	3716-281	Spring, flat	1
7	3716-260	Spring, flat	1
8	3716-21	Pan friction shoe assembly	2
9	3716-230	Bush	1
10	3716-15	Knob assembly, pan	1
11	3444-57	LOCK label	1
12	L102-001	Screw, hammerdrive, ‘00’ x 1/8 in. lg	6
13	3716-26	Pan brake lever assembly, including;	1
14	L075-921	Screw, skt cap hd, 10-32 UNF X 1/2 in. lg	1
15	J501-002	Spirit level	1
16	L071-503	Screw, pan hd, 2-56 UNC x 3/16 in. lg	3
17	L072-805	Screw, skt set, cup point, 4-40 UNC x 3/16 in. lg	2
18	3716-208	Pin, stop	2
19	3716-228	Buffer	2
20	L072-804	Screw, skt set, cup point, 4-40 UNC x 1/4 in. lg	4
21	3716-248	Spacer, cam roller	4
22	P603-001	Bearing (mod)	2
23	3716-224	Pin	2
24	J550-036	Hole plug, P-1750	1
25	L075-018	Screw, skt csk hd, 10-32 UNF x 5/16 in. lg	1
26	3716-207	Nut, special	1
27	N205-002	Ball race, Hoffman LS7ACD	1
28	3716-232	Screw, special	2
29	3716-294	Knob, stay	2
30	3716-201	Body	1
31	L071-006	Screw, csk hd, 2-56 UNC x 1/2 in. lg	2
32	L701-004	Circlip, external, 5100-31	1

Fig 6.2 Mk 5 Pan and Tilt Head - Body Assembly (3716-11) (Cont)

Item	Part No.	Nomenclature	Qty
33	N002-012	Bearing, oilite, FCT395	1
34	3716-210	Cam, brake	1
35	3716-18	Pan lock adjuster assembly	1
36	L602-052	Washer, 2BA	2
37	P602-003	Housing washer, GS81120	1
38	P602-001	Thrust cage, AXK100135	1
39	P602-002	Thrust washer AS100-135	1
40	3716-202*	Base	1
41	L805-052*	Insert, helicoil, 3/8 BSW x 1 dia lg	4
42	3716-206	Bolt, special	1
43	L075-020	Screw, csk hd, 10-32 UNF x 3/4 in. lg	1
NI	J550-035	Hole plug, P-687	1
NI	3380-154	Label, pan friction	1
NI	3423-4	Label, Vinten	1

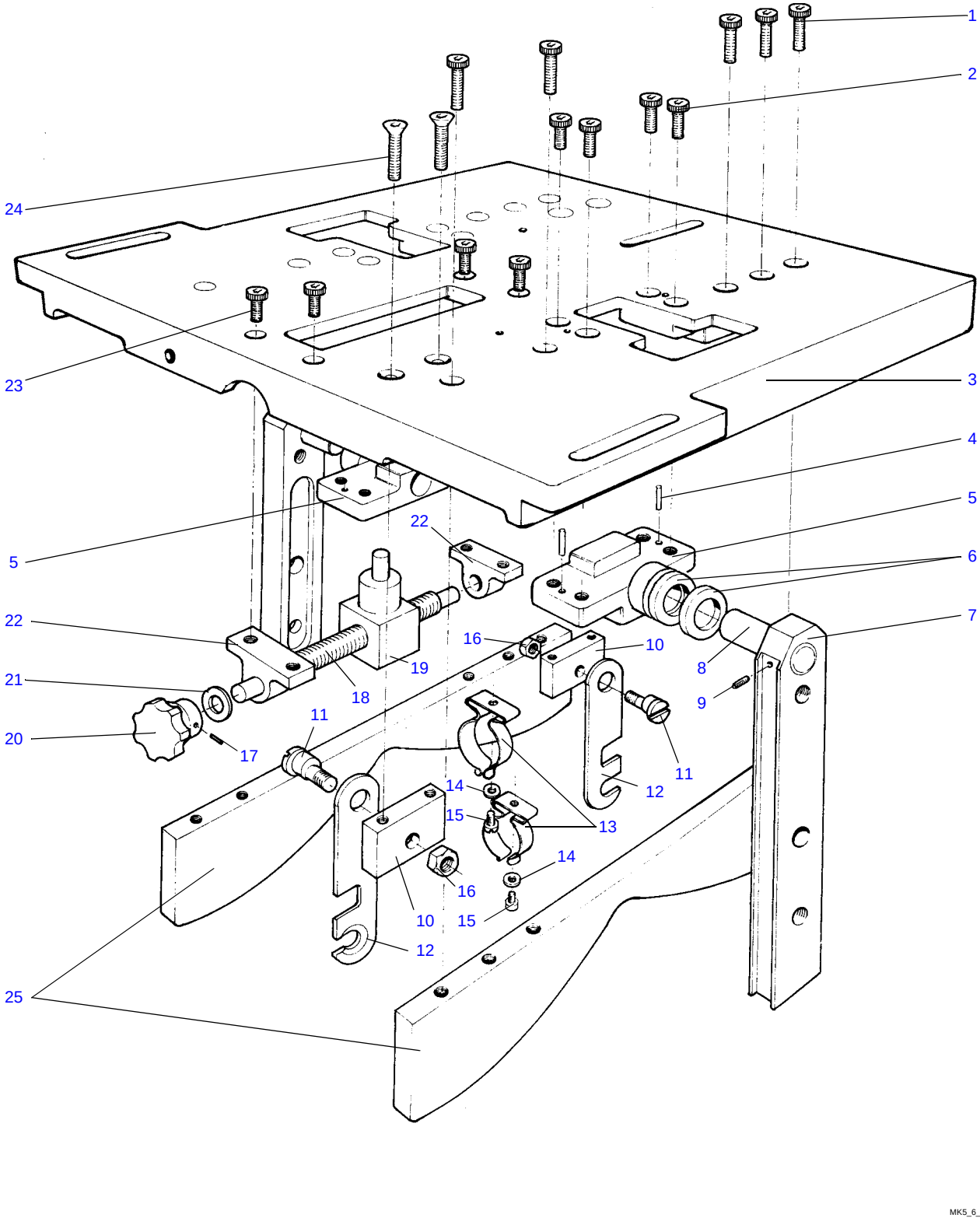

Fig 6.3 Mk 5 Pan and Tilt Head - Platform Assembly

Fig 6.3 Mk 5 Pan and Tilt Head - Platform Assembly (3716-12)

Item	Part No.	Nomenclature	Qty
1	L076-922	Screw, skt cap hd, 1/4 UNF x 3/4 in. lg	10
2	L076-919	Screw, skt cap hd, 1/4 UNF x 3/8 in. lg	8
3	3716-203	Platform	1
4	L801-012	Dowel pin, 3/32 in. dia x 1/2 in. lg	4
5	3716-204	Bearing pivot	2
6	3716-305	Collar, adjusting	4
	3716-16	Guide bar assembly, comprising:	2
7	3716-266	Guide bar	1
8	3716-238	Spindle	1
9	L800-040	Spirol pin, 1/8 in. dia x 3/4 in. lg	1
10	3716-273	Bracket, stay	2
11	3716-272	Adjuster, stay	2
12	3716-271	Stay	2
13	L702-040	Clip, Terry No. 80/0	2
14	L600-004	Washer, 6BA shakeproof	2
15	L072-304	Screw, cheese Hd, 4-40 UNC x 1/4 in. lg	2
16	L501-138	Nut, full, 1/4 UNF	2
17	L800-036	Spirol pin, 3/32 in. dia x 3/4 in. lg	1
18	3716-301	Screw, adjusting	1
19	3716-29	Adjusting nut assembly	1
20	3716-293	Adjusting knob	1
21	L602-111	Washer, 5/16 dia x 0.072 in. thick	1
22	3716-292	Bearing	2
23	L075-917	Screw, skt cap hd, 1/4 UNF x 3/8 in. lg	4
24	L076-010	Screw, csk skt hd, 1/4 UNF x 3/4 in. lg	4
25	---	Cams, selected from:	2
	3716-204	For 3 in. camera C of G	
	3716-276	For 3 1/2 in. camera C of G	
	3716-307	For 4 in. camera C of G	
	3716-277	For 4 1/2 in. camera C of G	
	3716-278	For 5 in. camera C of G	

Fig 6.3 Mk 5 Pan and Tilt Head - Platform Assembly (3716-12) (Cont)

Item	Part No.	Nomenclature	Qty
	3716-279	For 5 1/ 2in. camera C of G	
	3716-280	For 6 in. camera C of G	
	3716-297	For 6 3/4 in. camera C of G	
	3716-297	For 7 1/2 in. camera C of G	
	3716-298	For 8 1/4 in. camera C of G	
NI	3423-9	Label	1
NI	L102-001	Screw, hammerdrive, ‘00’ x 1/8 in. lg	2
NI	3423-16	Label, Serial No.	1
NI	3716-308	Label, Serial No.	1

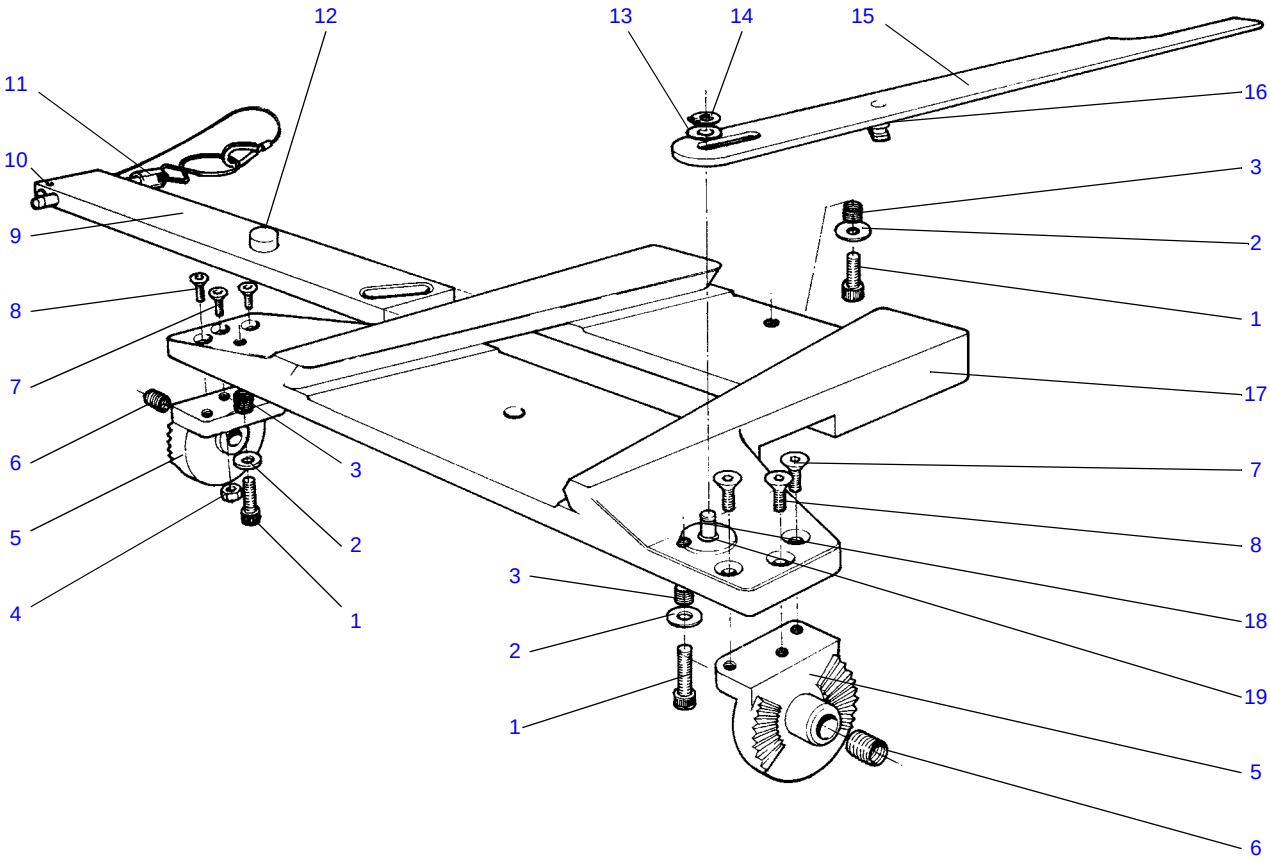

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Fig 6.4 Mk 5 Pan and Tilt Head - Wedge Adaptor Assembly (3716-13)

Fig 6.4 Mk 5 Pan and Tilt Head - Wedge Adaptor Assembly (3716-13)

Item	Part No	Nomenclature	Qty
1	L076-924	Screw, skt cap hd, 1/4 UNF x 7/8 in. lg	2
2	M600-007	Washer, M6	3
3	L850-100*	Insert, notched, Helicoil, 1/4 UNF	3
4	L501-141	Locknut, 1/4 UNF	4
	3716-24	Bracket assembly, comprising:	2
5	3716-288	Pan handle bracket	1
6	L850-036	Insert, notched, Helicoil, 3/8 BSF	1
7	L076-013	Screw, skt csk hd, 1/4 UNC x 1 in. lg	4
8	L076-010	Screw, skt csk hd, 1/4 UNC x 3/4 in. lg	2
	3716-31	Locking bar assembly, comprising:	1
9	3716-303	Push bar	1
10	L800-047	Spirol pin, 1/8 in. dia x 7/16 in. lg	1
11	3716-32	Pip pin assembly	1
12	3416-14	Locking pin	1
13	L602-101	Washer, 1/4 in. dia	1
14	L701-005	Circlip, external	1
15	3716-31	Locking bar assembly	1
16	R900H001	‘O’ ring, 202-509-4470	1
17	3716-270*	Adaptor, wedge	1
18	3716-274	Pin, locking lever	1
19	Q001-009	‘O’ ring, R2021	1

Fig 6.5 Mk 5 Pan and Tilt Head - Composite Spare Parts

Part No.	Nomenclature	Qty
3716-900SP	Wedge adaptor assembly (spares), comprising:	
3716-270	Spindle, eccentric, short	1
L850-100	Insert, notched, Helicoil, 1/4 UNF	3
3716-901SP	Base with Helicoil assembly, comprising:	
3716-202	Spindle, eccentric, short	1
L850-005	Insert, Helicoil, 3/8 BSW x 1 dia lg	4