

Arrow



The Arrow Series Fluid Head Operator's Manual

- #1020 Arrow 30 with Euro camera platform
- #1012 Arrow with Euro camera platform
- #1014 Arrow HD with Euro camera platform

MILLER 
Camera **Support**

FEATURES AND CONTROLS

1/4" AND PIN ADAPTOR CARRIAGE

Arrow 30 only

SLIDING PLATFORM

Arrow 30 and Arrow - 70mm range
Arrow HD - 100mm range

TILT LOCK

TILT DRAG CONTROL

BUBBLE LEVEL

CAMERA SCREWS

CAMERA PLATE

QUICK RELEASE LEVER

SAFETY TAB

COUNTERBALANCE SELECTOR

PAN DRAG CONTROL

ILLUMINATION BUTTON

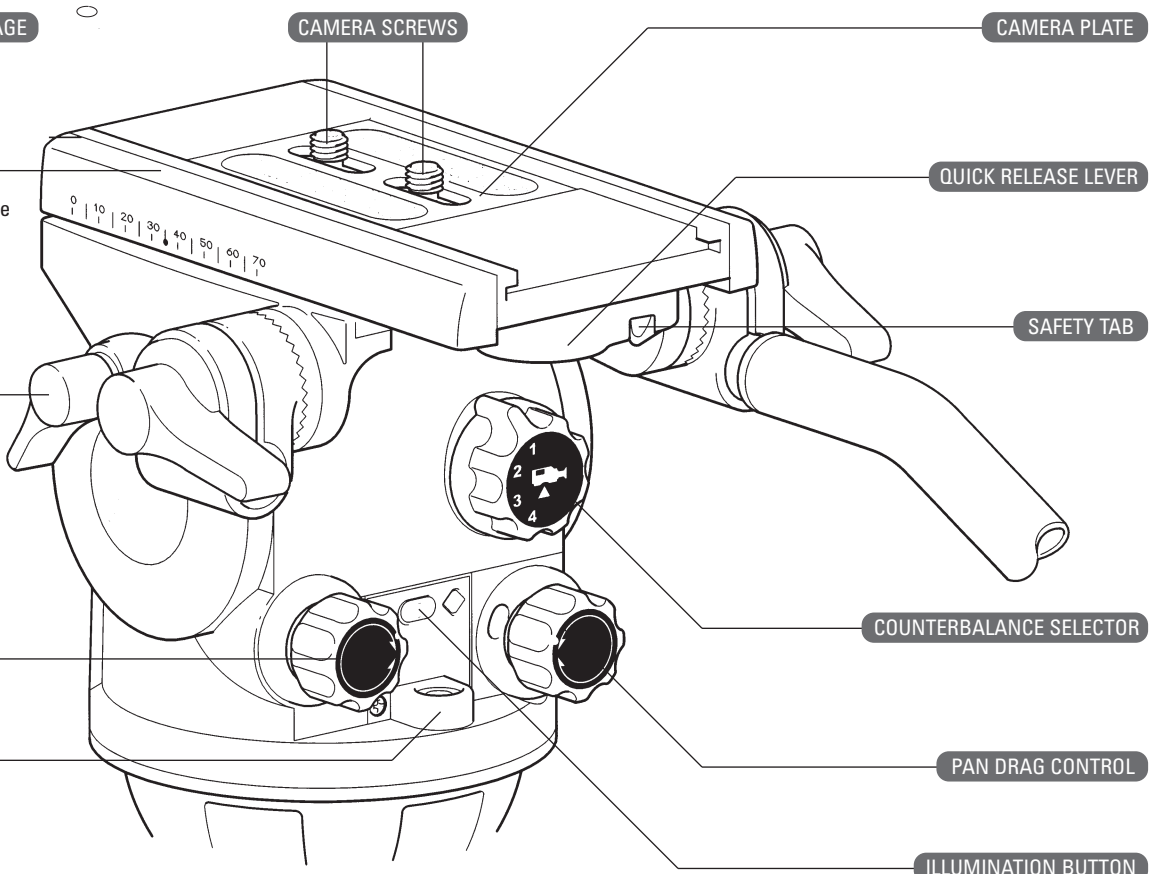


FIG 1

FEATURES AND CONTROLS

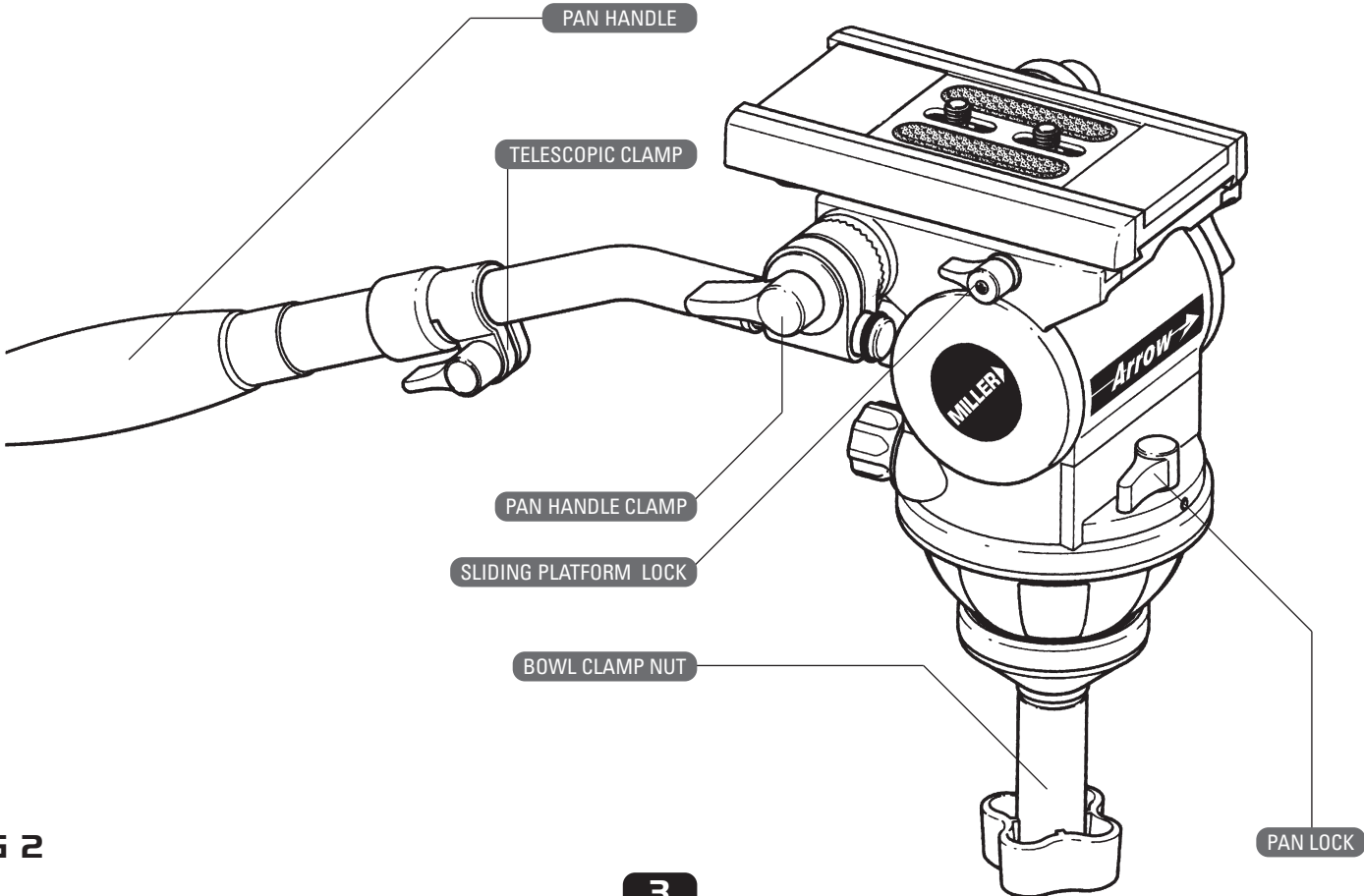


FIG 2

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⚠ SAFETY INSTRUCTIONS

Before operation read the Operating Instructions (pp6-12).

Arrow fluid heads have been designed to accommodate film and television cameras, and to be operated by qualified camera operators.

Hold camera securely during all fitting or removal operations.

Do not adjust the counterbalance or drag settings without securing (holding) pan handle.

To prevent accidental or sudden movement do not release the TILT LOCK without holding the PAN HANDLE.

Do not release the clamp nut without holding either the head or attached camera.

Do not exceed the maximum total payload (see Technical Specifications).

The operator is responsible for the safe operation of this piece of equipment.

INTRODUCTION

Welcome to the Operating Manual for the Arrow 30, Arrow and Arrow HD fluid head. Arrow is a versatile fluid pan/tilt head designed for a wide variety of cameras and configurations. Developed using the latest 3D modelling software and manufactured with computer-controlled precision, Arrow is designed to reliably and stably support portable film and video cameras shooting in the world's most challenging conditions.

From lightweight ENG camcorders to heavier EFP dockable cameras, Arrow heads offer optimum lightweight, robust performance with the smoothest fluid motion - from the company that invented and patented the fluid head.

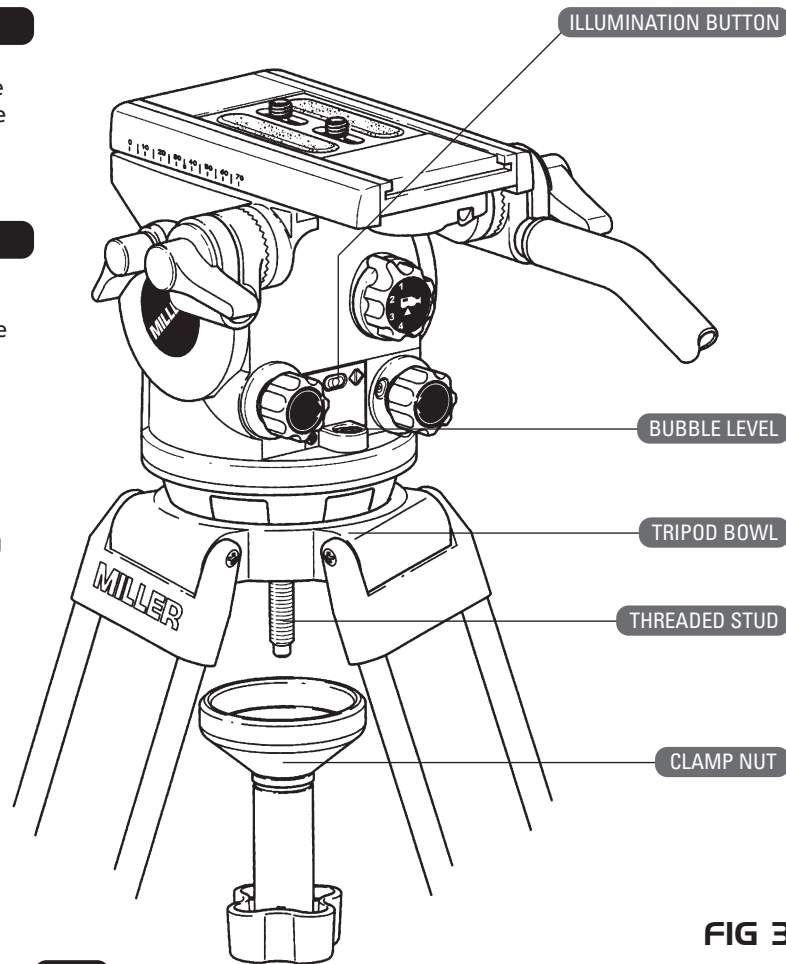
DATA	Arrow 30	Arrow	Arrow HD
WEIGHT	3.2kg	3.2kg	3.3kg
MAX REC. LOAD	15kg (see graph on Page 9)	20kg (see graph on Page 9)	25kg (see graph on Page 9)
BALL LEVELLING BASE	100mm	100mm	100mm
PAN MECHANISM	Stepped Fluid Drag	Stepped Fluid Drag	Stepped Fluid Drag
Adjustment	7 selectable positions + zero	7 selectable positions + zero	7 selectable positions + zero
Rotation	360°	360°	360°
Lock	Calliper disc brake system	Calliper disc brake system	Calliper disc brake system
TILT MECHANISM	Stepped Fluid Drag	Stepped Fluid Drag	Stepped Fluid Drag
Adjustment	7 selectable positions + zero	7 selectable positions + zero	7 selectable positions + zero
Tilt Angle	± 90°	± 90°	± 90°
Lock	Calliper disc brake system	Calliper disc brake system	Calliper disc brake system
COUNTERBALANCE	4 selectable positions	4 selectable positions	4 selectable positions
CAMERA PLATFORM	Euro quick release camera plate in sliding camera balance platform	Euro quick release camera plate in sliding camera balance platform	Euro quick release camera plate in sliding camera balance platform
Camera Attachment	3/8" + 1/4" screws + 1/4" pin carriage	3/8" + 1/4" screws	3/8" + 1/4" screws
Sliding Range	70mm (+/-35mm)	70mm (+/-35mm)	100mm (+/-50mm)
LEVELLING	Illuminated bubble level: 10 sec auto-off	Illuminated bubble level: 10 sec auto-off	Illuminated bubble level: 10 sec auto-off
PAN HANDLE	Telescopic (220mm extension range)	Telescopic (220mm extension range)	Telescopic (220mm extension range)
ILLUMINATED CONTROLS	Bubble level, pan/tilt number	Bubble level, pan/tilt number	Bubble level, pan/tilt number
TEMP. RANGE	-40°C to +65°C	-40°C to +65°C	-40°C to +65°C

OPERATING INSTRUCTIONS

The Operating Instructions for Arrow series fluid heads are described in six (6) steps. Please read and understand these instructions before using this equipment. Do not omit any step.

I INSTALL AND LEVEL THE HEAD

- 1.1 Unscrew the CLAMP NUT from its threaded stud.
- 1.2 Place the head in your 100mm tripod bowl and re-fit the CLAMP NUT. Do not tighten CLAMP NUT.
- 1.3 Level the fluid head by centering the bubble in the BUBBLE LEVEL. Then tighten the CLAMP NUT.
- 1.4 In low light conditions the BUBBLE LEVEL can be illuminated by pressing the ILLUMINATION BUTTON.
- 1.5 Note: If adjusting the level with your camera mounted, first ensure the camera is securely held before loosening CLAMP NUT.



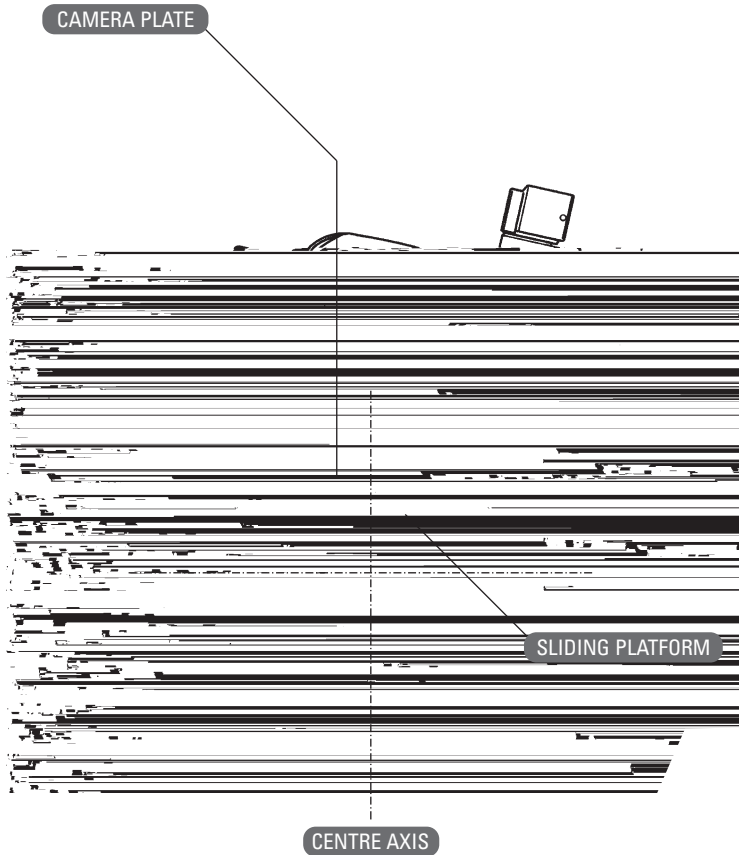


FIG 4

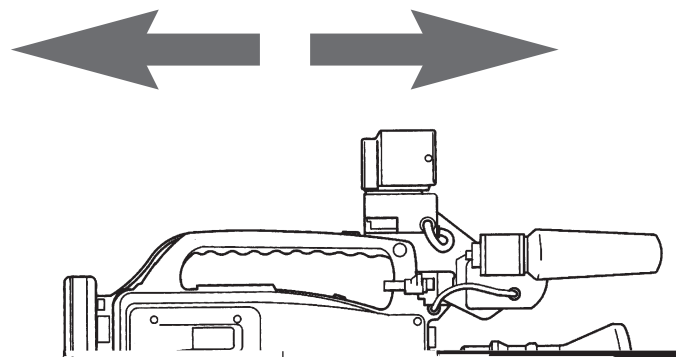
2 MOUNT YOUR CAMERA

Arrow is equipped with a sliding platform for balance fine tuning, plus a quick-release camera plate and standard camera mounting screws (Arrow and Arrow 30 have 70mm sliding range, Arrow HD has 100mm sliding range). Please note that best camera control can be achieved by balancing the camera centre of gravity (C of G) over the centre axis of the head.

- 2.1 Lock the PAN and TILT LOCKS (rotate both levers clockwise until firm).
- 2.2 Remove the CAMERA PLATE by pulling downwards on the SAFETY TAB while rotating the QUICK RELEASE to the left until it reaches the automatic stop position (the CAMERA PLATE will pop up).
- 2.3 With accessories and battery fitted, determine your camera's C of G by the best method available (Eg: balance the camera on a rod or similar to find balance point).
- 2.4 Attach the CAMERA PLATE over the C of G by fastening the $\frac{3}{8}'' + \frac{1}{4}''$ CAMERA SCREWS into your camera's base or 'tripod adaptor plate'. These screws should be tightened evenly and as far apart as possible to prevent any movement between your camera and the fluid head. **N.B.** Arrow 30 is also supplied with a $\frac{1}{4}''$ screw & pin carriage (Cat#493) for direct attachment to MiniDV camcorders which do not require a tripod adaptor plate. When attaching the camera carriage to a camcorder, ensure the carriage's locating pin fits comfortably into the camcorder socket, then screw the $\frac{1}{4}''$ screw clockwise until the camera plate is attached firmly to the camcorder. **Warning:** If the carriage pin does not easily fit into the camcorder socket, DO NOT force it. Contact Miller or your nearest authorised dealer for specific advice relating to your camcorder model.

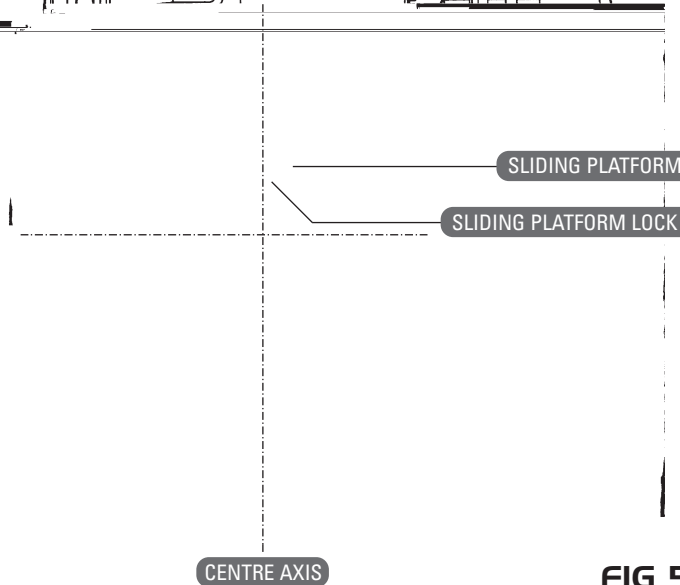
2 MOUNT YOUR CAMERA Continued

- 2.5 Attach your camera to the fluid head by holding your camera slightly 'lens down' and place the attached CAMERA PLATE under the front lip on the top of the SLIDING PLATFORM. Lower the back of the camera until the QUICK RELEASE snaps automatically to the locked position. Ensure the QUICK RELEASE knob is firmly seated.
- 2.6 To ensure a successful mount, grip the PAN HANDLE firmly and then disengage the PAN and TILT LOCKS. Your camera should be firmly attached with no obvious free movement.



3 CENTRE YOUR CAMERA ON THE HEAD

- 3.1 With your camera attached to the fluid head, hold the PAN HANDLE and release the TILT LOCK.
- 3.2 Turn the TILT DRAG CONTROL knob to position '0'. Turn the COUNTERBALANCE SELECTOR knob to position '1'.
- 3.3 Release the SLIDE LOCK lever and slide your camera forward or backward until balanced over the centre axis of fluid head. If necessary, be prepared to stop your camera sliding suddenly. Your camera will remain static when balanced.
- 3.4 Re-engage the SLIDE LOCK and TILT LOCK by turning clockwise until firm.



4 COUNTERBALANCE YOUR CAMERA

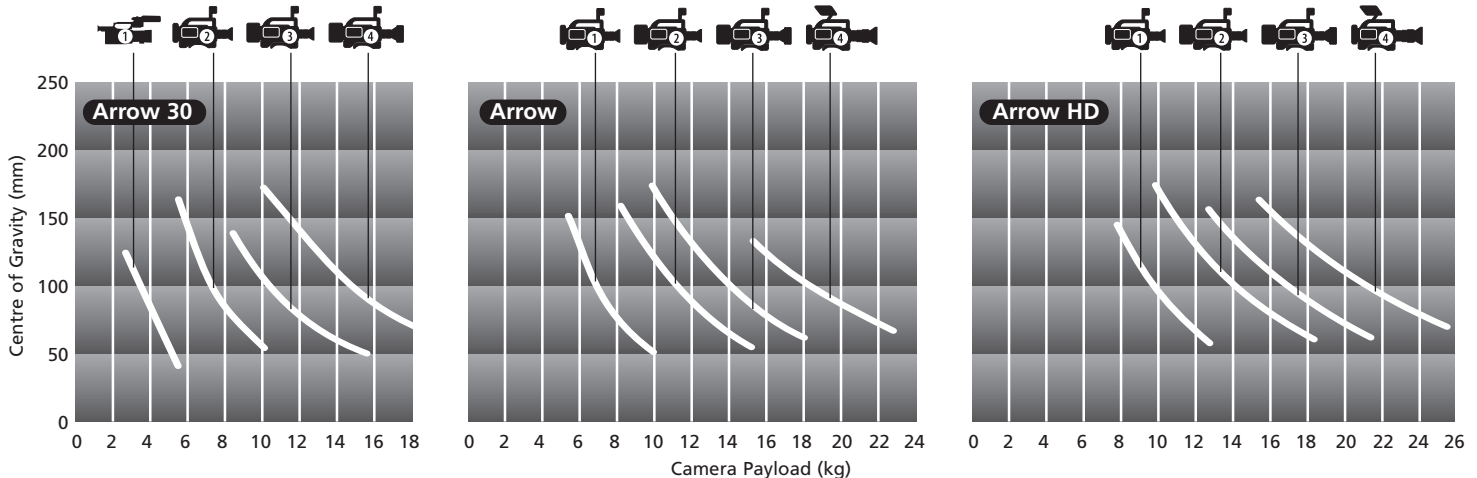
The Arrow 30, Arrow and Arrow HD include a variable counterbalance system that provides fingertip control through its tilt range and allows the camera to be set at any angle within that range. The counterbalance control can be set in one of four (4) positions depending on your camera payload.

- 4.1 Hold the PAN HANDLE and release the TILT LOCK.
- 4.2 Rotate the counterbalance control knob to setting '1' or '2' for light payloads, '3' or '4' for heavy or off-set payloads.
- 4.3 Tilt the camera through its tilt range. Loosen hold on the PAN HANDLE to check that your camera remains static in a

tilted position. If the camera moves from its tilted position, return the camera to the horizontal position and turn the COUNTERBALANCE SELECTOR knob to a higher or lower setting. Tilt through the range again and repeat this test until the camera remains static in both tilted forward and tilted backward positions.

Note: If accessories are added or removed, re-balance can be achieved by adjusting the COUNTERBALANCE SELECTOR, and/or adjusting the SLIDING PLATFORM position, or by re-positioning the CAMERA PLATE on your camera's base or 'tripod base plate'.

Counterbalance data:



5 DRAG CONTROL

- 5.1 Arrow heads provide seven (7) incremental settings for tilt and pan drag control as well as a zero (0) freewheeling position. There are no half stops. When changing drag settings, pan and tilt movements must be stopped. There is an endstop between Position 7 and Zero. This eliminates the risk of moving the control clockwise from '7' to '0' and the potential risk of the payload falling forward.
- 5.2 To achieve smooth diagonal movement, ensure that tilt and pan drag controls are on similar settings.

6 ILLUMINATION

For low light conditions, Arrow heads provide illumination of the bubble level, the pan and tilt drag settings and pan and tilt knob indicators.

- 6.1 Press the ILLUMINATION BUTTON to illuminate these features. You do not need to hold it down. All the above features will remain illuminated for 10 seconds, then will switch OFF automatically.

MAINTENANCE

With the exception of external surface cleaning and battery replacement, Arrow heads do not require additional maintenance.

Miller Authorised Service Agents must carry out all service and repair work. Failure to observe this requirement may void warranty.

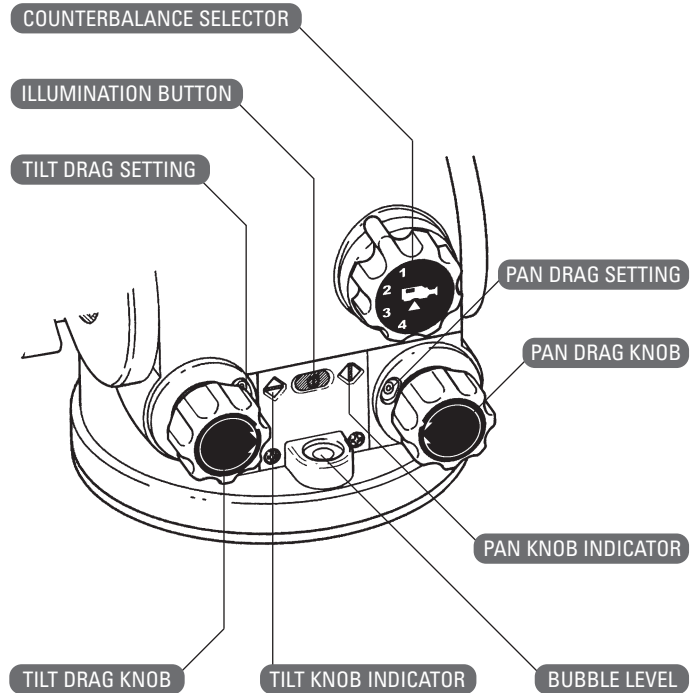


FIG 6

7 BATTERY REPLACEMENT

The Arrow illumination feature uses a standard long-life alkaline 12v battery. Under most operating conditions the battery will provide two years of operation.

Miller approves use of the following batteries: Duracell MN21, Eveready A23, Vinnic L 1028. Other GP23A batteries also fit.

To change the BATTERY:

- 7.1 Unscrew the two battery door RETAINING SCREWS and remove the BATTERY DOOR.
- 7.2 Remove the BATTERY.
- 7.3 Insert a new battery, negative end (-) first
- 7.4 Replace BATTERY DOOR and RETAINING SCREWS.
- 7.5 Press the ILLUMINATION BUTTON to test operation.

CLEANING

WARNING: Do not immerse in any liquid.

WARNING: Do not use stiff brushes, abrasives, or solvents.

Arrow heads feature protective coatings, dust and moisture seals and anti-corrosive fittings to ensure long and trouble free operation, even in harsh environments. To ensure optimum performance through the life of the head Miller recommends basic routine maintenance.

When Arrow heads have been used in harsh environments (such as sand, mud or salt water spray), wipe over with a soft damp cloth as soon as possible. Use a soft brush to clean crevices. Remove and clean CAMERA PLATE.

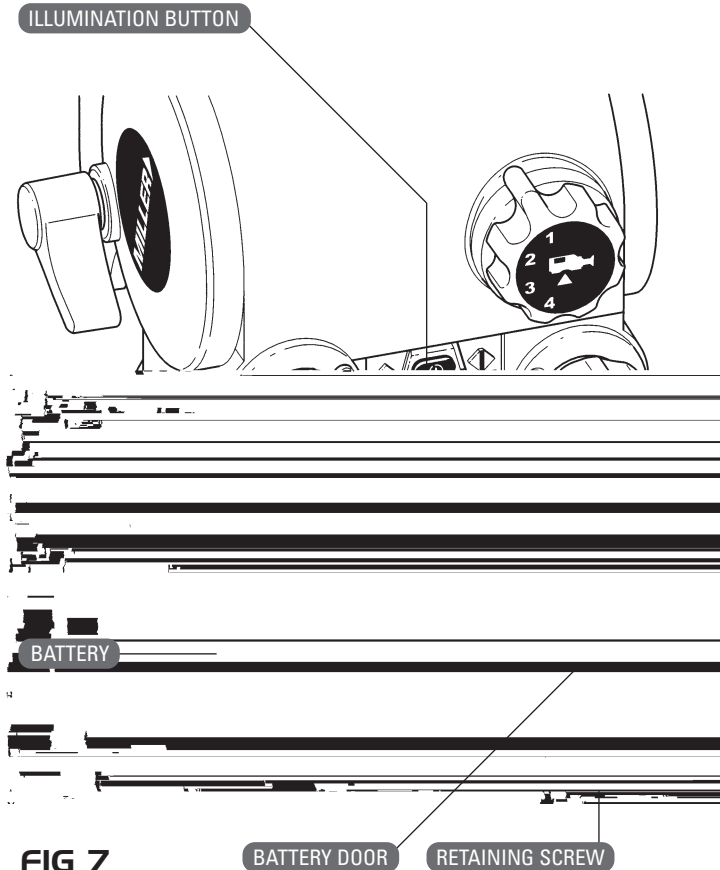


FIG 7

STORAGE

When storing your Arrow for extended periods: remove BATTERY, clean fluid head, and place in a safe, dry place, away from direct sunlight. Arrow heads can be stored horizontally or upright. However, it is not advisable to store the head for extended periods with the tilt locked in an extreme position, either forward or backward.

SPARE PARTS AND ACCESSORIES

ITEM	ITEM NO.
Battery	P3798
Euro camera plate 79 x 64.5mm (3/8" + 1/4" screws)	#860
Camera screw 3/8"W	P0037
Camera screw 1/4"W	P0036
1/4" + pin camera carriage	#493
Telescopic Pan Handle with clamp	#694
Telescopic Pan Handle	#692
Pan handle - Telescopic with handle clamp	#684
Clamp nut	P3836
Flat Base adaptor	#360

WARRANTY

Please refer to warranty card for complete details.

MILLER

SERVICE, SALES AND SUPPORT

Miller Authorised Service Agents must carry out all service and repair work. Failure to observe this requirement may void warranty. It is advisable to notify Miller or a Miller Authorised Service Agent if a change of performance is observed as a result of dropping or rough usage. For information regarding sales and service of Miller products, or for your nearest Miller representative please contact us via our website or at the following:

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