



16
CB PLUS™

Fluid Head

OPERATOR'S MANUAL

#1152 Sky FX 9 Fluid Head



Features and Controls

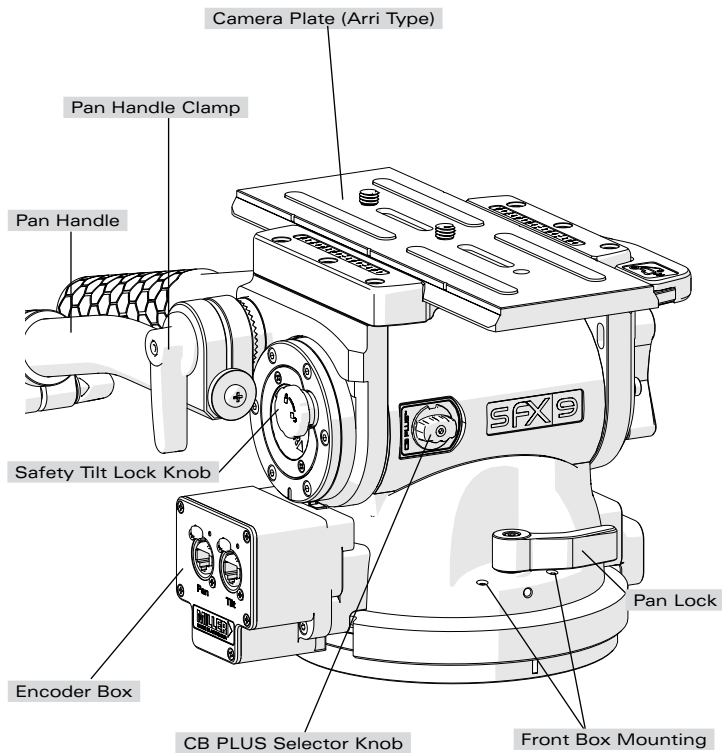
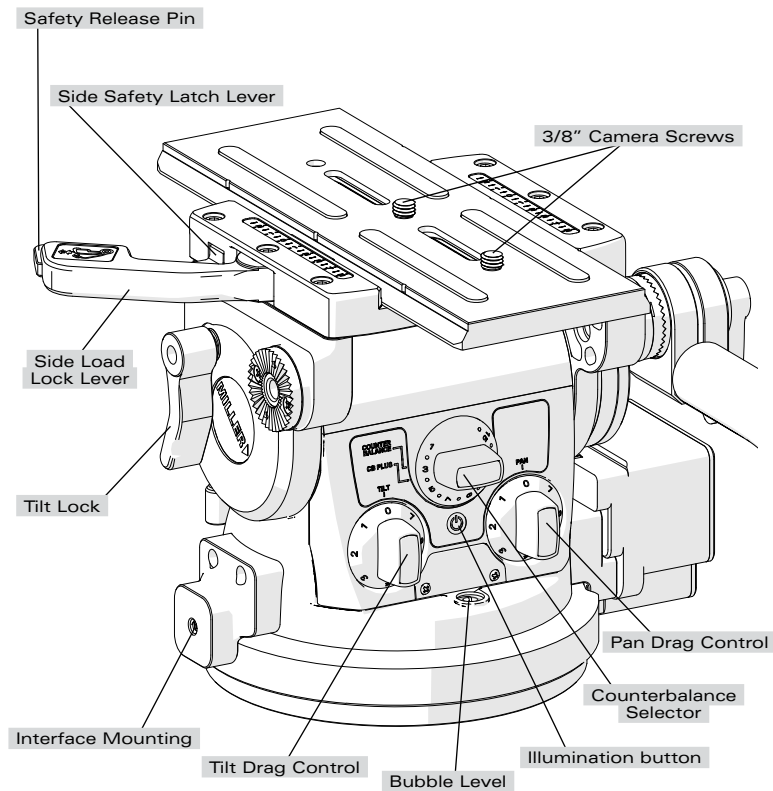


Fig. 1



See page 4 Fig. 3 and 4 for head base adapters. **Fig. 2**

Introduction

Thank you for purchasing the Sky FX 9 Fluid Head. The Sky FX 9 Fluid Head is purpose-built for film/digital production cinematographers who want a new dimension in professional camera support.

The robust design and construction of the Sky FX 9 Fluid Head is ideal for use on feature films, documentaries and high-end television commercial productions that require heavy payload, frequent re-rigging and a diverse range of lenses and camera accessories. It is set to accommodate industry-leading cameras, including Arri, Sony, RED, and Canon.

The Sky FX 9 features an Arri-compatible side-loading camera platform, along with an easy-to-fit 1225 Mitchell Base Adaptor to suit traditional Mitchell Base tripods. Side and front mounting locations are also provided to accommodate a wide range of accessories such as the view finder and the front box.

The Fluid Drag and Counterbalance system was designed to provide excellent ergonomics and control by offering progressive and equal increments of drag and torque to give ultra-soft starts / stops and perfect diagonal drag transition.

The controls are located on a single backlit panel and allow the users a highly functional, fast and repeatable setup of controlling all aspects of the camera motion.

The Sky FX 9 will give best performance when used on a Miller HD Tripod with Mitchell Base or Ø150 Claw Ball Level. This will ensure maximum system stability to suit any professional set-up.

Safety Instructions

Please use this manual to familiarise yourself with the operation of the Sky FX 9 Fluid Head and observe these instructions to prevent any damage to your equipment. Ensure that all equipment is operating correctly and free from defects and damage, also please ensure that the tripod is steady, secure and that the bowl is approximately horizontal when attaching the camera. The operator is responsible for the safe operation of this piece of equipment.

- Do not exceed the maximum payload capacity of the Fluid Head.
- Do not leave the camera unattended on the Fluid Head.
- Do not release the SIDE LOAD LOCK LEVER whilst the camera is at an angle.
- Do not adjust the tripod whilst the camera is attached to the Fluid Head.
- Ensure PAN HANDLE CLAMP and CLAMP NUT is securely tightened.
- Apply SAFETY TILT LOCK KNOB when adding/removing equipment from the camera or when attaching/removing the camera from the Fluid Head.
- Hold camera securely whilst changing Counterbalance, Pan Drag or Tilt Drag settings.
- Hold camera securely whilst adjusting the CLAMP NUT to level the Fluid Head.

Operating Instructions

1. Attaching Mount Base

A Ø150mm Claw Ball Level (1295) (Fig. 3) and Mitchell Base Adapter (1225) (Fig. 4) are available as an optional accessory.

Both Ø150mm Claw Ball Level and Mitchell Base Adapter can be attached using 4 off 3/8" x 1" countersunk screws (PN10456) (fig. 3 and 4). This allows you to mount the Sky FX to any Mitchell base tripod, pedestal etc. or to any Ø150mm bowl tripod.

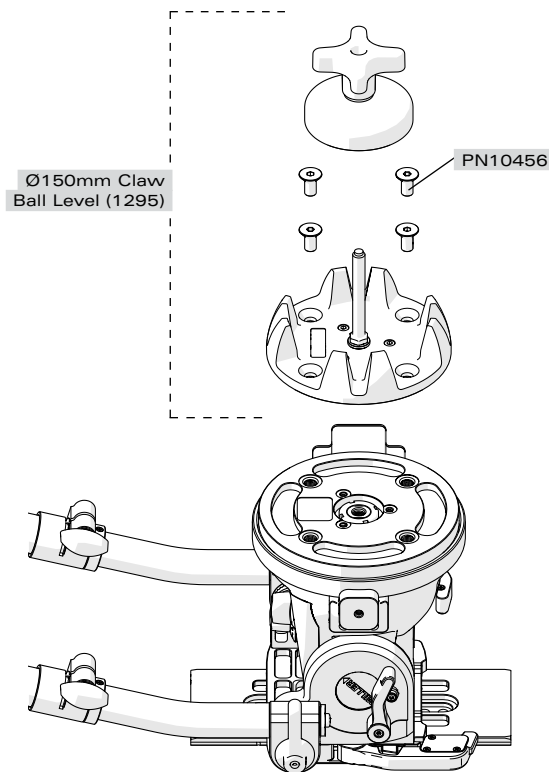


Fig. 3

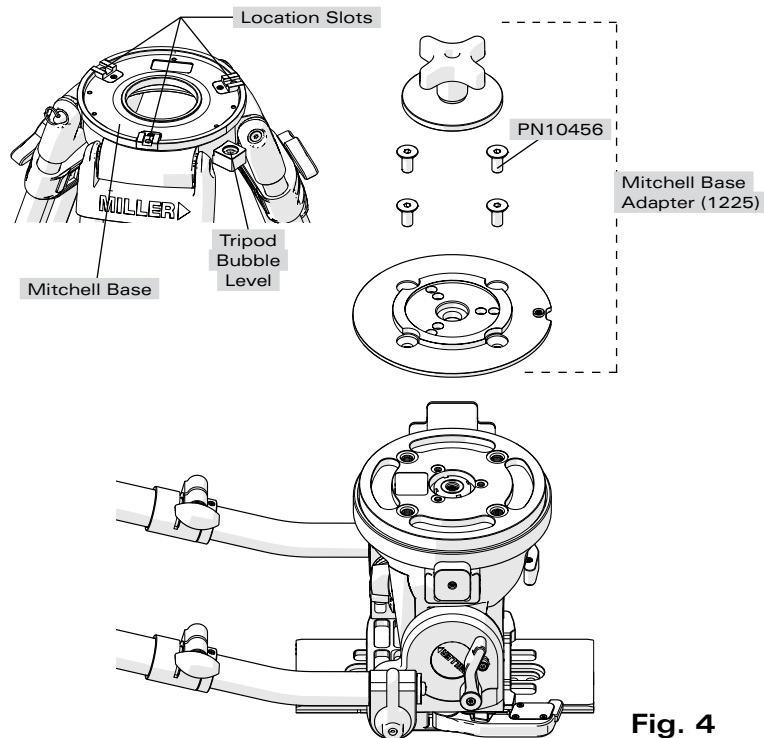


Fig. 4

Operating Instructions

2. Attaching Encoder Housing

The Sky FX 9 has a removable encoder housing which allows for easy serviceability. The encoder housing contains the Read heads which interpret the coordinates from the magnetic rings located on the pan and tilt modules on the fluid head.

To remove the encoder housing simply unscrew the 2 x M4 screws (fig. 5).

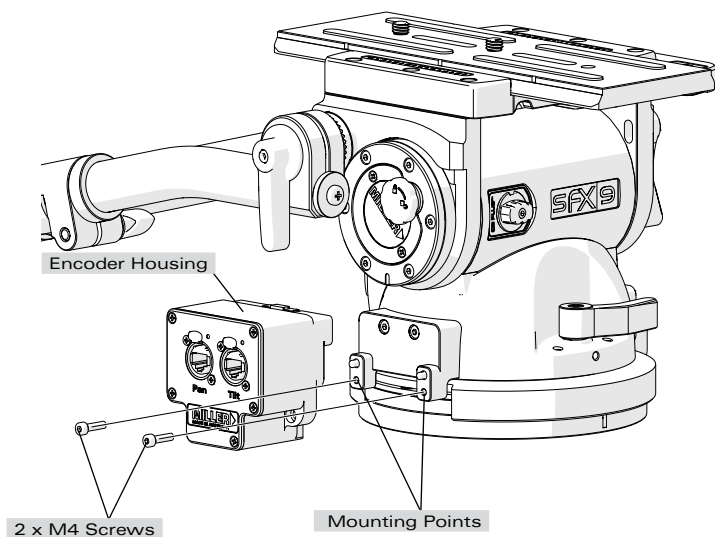


Fig. 5

The output signal from the Sky FX 9 fluid head is a pulse signal (A, -A, B, -B) with a reference signal (Z, -Z) (one count per revolution). The interface box then transmits this calibrated information to your downstream workflow.

The encoder housing contains the ports (RJ 45) for pan and tilt output (fig. 6). The housing has a LED lights to indicate correct RJ45 connection (green) and the reference point on the magnetic ring (red).

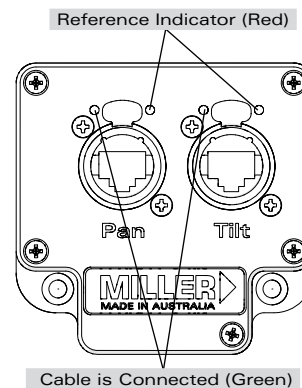


Fig. 6

Operating Instructions

3. Integration

The Sky FX 9 fluid head can be integrated with third party interface box. The Sky FX 9, coupled with a camera, can transit positional data of camera feed to allow for augmented/virtual feed overlays (fig. 7).

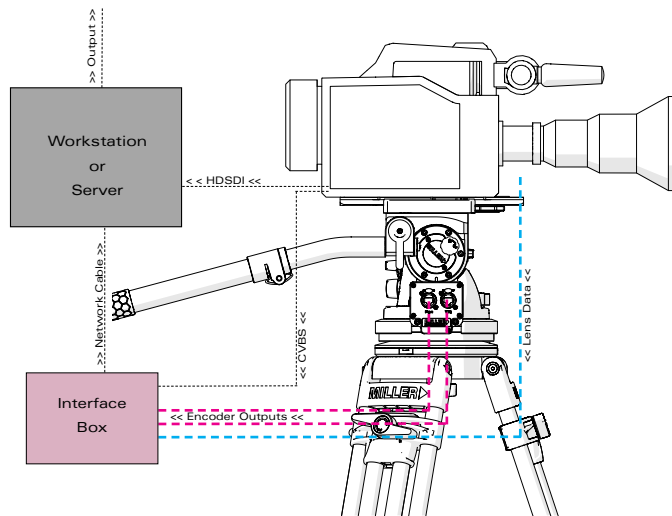


Fig. 7

4. Camera Set-up

- 4.1 Engage SAFETY TILT LOCK KNOB to lock tilt movement in the vertical plane.
Remove the CAMERA PLATE by pressing and holding the SAFETY RELEASE PIN then pulling the SIDE LOAD LOCK LEVER outwards. Lift the SAFETY LATCH LEVER and remove the CAMERA PLATE from the BASE PLATE (Fig. 8).
- 4.2 Attach the CAMERA PLATE to the camera and securely tighten the screws. Refer to the Camera's owner's manual for correct method of attachment to the CAMERA PLATE.
- 4.3 Attach camera accessories and the battery to the camera, it is recommended to estimate the camera's Centre of Gravity (C o G) for the purpose of correctly positioning the camera on the CAMERA PLATE. The camera's C o G can be estimated by placing the camera on to a round rod and then shifting it backwards or forwards until a balance point - C o G - is achieved. It is recommended to identify this point on the CAMERA PLATE as it will be useful in step 4.5.

Operating Instructions

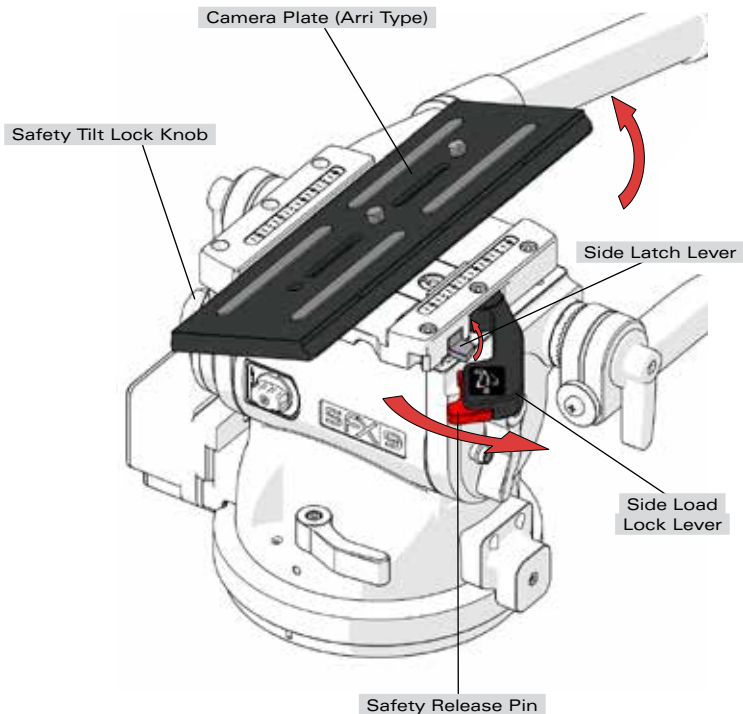


Fig. 8

- 4.4 Align the edge of the CAMERA PLATE with the BASE PLATE, and then side load the CAMERA PLATE into the BASE PLATE. Once the CAMERA PLATE is in position an audible sound will be heard. At this point, the CAMERA PLATE can slide forward / backward only.
- 4.5 Position the CAMERA PLATE such that the camera's C of G is directly above the centre axis of the Fluid Head, then push the SIDE LOAD LOCK LEVER into the locked position. Check that the CAMERA PLATE is secure.

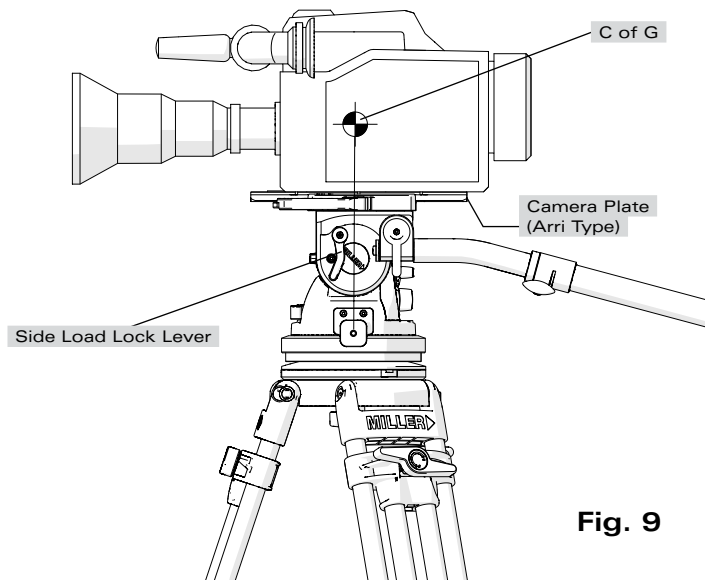


Fig. 9

Operating Instructions

5. Camera Plate Lock Adjustment

The Camera Plate Lock is designed to secure the CAMERA PLATE in a set position. The Sky FX 9 BASE PLATE can accept a third party (Arri type) CAMERA PLATE, however, the Camera Plate Lock may need to be adjusted to account for small dimensional variations in third party CAMERA PLATES that can significantly affect the locking function.

- 5.1 Press and hold the SAFETY RELEASE PIN then pull the SIDE LOAD LOCK LEVER outwards.
- 5.2 With the CAMERA PLATE in place, gently push the SIDE LOAD LOCK LEVER towards the BASE PLATE until resistance is felt – this is the start of the locking action. Check the position of the SIDE LOAD LOCK LEVER as shown in Fig. 10.
- 5.3 Adjustment is necessary if the SIDE LOAD LOCK LEVER position is outside the recommended range. Follow Fig. 10 to determine the correct method of adjustment.

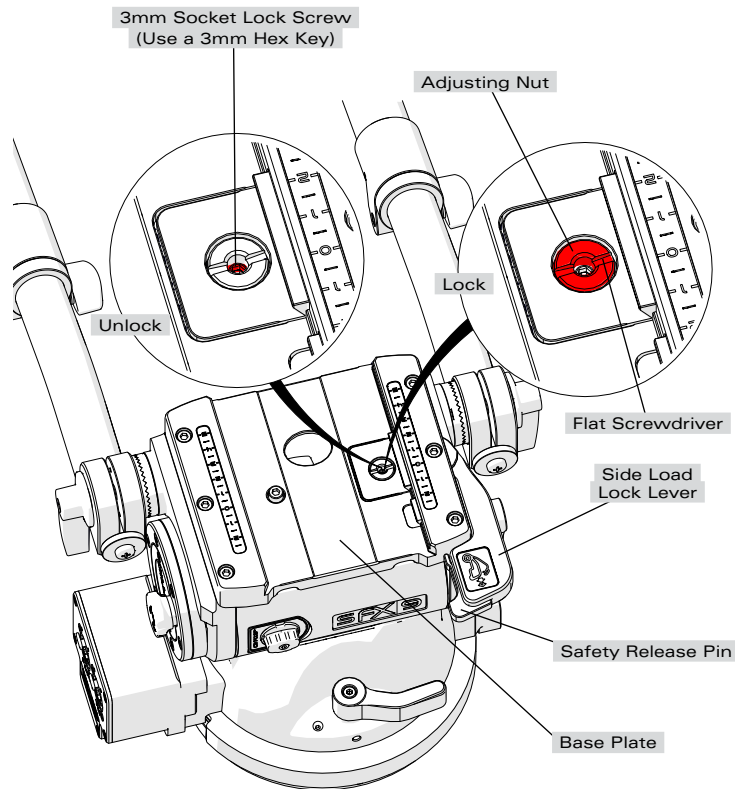


Fig. 10

Operating Instructions

- 5.4 Using a 3 mm Hex key unlock the LOCK SOCKET SCREW (fig. 10), then using a broad flat screw driver turn the ADJUSTING NUT (fig. 10) in the direction shown by 1/8 of a turn and re-check step 5.2, repeat 5.4 if necessary. When adjusted correctly, the SIDE LOAD LOCK LEVER will be smooth to operate and require modest effort to lock the CAMERA PLATE (fig. 11).
- 5.5 Once the correct adjustment is achieved, remove the CAMERA PLATE and lock the LOCK SCREW.

Turn adjustment screw counterclockwise to compensate for a wider camera plate.

Camera Plate

Correct position of Side Load Lock Lever at the start of locking action.

Camera Plate

Turn adjustment screw clockwise to compensate for a narrower camera plate.

Camera Plate

Fig. 11

Operating Instructions

6. Counterbalance Control

The counterbalance system was designed to neutralise the effect of the camera weight when it is tilted. The Sky FX 9 Fluid head offers a 16 position counterbalance system which is operated with the CB SELECTOR KNOB and the CB PLUS SELECTOR KNOB.

The system was designed for an efficient and ergonomic control of the counterbalance mechanism which delivers a wide payload range capacity. The counterbalance selector knob and the CB PLUS SELECTOR KNOB must be operated when the CAMERA PLATE is in a horizontal position.

After changing the counterbalance setting it may be necessary to tilt the camera back and forth to ensure that the CB spring has engaged. The camera must be held securely while changing the counterbalance setting.

- 6.1 For safety select counterbalance position 16, being the orange coloured marker on the CB SELECTOR KNOB pointing to position 16 and the CB PLUS SELECTOR KNOB displaying an orange marker.
- 6.2 Hold the camera and release the TILT LOCK, then gently tilt the camera from the horizontal position forward then backward and observe its response. If the camera springs back to the horizontal position then a lower counterbalance setting is required, rotate the CB SELECTOR KNOB clockwise to a lower position and recheck, select lower setting again if necessary.
- 6.3 Finer adjustments can be made by toggling the CB PLUS SELECTOR KNOB (Fig. 12).
- 6.4 Correct counterbalance setting has been achieved when minimum effort is required to move the camera over the entire tilt range.

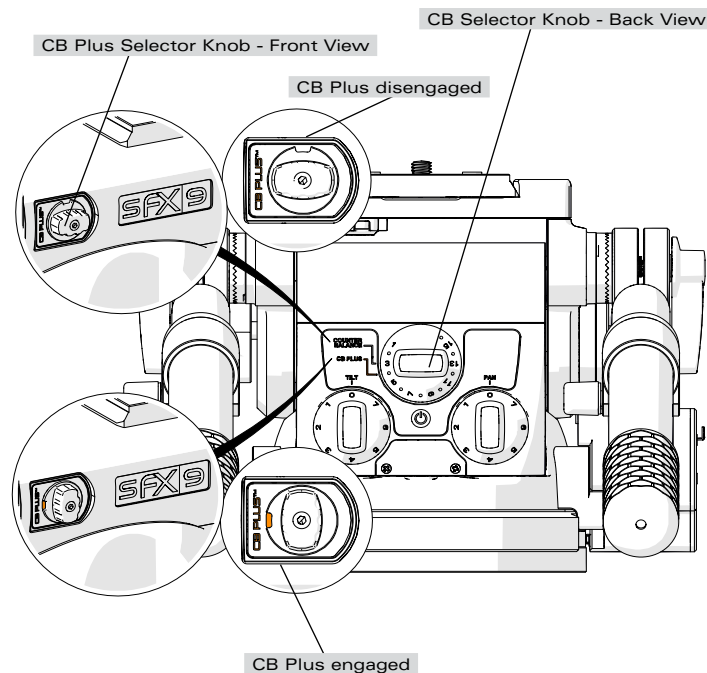


Fig. 12

Operating Instructions

7. Pan / Tilt Drag Control

The Sky FX 9 Fluid Head offers 7 selectable positions of fluid drag + zero setting in the Pan and Tilt. The settings are equally stepped from light drag in position 1 up to heavy drag in position 7, the drag plates are completely disengaged in position zero.

- Do not Pan or Tilt the Fluid Head whilst adjusting PAN or TILT DRAG CONTROL or whilst the PAN & TILT DRAG CONTROL is between settings.
- The drag setting can be changed at any tilt or pan angle.

8. Pan / Tilt Lock Control

The Sky FX 9 Fluid Head offers high capacity caliper disc brake system to hold the Fluid Head in a fixed pan and/or tilt position. Camera position will not change when applying or releasing the Pan / Tilt locks.

- Do not pan or tilt the Fluid Head whilst the PAN or the TILT LOCK is partially applied.

9. Illumination

The Sky FX 9 Fluid Head offers illumination of the PAN, TILT, DRAG COUNTERBALANCE CONTROLS AND BUBBLE LEVEL when the low ambient light conditions exist. Illumination can be achieved by pressing the ILLUMINATION BUTTON once. The light will switch off after 10 seconds.

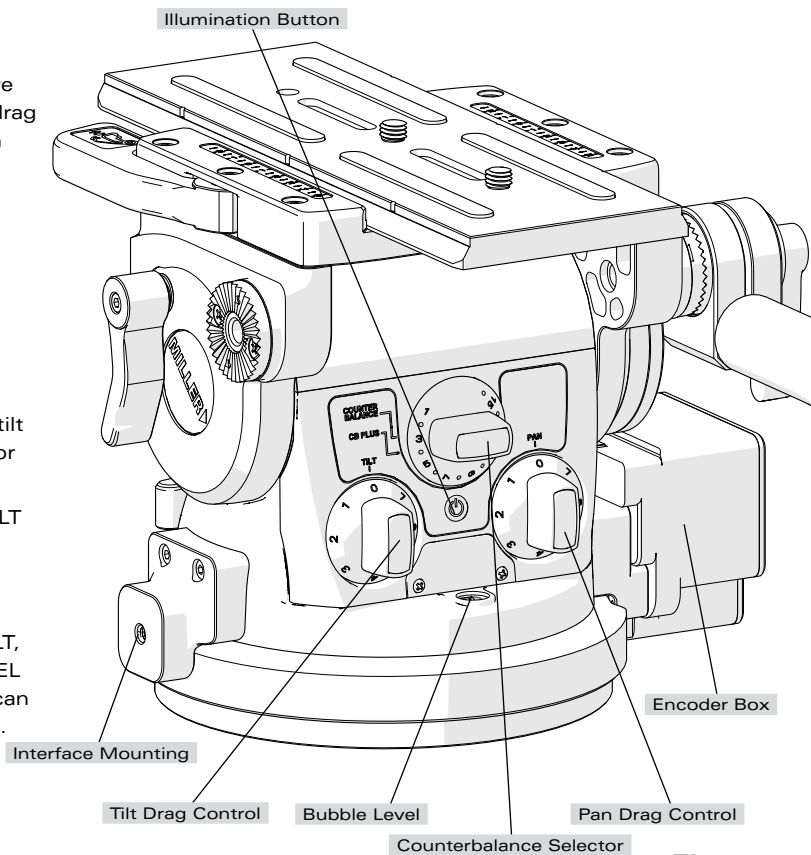


Fig. 13

Maintenance

The Sky FX 9 Fluid Head offers high quality surface coatings. Miller recommends keeping the Fluid Head clean at all times by using soft brushes and lint free cloth to wipe over the surfaces.

- Do not immerse the Fluid Head in any liquid.
- Do not use stiff brushes, abrasives, harsh detergents and solvents.

Battery Replacement

The Sky FX 9 Fluid Head uses a single GP23A type - 12 Volt battery for Illumination. Miller recommends the following batteries to provide long life performance – GP23A, Duracell MN21/23 or Vinnic L1028.

1. Using a Phillips Head #1 screw driver, remove the RETAINING SCREWS and the BATTERY DOOR.
2. Using a small flat screw driver remove the battery.
3. Align the new battery as shown on the back of the BATTERY DOOR and place into the BATTERY HOUSING, then push down the battery into place. A small flat screw driver may be used to push down the battery into the BATTERY HOUSING.
4. Align the BATTERY DOOR into the body then tighten the screws lightly.

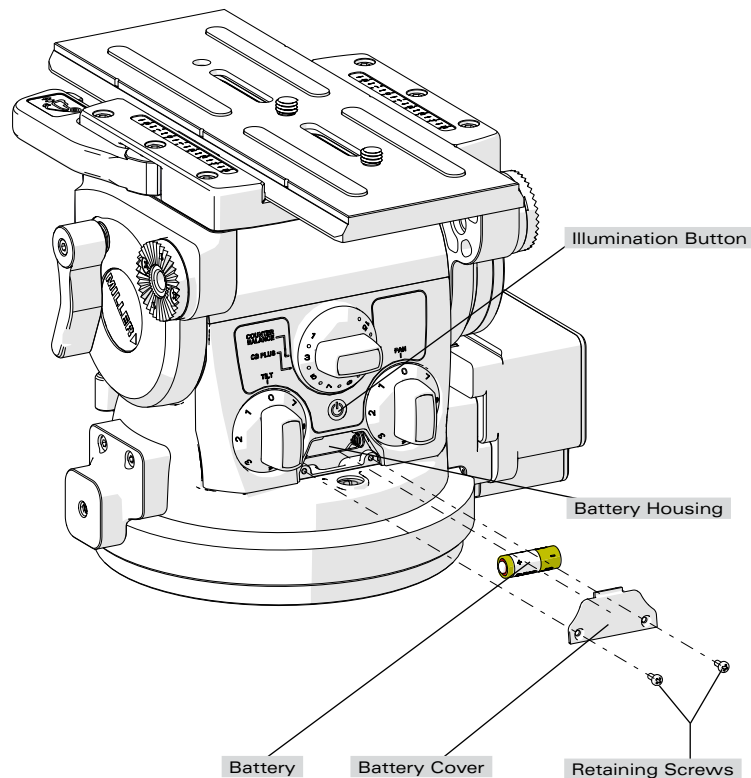
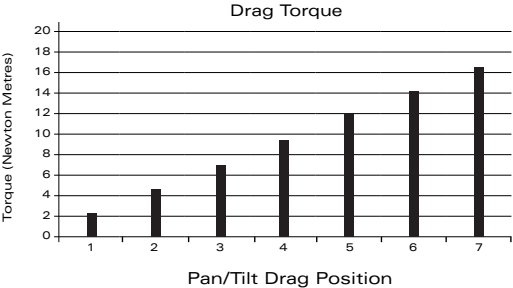
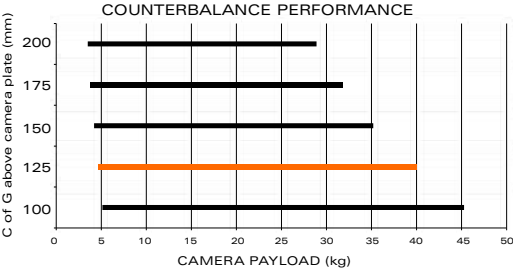


Fig. 14

Specifications

	Sky FX 9
Weight	6.7 kg (14.7 lb)
Payload Range	4.5 – 40 kg (9.9 – 88.0 lb) (COG @ 125mm)
Pan-Tilt Drag	7 Selectable fluid drag positions + 0
Pan-Tilt Lock	Positive lock caliper brake system plus Safety Tilt Lock.
Pan Range	360°
Tilt Range	+ 90° / -75°
Counterbalance System	16 Selectable positions (see performance graph Fig. 15)
Encoder Type	Incremental magnetic with highly repeatable position measurement
Pan Resolution	2,097,152 counts per 360° (with quadrature)
Tilt Resolution	1,048,576 counts per 360° (with quadrature)
Output Signal	TTL
Output Connection	RJ45 (ethercon) 1 x pan & 1 x tilt
Power Requirements	5V(+/- 10%)
Camera Platform	Quick release side loading camera plate (Arri type) with 150 mm (5.90") travel and 2 x 3/8" camera screws. (Fig. 6)
Mounting Base	Flat Base with 4 x 3/8" UNC holes for Ø150 mm Claw Ball Level or Mitchell Base adapter. (Fig. 4 and 5)
Handle	2 x HD telescopic pan handles
Temperature Range	-40° C to +65° C
Construction	Lightweight diecast aluminium alloy, moulded reinforced plastics
Sealing	Water & dust resistant
Finish	Matt black (low sheen) durable powder coated with anti-corrosive pre treatment
Warranty	3 Years.



Payload Range in kg and lb				
C of G (mm)	Min (kg)	Min (lb)	Max (kg)	Max (lb)
100	5.4	11.9	45	99.2
125	4.5	9.9	40	88.2
150	4.2	9.3	35.2	77.6
175	3.8	8.4	31.8	70.1
200	3.5	7.7	28.9	63.7

Fig. 15

Specifications

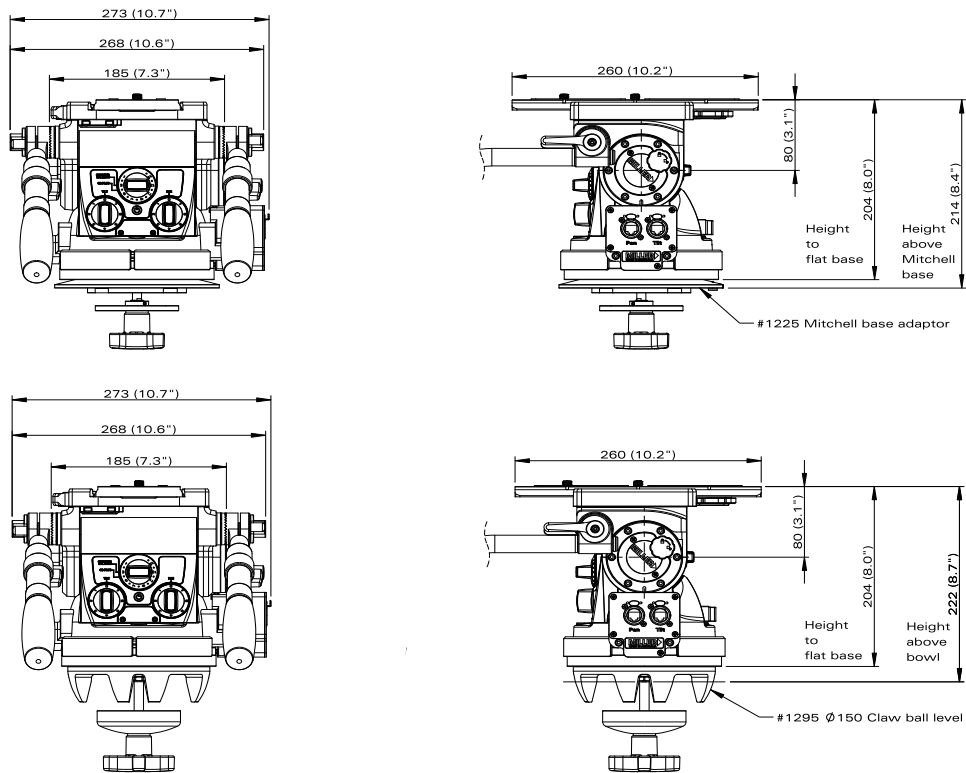


Fig. 16

Storage

The Sky FX 9 Fluid Head can be stored for extended periods; Miller recommends storage in a Miller Soft Case and the following:

- Remove battery.
- Clean the external surfaces.
- Keep in a dry place away from direct sunlight.
- Loosen off PAN & TILT LOCK.

Spare Parts and Accessories

ITEM	ITEM NO.
Battery 12V	P3798
Camera screw 3/8"	P0037
Camera screw 1/4"	P0036
HD pan handle telescopic	698
Accessory mounting block	1265
Mitchell base adaptor	1225
Accessory front box adaptor	1223
ARRI Mounting Adaptor Assembly	1222
CiNX Camera Plate Short (ARRI-Type)	1066
CiNX Camera Plate (ARRI-Type)	1065
Ø150mm Claw Ball Level	1295
Ø19 OB Tele Pan Handle	1242

Warranty

Please refer to warranty card for complete details.

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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Quality
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