



***Instruction manual* G-Force Advanced**



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Overview

We congratulate you on your purchase of the **ABC-Products G-Force Advanced**.

It was specifically developed for demanding users. Without compromise in every detail, the Advanced is particularly well-suited for use in the area of HD and Film cameras.

The Advanced seamlessly integrates into the comprehensive ABC assortment and can be combined with components of existing products.

Adjustable post

With the precision mechanism, the side-to-side module can be continuously adjusted in two axes. A stop module provides the necessary security for the camera.

The power supply 12/24V makes it possible to use various auxiliary devices such as camera lights. The integrated video cables and connectors are optimized for the use of HD-monitors.

Spring arm

Two independent spring systems perfectly balance the movements of the operator. The slim design and extremely compact dimensions of the spring arm are impressive and ensure the desired maneuverability.

Moreover, the spring tension can steplessly be adjusted.

Vest

The completely redesigned Advanced vest defines new standards. The light but torsion-resistant aluminum plate can be fitted to nearly any body size. Chest and shoulder belts can be variably adjusted in the position. The spring arm mount can be moved up or down.

The multi-part pad elements can be individually positioned and are washable. Furthermore, air ducts make wearing the vest noticeably more comfortable.








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Package contents

			
Bag for Sled and accessories Optional: Item no. 800010-0	Bag for Advanced Vest Optional: Item no. M5973	Bag for Advanced Spring Arm Item no. M6102	C-Stand Optional: Item no. 800010-0
			
G-Force System Advanced Ready to go!	Advanced Vest with standard connector Item no. 8220-0	Spring arm Advanced Item no. 8218-1000	Sled, Advanced with double V-Mount Adapter (optional Anton Bauer) Item no. 8218-2000
			Three Allen keys Size 5,0 (for adjusting the telescope and trim post and adjusting the angle of the battery adapter) Size 4.0 Size 3.0 (for adjusting the aluminum parts on the vest)
Accessory case, English instruction manual	Monitor Holder Advanced Light Item no. 8218-9600	Wedge plate (mounting stage) Item no. 8218-9101 (without rods) Rod Item. No. 8218-9102 Right Rod Item. No. 8218-9103 Left	
			
Trim plate for set-up on the tripod Item no. 8218-3000	Hard-Mount 8218-7000	Bracket 50mm for 15mm rod Item no. 8218-9300	F-Bracket incl. 1x Short rod Item no. 8218-9200
	Euro mount with Standard connector	Bracket 60mm for 15mm rod Item no. 8218-9400	

			
Clamp 15mm Item. No. 8218-1201	2x Cabel Video BNC/BNC HD/SDI – 500mm	1x Cable connection cable Lemo 2pin/3pin	2x Cable Lemo 2pin / XLR 4pin female
 <p>Arm posts 5/8" Length 160mm/ Item no. 8218-1204 Length 250mm/ Item no. 8218-1205 Length 300mm/ Item no. 8218-1206</p>			

Overview of the Advanced sled

Side-to-side module with self-locking drive

Circuit points top stage:
 3x BNC connector HD/SDI
 1x Tally In, Hirose 4P
 3x 12V ext. Out Lemo 2P
 1x 24V ext. Out Lemo 4P

Precision ball bearing

Large diameter hand grip for precise control

Monitor holder "light weight" with parallelogram design
 Incl. screw 1/4"

Circuit points lower stage:
 3x BNC connector HD/SDI
 1x Tally Out, Hirose 4P
 1x Monitor Power 12V Lemo 2P
 1x 12V Out Lemo 2P
 3x 12V In Lemo 3P
 1x diverter Power

Connection sockets
 3 x BNC in for HD
 1 x power out

Standard connection 5/8"

Top tube aluminium with scale
 Lower tube carbon

Telescopic post - system length up to 340 mm (13.39 in.)

Adjustable battery holder
 angle 180 degrees for V-Mount
 Optional: Anton Bauer

12/24V system incl.
 double V-mount adapter plate

Overview of the G-Force pro vest



Overview of the G-Force pro connections



3x BNC connector
HD/SDI
1x Tally In, Hirose 4P
3x 12V ext. Out Lemo 2P
1x 24V ext. Out Lemo 4P



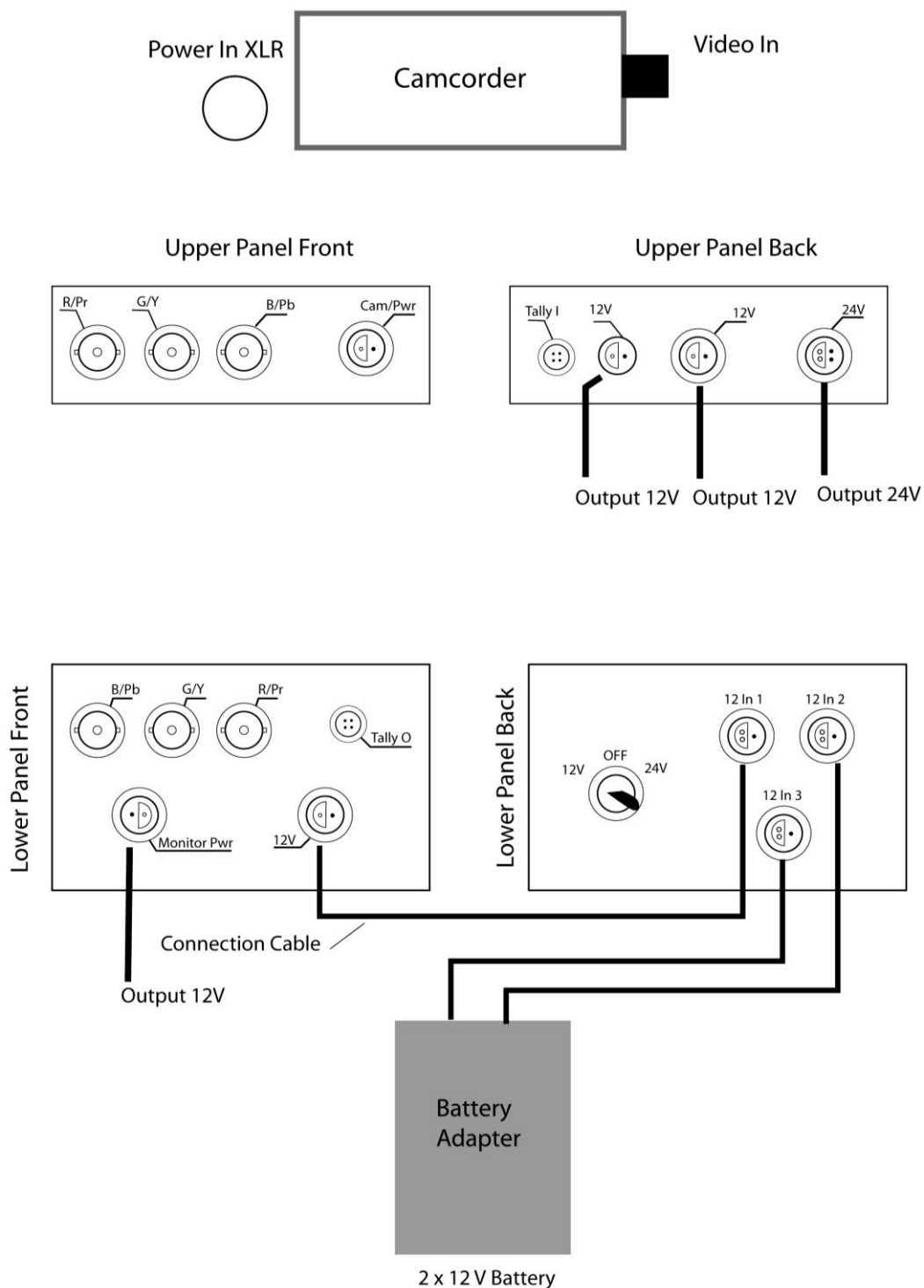
Foot module 1: Video-out 3x
BNC
1x Tally Out, Hirose 4P
1x Monitor Power 12V
1x 12 Ext. Out



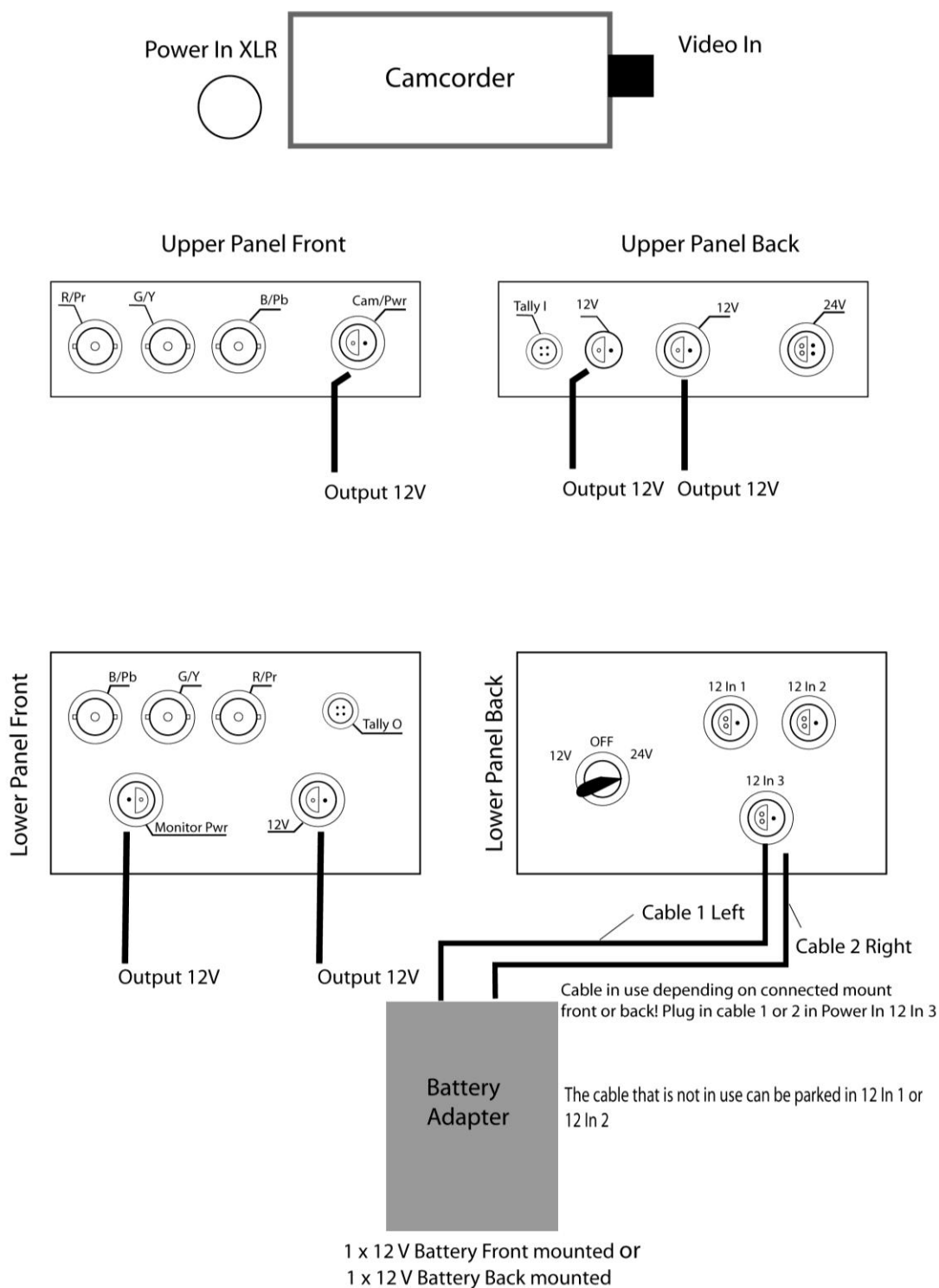
Foot module 2:
3x 12V In Lemo 3P
1x diverter Power 12V/Off/24V

Overview circuit diagram Advanced

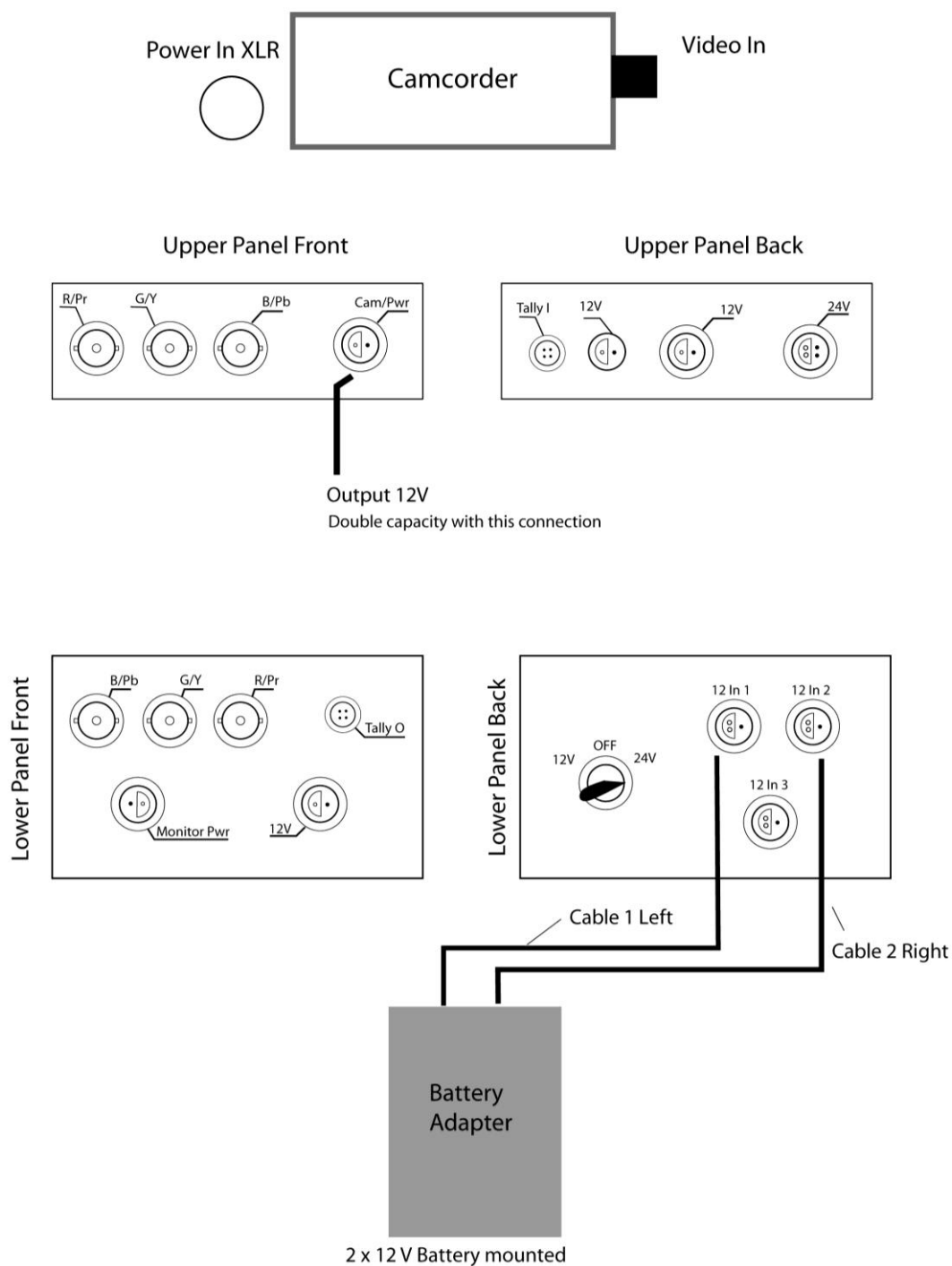
No. 1



No. 2



No. 3



General safety instructions



- 1) Set up the trim tripod on a solid surface and secure with sandbags if necessary.
- 2) Using the fixing screw, secure the camera base plate to the camcorder.
- 3) Mount the camera wedge plate true to side.
- 4) During each trim procedure, secure the tripod with an additional counterweight.
- 5) Operating the device stresses the muscles of the back among other things. Please allow time between uses for sufficient recovery.
- 6) Prevent water from penetrating the device.
- 7) When opening the gimbal clamp to adjust the height of the gimbal on the top tube, the trim tube must be secured against slipping through uncontrolled.
- 8) Re-tighten the gimbal clamp applying moderate force after adjusting the gimbal.
- 9) Using moderate force only, tighten the Allen screw of the telescope clamp until the clamping force is light, but sufficient.
- 10) Using the safety pin is important, secures the rig against slipping out of the trim plate.
- 11) Turn the telescope (bottom pipe) max. 360 degrees to avoid damaging the enclosed cables.
- 12) The plug-in connectors must be smooth – if there is any resistance, please note the correct mark position of the plugs.
- 13) Loosen the plugs by pulling the plug case only – do not use a rotary motion to loosen the plugs.
- 14) When oscillating to establish the center of gravity, do not hit the rig against the trim tripod to avoid damage.

Technical data

Sled

Full weight of the sled incl. monitor holder:	4.9 kg (11 lbs)
Telescopic post:	max. 372 mm
Travel of gimbal upper post	230 mm
Forward travel of battery holder:	170 mm
Battery holder adjustment angle:	180°
Monitor holder length:	max. 190 mm

Wedge plate length:	130mm
Wedge plate width:	90mm

Spring arm

Weight of the spring arm, G-Force Pro DV/HDV:	5.2 kg
Spring arm max. camera load:	14 kg

Vest

Weight:	4.1kg
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Tripod

Weight:	4.20 kg (9.26 lbs)
Max. extension:	1760 mm (69.29 in.)
Min. extension:	840 mm (33.07 in.)
Trim plate length:	280 mm (11.02 in.)

Installation and mounting

Setting up the trim tripod with trim plate

Open the screw plug (Fig. 1-4) of the foot clamp. Pull the top foot back approx. 180 degrees until it reaches a point of engagement. Open the other two tripod feet as shown until they form a safe triangle base. Then close the safety screw. Make sure that the base is level and solid to ensure safe system conditions under load. Some C-Stand products are working without screw!



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Mount the system trim plate as shown (Fig. 5 - Fig. 7) and securely re-tighten the safety screw. Hang the included Allen keys in the intended holes.



Fig. 5



Fig. 6.



Fig. 7.

The ideal telescope work height of the tripod is about between your shoulders and your elbows. The tripod becomes unstable if the telescope is too high. Under high loads (heavy camcorder), decrease the height of the telescope appropriately. To increase the protection against inadvertent tipping, we recommend you weigh down the tripod legs with a sandbag or similar.

When doing so, make sure that the black plastic sleeve for the gimbal mount is positioned over the long tripod foot for a more stable base when trimming.

ABC-Products Sandbag (delivery without ballast!)
 Item no. 832100





Hang the trim tube (sled) in the trim plate on position 1 (stand-by position, Fig. 8). Secure the trim tube (sled) using the included safety (press pin by using)

Fig. 8

Guidelines:

- The gimbal forms the center point of the axis between the camera and the stand. Similar to a traditional scale, it is necessary to change the weight between the camera and the stand. The monitor used (depending on type with or without flange-mounted battery), the battery and, depending on design, the single or double battery holder plate for the monitor power supply are used as counterweight for camera stabilization. The desired counterweight for gliding movements can be obtained by the factors of vertical telescopic extension = shifting of the battery weight up (toward the gimbal or down away from the gimbal) and horizontal adjustment of the battery toward or away from the post.
- If the camera is heavy compared to the base weight, it does not stay in the desired, vertical or upright position.
- If the ratio between the camera and base weight weighs out neutral, the system must be controlled very delicately. The slightest contact causes a reaction.
- A slight bottom heaviness should therefore be achieved when trimming and variably adjusted depending on personal preference and experience.
- If too heavy, it brings increased mass to one side (base weight) into the movement and leads to unwanted rocking movements.
- The following factors are used to determine the weight required to balance the camera:
 - Extraction of the lower telescope (travel max. 372 mm) (Fig. 9)
 - Horizontal extraction of the battery with traverse sled (Fig. 10)
 - Stepless angle / weight adjustment of the battery (Fig. 11)
 - Position of the gimbal on the post



Fig. 9



Fig. 10



Fig. 11

- A shorter horizontal extraction of the battery (Fig. 11) keeps the system compact, increases maneuverability and offers protection against bothersome leg contact.

Mounting the monitor on the monitor holder and post

Open the clamp of the monitor holder and fix it on the lower post following the instructions of fig. 12-14. Turn the screw of the holder head into the thread of the monitor and fix it.

For changing the height of the monitor holder (fig. 17) the screws on the side have to be unfastened. A box wrench is needed. Choose the desired position and fix the screws again.

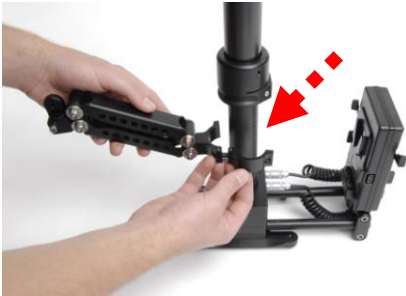


Fig. 12



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17

Mounting the monitor holder with monitor on the post

Remove the clamping screw of the monitor holder for mounting on the post (Fig. 12). The monitor holder fits only to the lower post.

Mount the clamping system over the post and secure the holder using the clamping screw. Make sure the position is parallel to the post axis.

Mount the Monitor (Monitor is not included in the system. Picture shows Marshall 6,5" monitor) as described in the pictures 14-17.

Mounting the battery

Push the battery (Pic. 18-19 (V-Mount or optional Anton Bauer)) from above into the adapter plate until it securely engages.



Fig. 18



Fig. 19

Mounting the camcorder

Prepare the camcorder for use. Insert the tape and attach the battery (12V camcorder power supply via XLR cable). Attach the microphone and other accessories that might be needed (also secure to prevent slipping, since it can affect trimming) or remove it. Position your camera's viewfinder as desired or remove the viewfinder for large camcorders if necessary for reasons of weight. Please secure any loose cables against slipping.

- Mount the V-lock plate of the camera underside of the camcorder. Fig. 20
- By moving the camcorder on a tripod leg forward and backwards you have to identify the center of the camcorder body. Fig. 21
- Make a mark on the camera V-lock plate (pencil). Fig. 22
- Move the stage to a zero position. Fig. 23
- Mount the wedge plate underneath the camera V-lock plate. Please ensure that the center mark of the camcorder body is located in the middle of the wedge plate. Fig. 24
- Slide the wedge plate into the upper side-to-side module by pressing the safety pin. Fig. 25. Please ensure that the clamp of the brake is open!
- The plate has to be positioned with the center mark directly in the line of the post. This provides a fluently horizontal rotation when the following steps of the balancing procedures a finished!



Fig. 20



Fig. 21



Fig. 22



Fig. 23



Fig. 24



Fig. 25



Fig. 26

Trimming the system

Position change/ hanging the sled on the trim plate



Hang the sled for trimming in the gimbal mount (position 2: trim position).

Basic setting

Mount the camcorder on the Sled. Install all needed cables and secure them with velcros.

Bring the monitor into the desired viewing position Fig. 27. Note the height and angle adjustment options. If required for rotation, you can now mount the anti-glare device. Open the gimbal clamping system (Fig. 28) using an Allen key. Push the post into the "0" position (gimbal middle point between camcorder and lower stage). Close the clamping system again.



Fig. 27



Fig. 28



Fig. 29

Correct the counterweight until there is a slight bottom heaviness by:

- Opening the telescopic clamp, extend or retract telescope (Fig. 30)
- Horizontal extraction of the battery (extend or retract telescope) (Fig. 31)
- Angle adjustment of the battery on the rotary joint (Fig. 32)



Fig. 30



Fig. 31



Fig. 32

Optimize the trimming by adjusting the camera in the vertical direction on the camera sled/upper side-to-side module.

Optimize the trimming for horizontal panning:

The correction is like "balancing a car tire" to make sure it runs as round as possible.

A system balanced horizontally and vertically makes smooth, "floating" movements and balanced panning possible.

Now bring the sled into a horizontal position again. "Roll" the sled around its own axis. If the sled is not "running round", please correct this on the position at which the imbalance becomes evident, e.g. by correcting the angle of the battery plate or correcting the extension of the battery plate.

Additional corrections can be carried out if necessary by "fine trimming" on the camera sled / side-to-side module.



Fig. 33



Fig. 34



Fig. 35

Swinging the sled – "Drop time" 2-3 Sec.

Lift the sled approx. 90 degrees (travel movement). Let the system swing and count the time until the post is crossing the vertical line of the tripod. If the system swings too quickly, the bottom heaviness may be too high. 2-3 seconds (counting 21, 22, etc.) on average means a good balance.

Be careful when carrying out the initial swinging motion – make sure that the system can swing through parallel and does not swing directed against the tripod, which could otherwise damage the monitor.

Also make sure that the stability of the tripod is secured. The system should not turn off during the swinging motion. Otherwise, the system should be re-trimmed horizontally on the side-to-side module. Fig. 36-38



Fig. 36



Fig. 37



Fig. 38
Drop time 2-3 sec.

If the system is too bottom heavy, you may have different possibilities for optimizing the balancing:

- Reduce the length of the lower post
- Extend the length between the gimbal and the upper side to side module
- Use low weight batteries and a light weight monitor

If the system is not heavy enough from the bottom side:

- Extend the lower post to increase the lever
- Use two batteries or heavy-duty battery
- Use heavy-duty monitor or additional counterweights (optional G-weight - please check accessories)

Turn on the main switch on the bottom voltage module. 12V or 24V. Fig. 39

Also turn on the camera and monitor. Check whether the monitor receives a picture signal.



Fig. 39

Putting on the vest

Open the vest by pressing the snap connector. The metal plate must be in the front. Slide an arm through the respective opening and close the chest and lap belts.



Fig. 40



Fig. 41



Fig. 42



Fig. 43



Fig. 44



Fig. 45

You can pull the belts tight for the back and hips as shown on Fig. 43-45



Fig. 46



Fig. 47



Fig. 48

The front plate of the vest should be worn on the center axis in front of the body. Tighten the belts for individual areas; the system should be comfortable for you to wear. If the front plate is adjusted too long, you can shorten the front plate by opening, moving and closing the screws.

The length of the shoulder pad can be adjusted or corrected by moving the velcro straps. Therefore, the textile cover has to be removed. The width of the shoulder pad can also be set by opening, moving and closing the metal parts. An Allen key is required.

Likewise the height of the chest pad can be adjusted. An Allen key is required as well.

Make sure that you can work with your thighs and arms freely. You can determine the optimal vest position just by experience. There are no rigid guidelines (with or without hip contact).

The vest should sit firmly so that you feel clear contact with the back protector.

All interior parts of the vest have velcro connections and can be individually positioned according to your wishes.

Setting the height adjustment for the spring arm/ changing the left/right sled guide

The element for mounting the spring arm can be mounted for left or right-bearing operators. To switch the position, (Fig. 49) push the mount downwards press the stopper while sliding the block out of the guide completely and turn it 180 degrees.

Re-attach the sled to the guide and adjust to the desired height by closing the clamping lever. Your preference for the post guide is crucial for the carrying position. Just try both variants.



Fig. 49

Setting the adjustment angle

The assembly unit also has a stepless angle adjustment option for the spring arm with approx. -20 to +20 degrees of travel. This adjustment makes system balance possible depending on your natural body posture and shape or the task.

Generally, an angle adjustment of up to 10-15 degrees to the rear is desired, i.e. raising the mounted spring arm. If the angle points too far forward, the system moves strongly away from the body and too much effort is expended to counteract the movement. If the angle points too far back, the system moves toward the body appropriately.

The goal is to achieve a neutral angle position in which a natural, straight posture can be maintained and the system can be guided "near the body" without exertion. Freehand balance exercises show you the correction requirement.

Open the large clamping lever. You can move the lever by pulling it and re-engaging it in position. (Fig. 50)



To adjust the angle toward the body, one screw must be moved up. Adjust the angle as desired by tightening the top screw. You can then counter using the bottom screw. The angle mount should now fit again without any gap.

Fig. 50

Mounting the spring arm

Screw out the screws from the mount. Guide the spring arm with the standard mount into the mounting block of the vest. Adjust the angle as desired by tightening the screws. Ensure that the connection is safe!

Balance the spring arm in front of your body by moving the arm toward the front/back or left and right. Always return to a resting middle position.

Mount or install the sled in the stand-by position in the tripod plate. If you still have the sled in the trim position, please relocate it.



Fig. 51



Fig. 52

Mounting the sled to the spring arm

Remove the safety pin from the tripod plate and park it in the intended mount.

Move one step forward and to the knees under the gimbal and connect the gimbal with the arm post.

Tighten your stomach and back muscles and straighten up together with the sled safely and slowly.

Guide the system out of the mount and put yourself into a relaxed upright position.

Start with balancing exercises in which you find the ideal point at which the system easily moves and rests in front of your body. Once you have found this position, you can carefully attempt balancing exercises without your hands. Always feel your way to this ideal position with the sled locked.

The goal is to get a feel for the interaction of your posture and weight with the collective behavior of the system. Guide the system with a "sensitive hand", i.e. without transferring force to the sled.

It is enough to feel the grip or material. Only light pulses are required to bring the camera into the desired position.

Hand posture and guiding the sled

Hold the panning hand as close to the joint as possible. The further away the hand is from the gimbal, the stronger the effect pulse from the higher angle of deflection. The second hand (guide hand) rests on the connection piece to the gimbal. Press and pull the spring arm up and down to change the height of the rotational position.

Adjusting the spring arm

Each of the spring arm sections is equipped with two spring elements, whose pretension can be adjusted according to the weight of the camera. An Allen key is required (Fig. 53)

If the pretension is too high, the spring elements may not absorb the body's movements sufficiently.

If the pretension is too low, movement spreads through the arm or much effort is required to hold the arm. The tension should be set so that the absorption range/spring travel is balanced up and down.

Always correct the tension of the spring elements without load – and make sure that the tension on both springs is always adjusted synchronously for each segment.

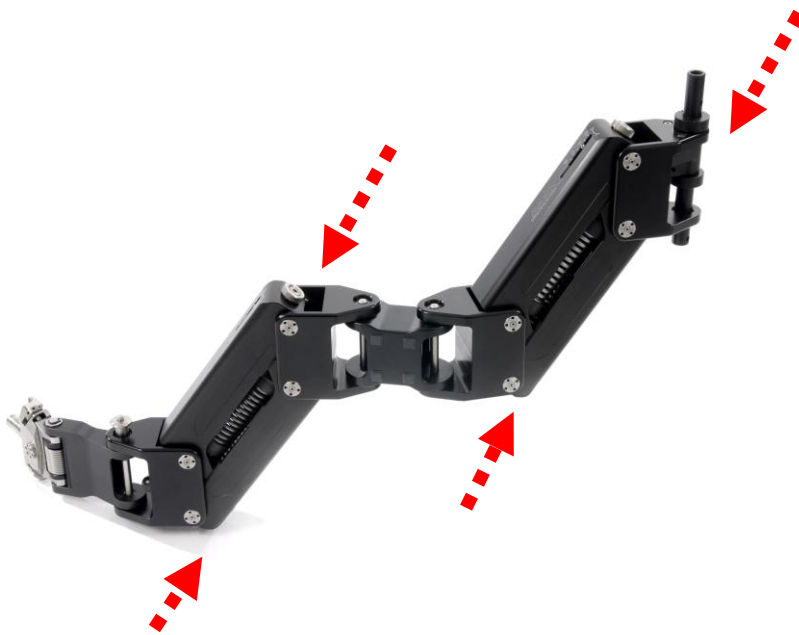


Fig. 53

Start with a pretension in which both elements are close to parallel under load. Then test and correct the pretension. Frequently, the front spring element easily faces upwards, the rear runs parallel.(Fig. 63)



Fig. 54

Testing the trimming

Quickly push and pull the system forward and backward, parallel with guide hand. If the system is correctly balanced – holds the position – there is no swinging motion (base too firm) and no rotation (side to side, left or right).



Fig. 55

Low mode

Fast version:

Open the clamping system of the gimbal and lower the camera as desired by standing on its head. Then secure and close the clamping system, open the telescope and pull it up as far as you need to counterweight the camera.

Now mount the monitor turned 180 degrees at the desired position, hang the sled into the trim position and carry out any fine trimming using the weight extension on the post and side-to-side module.

You must then flip the monitor picture 180 degrees. The picture must be flipped again later. Re-hang the sled in the stand-by position and mount again with the spring arm.



Fig. 56: F-Bracket with arm post 300mm – medium low mode



Fig. 57 F-Bracket with arm post 300mm – medium low mode

Medium Low Mode with F-Bracket:
Install the arm post with a desired length.



Examples for movements:



Fig. 58 Going forward camera locking forward



Fig. 59 Going forward camera locking backwards

ABC-Products regularly offers workshops on operating the HandyMan G-Force.
Simply request current workshop dates (info@movietech.de).