



GRUPPO

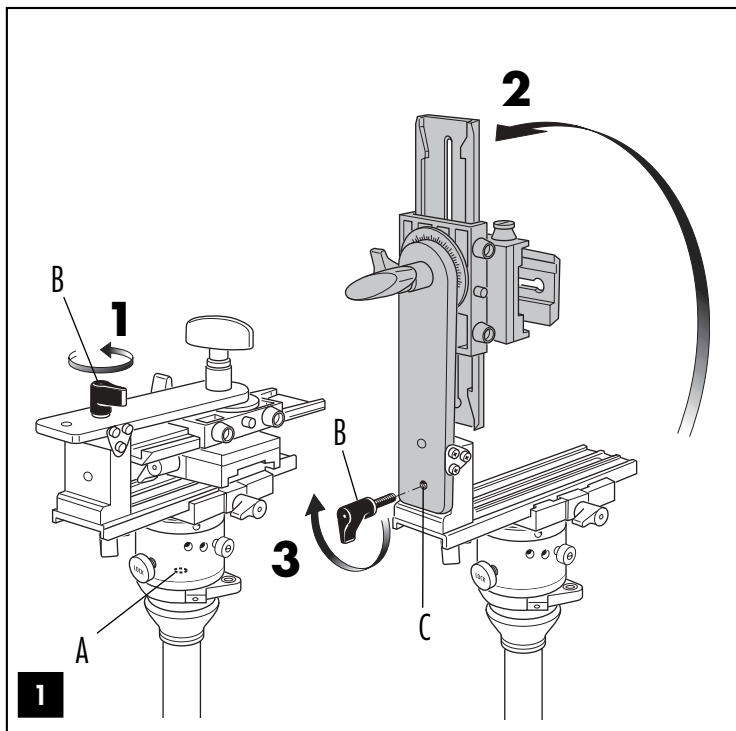


Manfrotto

INSTRUCTIONS

303SPH

SPHERICAL "VR" HEAD



SET UP 1

Fix the levelling device (not supplied) to the tripod, then fix the "VR" head on the levelling device via female attachment "A".

Completely remove knob "B", rotate the bracket into the vertical position as shown in fig. 1 and lock it in place by screwing the knob "B" into hole "C".

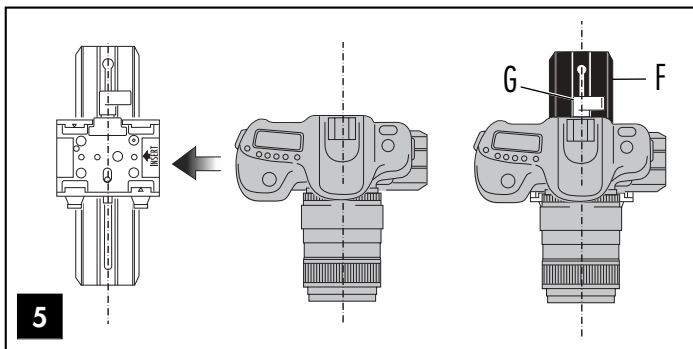
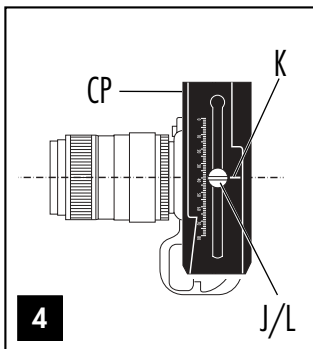
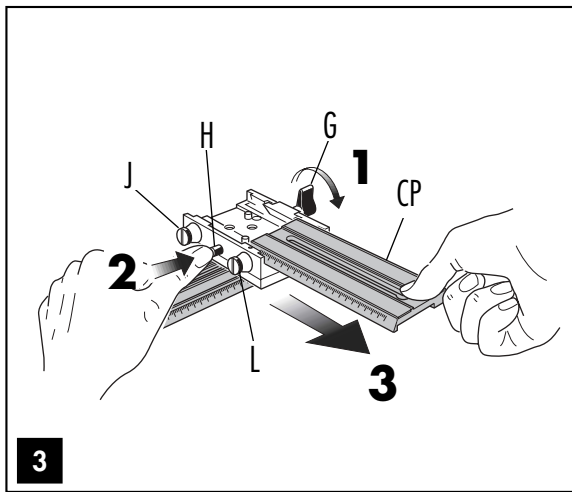
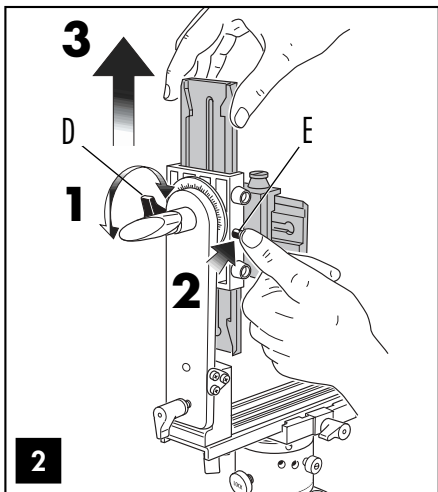
The spherical "VR" head is designed to allow virtual scenes to be created by Computer from a various panoramic sequences of digital or digitised photographs, taken at different vertical angles.

There are 4 requirements to achieve good panoramic sequence shots:

1. Accurately levelling of the panoramic axis
2. A Panoramic head that enables you to choose the angle of rotation between one shot and the next.
3. The ability to position the camera so the "Nodal Point" of the lens (the front lens) is exactly above the panoramic axis of rotation, to eliminate any parallax problems between the near and distant objects in the scene.
4. An additional rotating axis that enables you to shoot several panoramic sequences at different vertical angles in order to achieve a complete spherical scene

The spherical "VR" head comprises three main modules that perform the functions mentioned above in points 2, 3 and 4.

Unless your tripod has a built-in levelling device (such as the Manfrotto MDeVe tripod's 50mm half ball), you will need to use one of the levelling accessories available from the Manfrotto range to ensure accurate levelling of the head (see point 1).



MOUNTING THE CAMERA 2 3 4 5

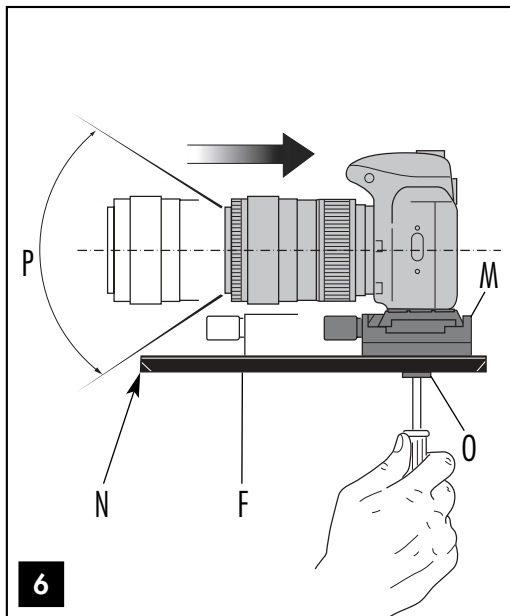
Remove the top assembly (fig. 2) by releasing knob "D". To slide it completely out of the housing, push safety button "E".

Remove camera plate "CP" (fig. 3) by releasing knob "G". To slide it completely out of the housing, push safety button "H".

You will find two screws attached to the top assembly: screw "J" (fig. 3) is 1/4 in; "L" is 3/8 in. Depending on your camera tripod attachment, choose the correct screw and use it to fix your camera to plate "CP" (fig. 4). Use a coin or screwdriver to lock: take care to align the lens with the centre of the plate indicated by letter "K".

Mount the camera on the top assembly as show in figure 5 by sliding the camera + plate into the housing following the direction shown by the "insert" arrow. Lock in place using knob "G": before locking, take care to align the lens with the long plate "F" – the lens axis must be perfectly above the slot of the plate as shown in figure 5.

The angle of the lever on the ratchet knob "G" can be repositioned as required without effecting the lock itself. Pull the lever outwards, rotate as required and release and it will locate in the new position.

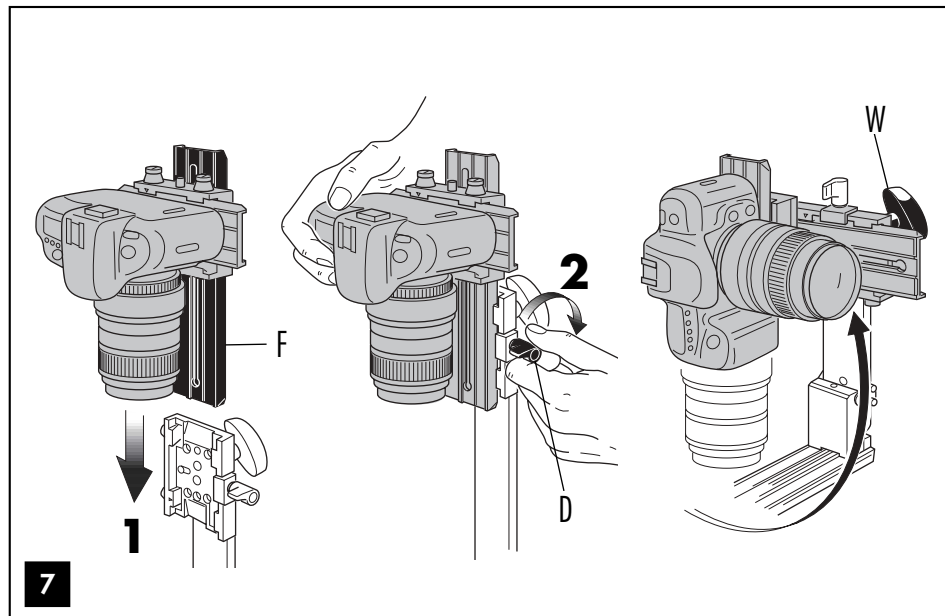


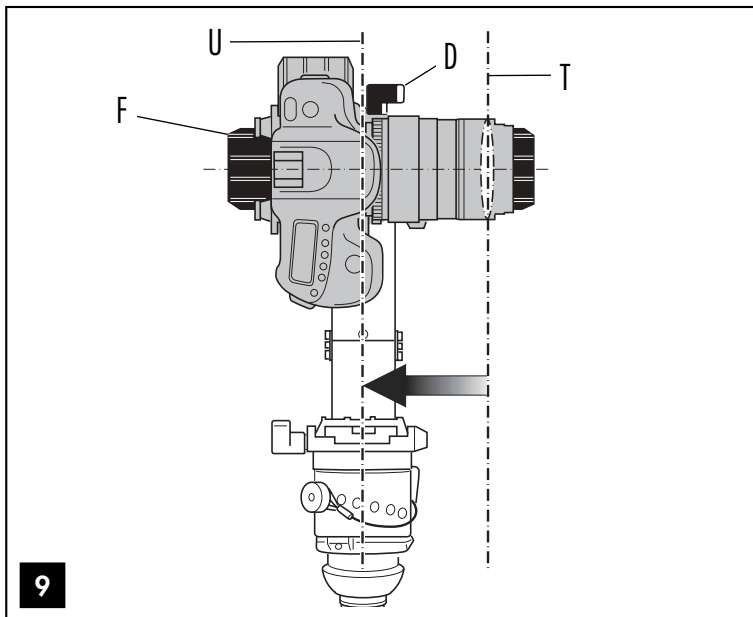
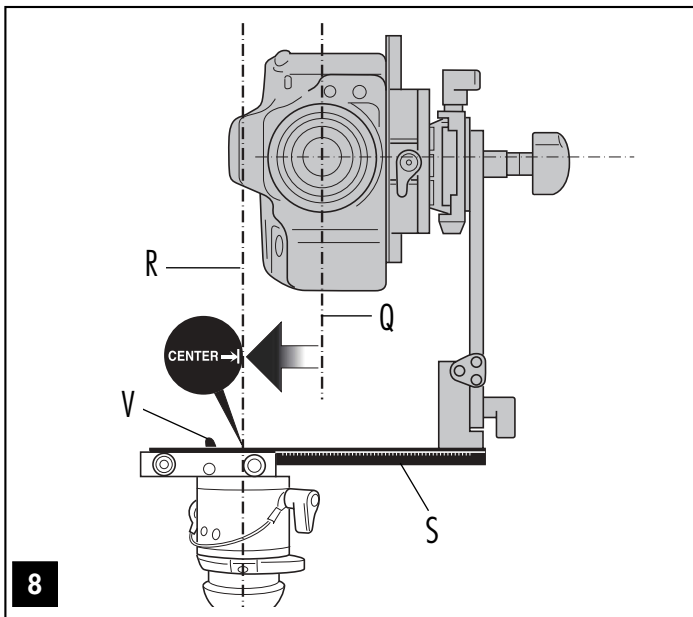
NOTE 6

The position of the housing "M" relative to the long plate "F" will need to be adjusted: loosen screw "O" to slide the housing. The ideal position is with the camera body as far back on the plate as it can go before the front edge "N" of the long plate "F" becomes visible in the camera's field of view "P".

MOUNT THE CAMERA ON THE HEAD 7

Mount the whole top assembly + camera on the head as shown in figure 7 by sliding the long plate "F" into its housing and locking it by screwing knob "D", then unscrew knob "W" and move the camera on the vertical plane.



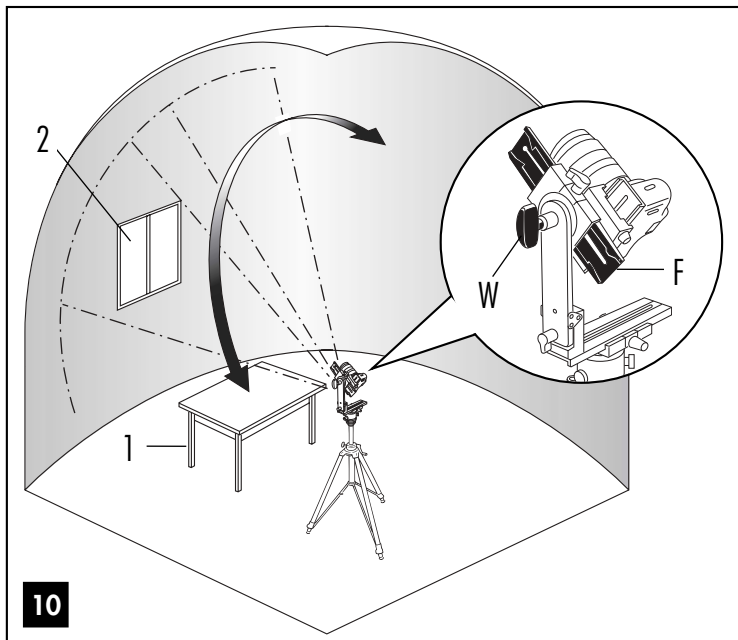


APPROXIMATE POSITIONING OF THE "NODAL POINT" 8 9

(Ref. Figure 8): Align the optical axis of the camera "Q" with the panoramic axis of rotation "R" using "CENTER" marking on plate as a guide, by loosening the knob "V" and moving long plate "S" laterally .

(Ref. Figure 9): Align the longitudinal plane by loosening the knob "D" and adjusting the plate "F" until the front lens "T" is placed above the panoramic axis of rotation "U".

At this point, the position is already able to handle VR panning of landscapes or outdoor shots.



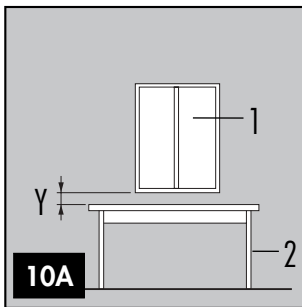
10

- LONGITUDINAL POSITIONING 10

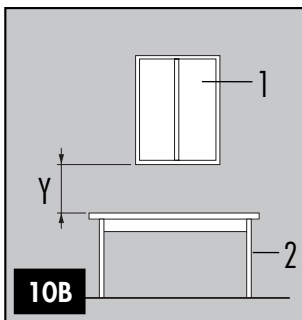
(Ref. Figure 10): Choose a frame that contains both a near object "1" and a distant object "2" situated along the same vertical line of vision.

1. (See Figure 10A and 10B): unscrew knob "W" and move the camera on the vertical plane to bring the two objects first to the top and then to the bottom of the frame, checking whether the height gap "Y" between the two objects varies in the two frames: the more constant the distance remains, the more accurately the "Nodal Point" has been positioned.
2. For optimum results, make minor adjustments by moving plate "F".

Once the right position is achieved it is VERY USEFUL to memorise it by noting the position of the plate "F" on the index on the graduated scale.



10A



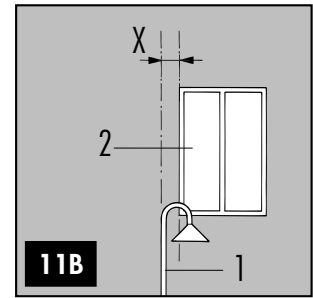
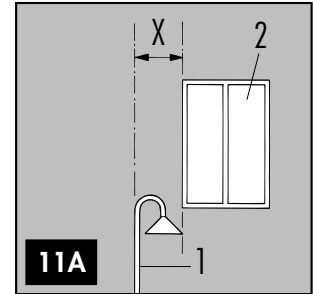
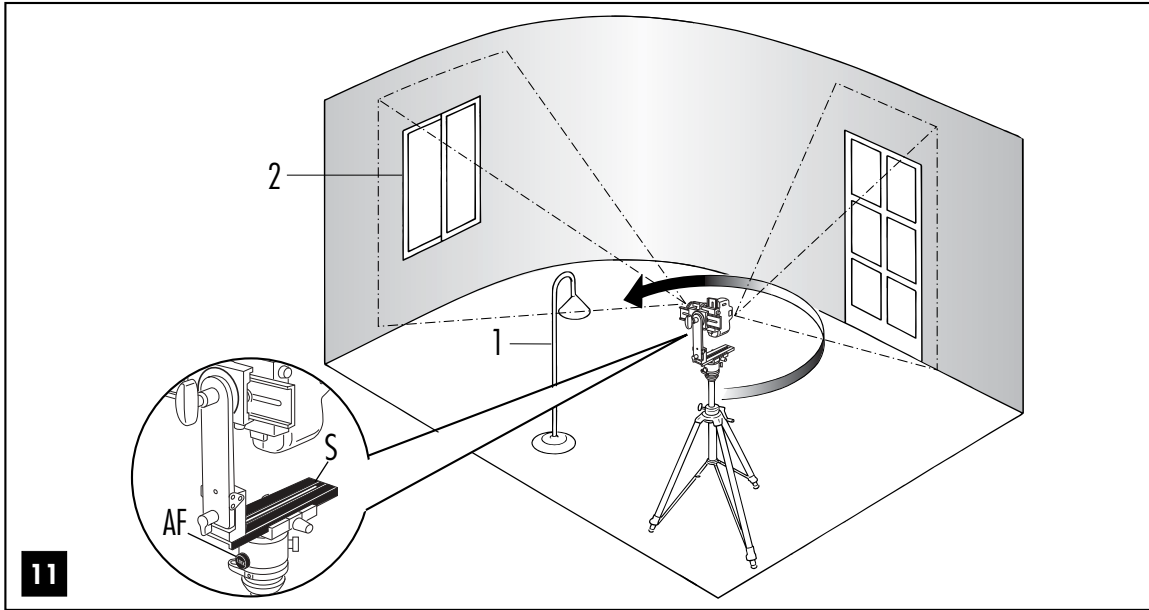
10B

ACCURATE POSITIONING OF THE "NODAL POINT" 10 11

If the scene being shot contains objects at varying distances from the point where the shot is being taken (close and distant objects), the "Nodal Point" needs to be more accurately positioned as follows (this procedure is possible ONLY with reflex cameras):

Note:

- FIRST ADJUST LONGITUDINAL POSITIONING
- ADJUST LATERAL POSITIONING ONLY WHEN LONGITUDINAL POSITION HAS BEEN SET

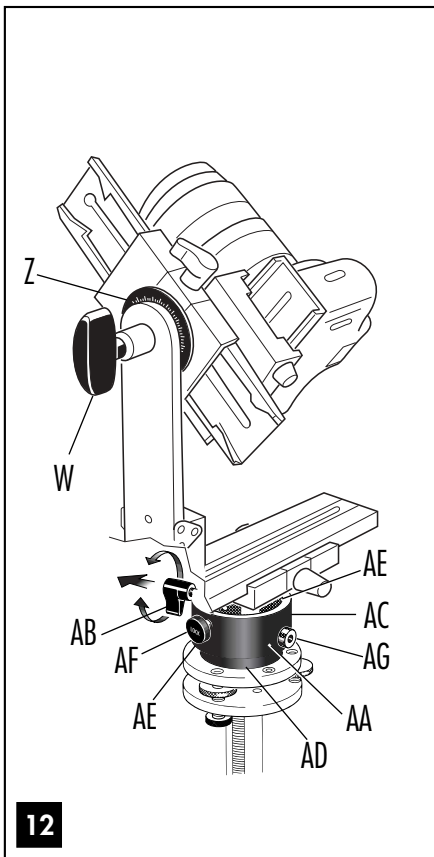


- LATERAL POSITIONING 11

(Ref. Figure 11): Choose a frame that contains both a near object "1" and a distant object "2" situated along the same horizontal line of vision.

1. (See Figure 11A and 11B): unscrew knob "AF" and move the camera around the panoramic axis so that the two objects are first on the left hand side of the frame, then on the right. Check whether the horizontal gap "X" between the two objects varies in the two frames: the more constant the distance remains, the more accurately the "Nodal Point" has been positioned.
2. For optimum results, make minor adjustments by moving plate "S".

Once the right position is achieved it is VERY USEFUL to memorise it by noting the position of the plate "S" on the index on the graduated scale.



INSTRUCTIONS FOR SPHERICAL PANORAMIC SHOOTING 12

A special panoramic scene is obtained by adding together panoramic sequences taken at different angles from the horizontal. First you will need to choose the number of panoramic sequences you will need to complete the sphere depending on the angle of the lens you will be using.

Before starting with the panoramic sequence, choose the initial vertical angle using the round scale "Z" (fig. 12)

Unscrew locking knob "AF" or remove it completely if you do not need it (it must be used to completely stop rotation when the head is used in non-vertical position, or to avoid any accidental movement of the head in any position).

Decide the number of shots or the angle of rotation between each shot for the first panoramic sequence (see the chart below).

Angle	90°	60°	45°	36°	30°	24°	20°	15°	10°	5°
n. shots	4	6	8	10	12	15	18	24	36	72

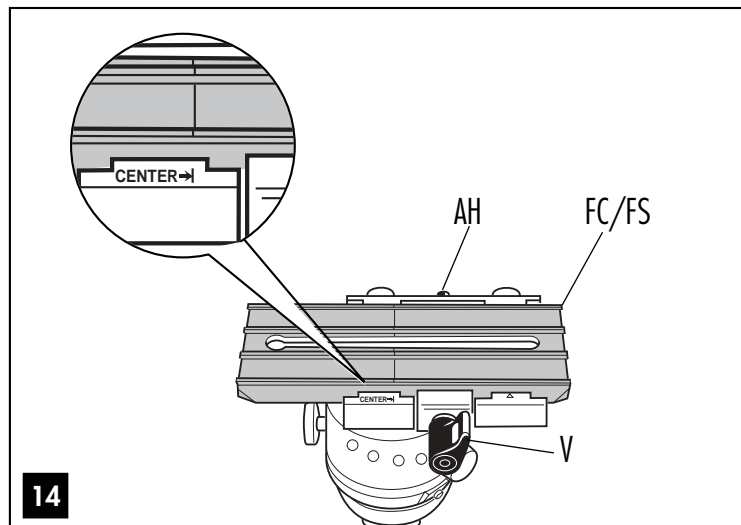
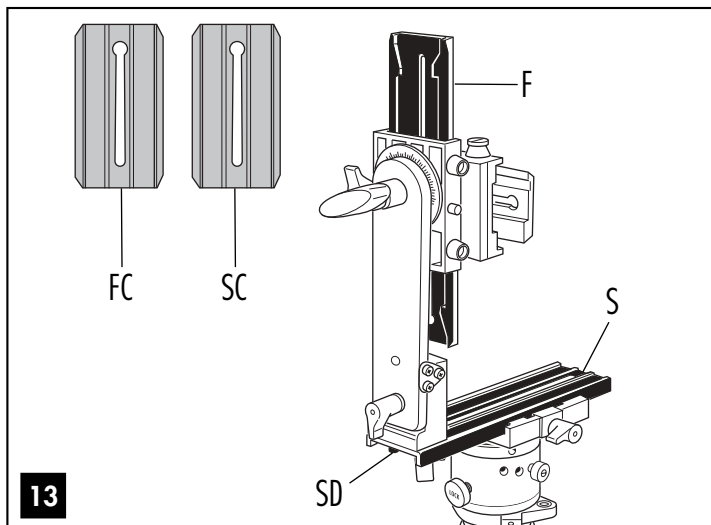
- Screw knob "AG" into the selected setting holes "AA".
- Release locking lever "AB" and rotate the camera on top plate "AE" to the position of the first shot.
- Hold the camera in position and rotate the central barrel "AC" until the first "click stop" is reached, then lock lever "AB".
- Take the first shot and then rotate the camera to the next "click stop" without releasing "AB" and take the next shot.

Continue this process until the start position is reached.

Once you have completed the first complete panoramic sequence, you can start on the other panoramic sequences needed to cover the sphere: change the vertical angle using knob "W" and round scale "Z", and repeat the operations described above for each full sequence.

The base of the head "AD" has graduated scale markings from 0 to 360° and a reference index "AE" on the central barrel "AC". This is to be used to set angles not on the chart. To use the head in this way, unlock knob "AG" to disengage the "click stop" during rotation of central barrel "AC" and use the locking knob "W" to lock the position during shooting.

NOTE: The angle of the lever on the ratchet knob "AB" can be repositioned as required without effecting the lock itself. Pull the lever outwards, rotate as required and release and it will locate in the new position.



ADDITIONAL PLATES **13**

If you have a very compact camera we suggest you to use the short plates "SC" (fig. 13) and "FC" (supplied with the head) instead of the two long plates "F" and "S" in order to reduce space and weight of the system.

To replace the plate "S" unscrew screw "SD" (fig. 13)

To replace the plate "F", please refer to fig. 6 and unscrew screw "O"

USE OF THE KIT AS AN OBJECT PANORAMA TURNTABLE **14**

The head can also be used as a turntable, useful for shooting object panoramas. For this use, loosen knob "V" and push button "AH" to slide the lower plate "S" out of the housing on the panoramic rotation base unit. In place of the long plate and top assembly, mount one of the two shorter plates supplied as a base for your object. The plate housing has a "center" mark to help you position your object accurately above the center of panoramic rotation.

