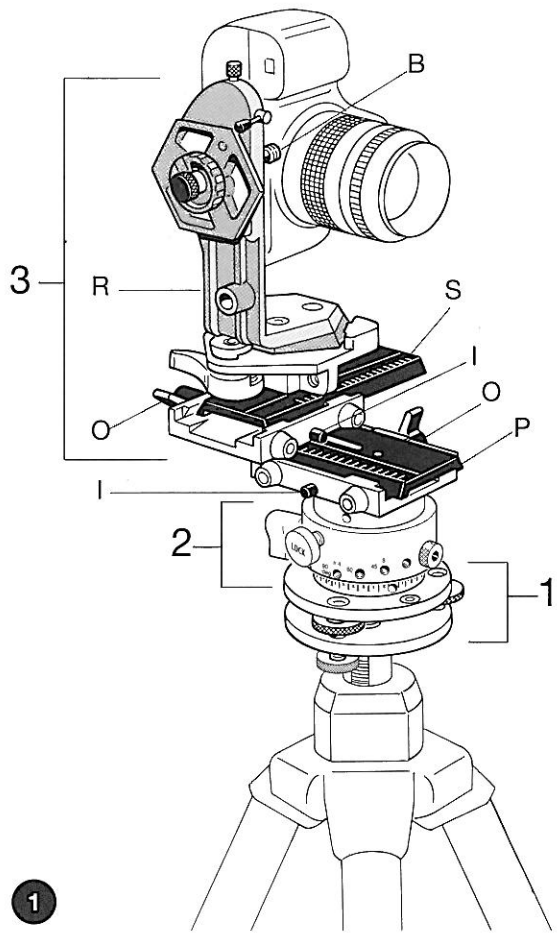


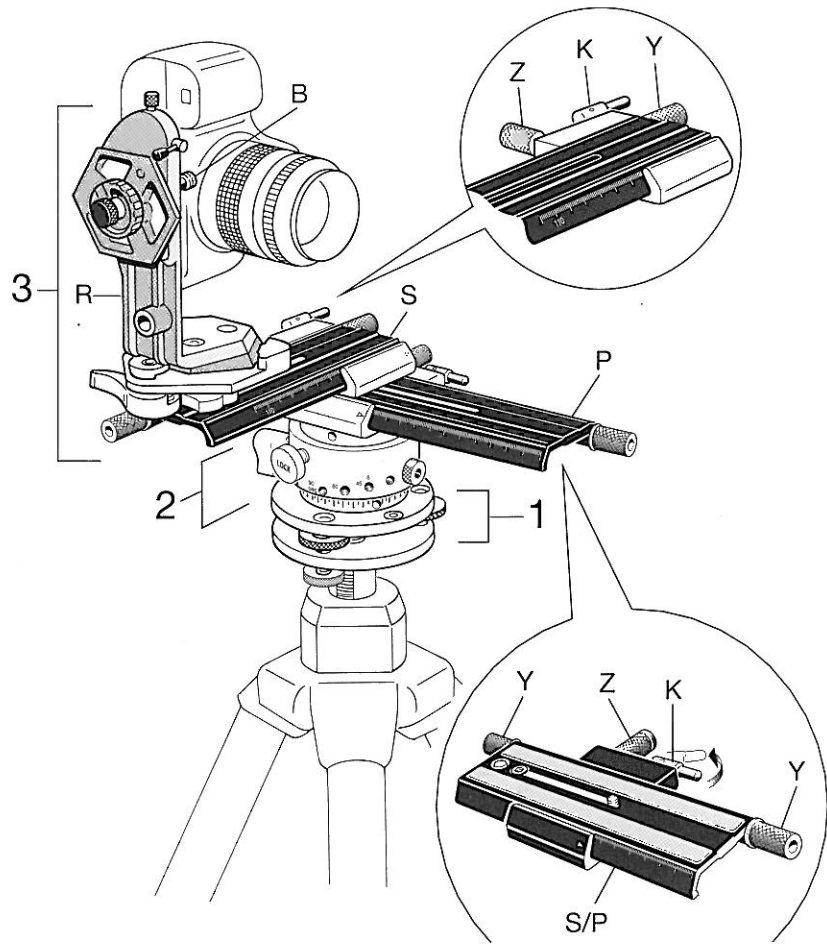
Manfrotto

INSTRUCTIONS

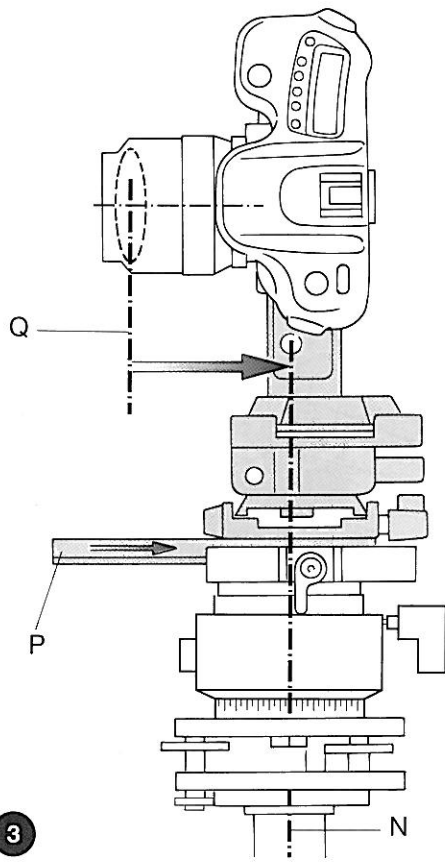
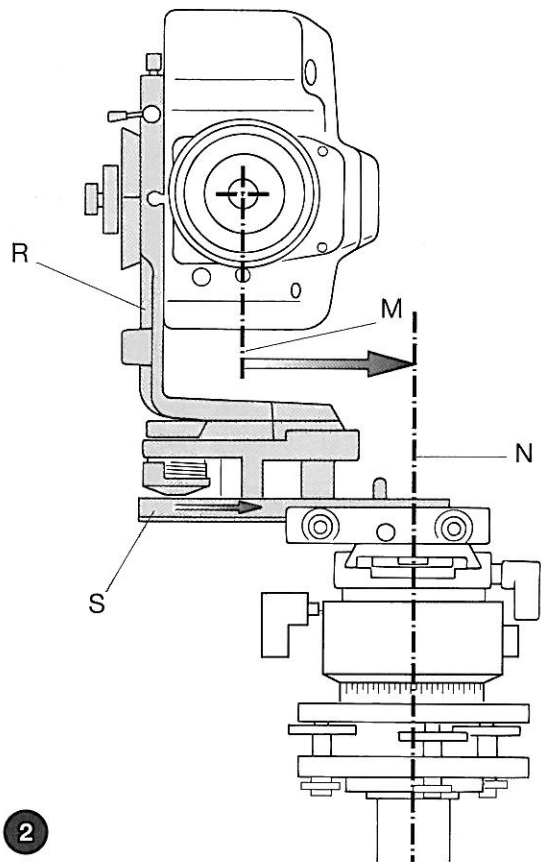
303 - 303PLUS



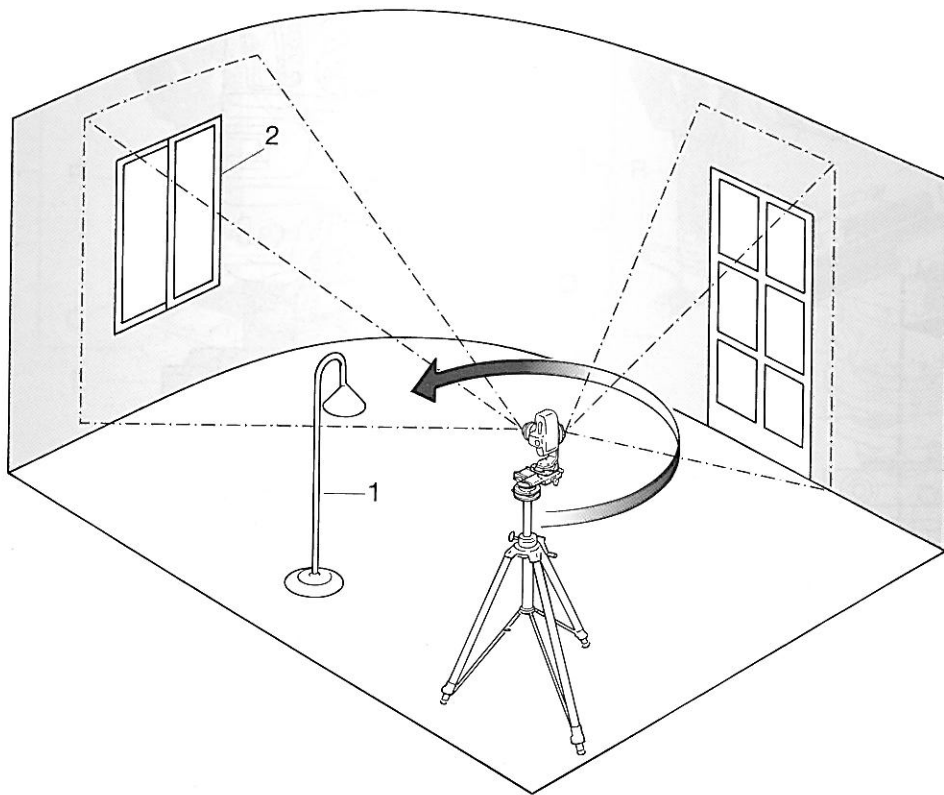
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1

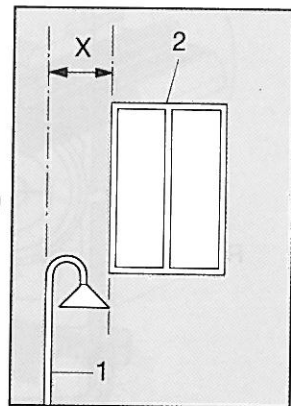


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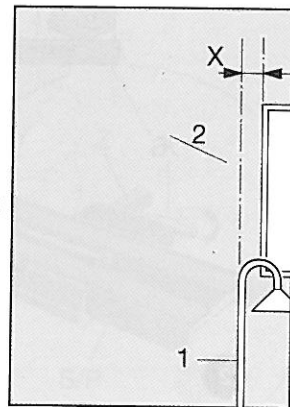


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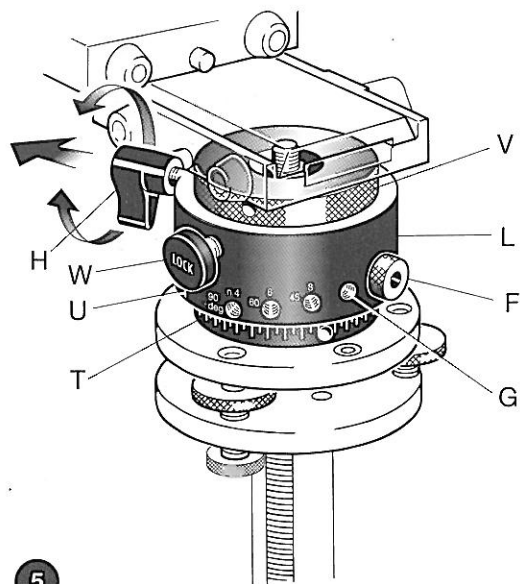
4A



4B

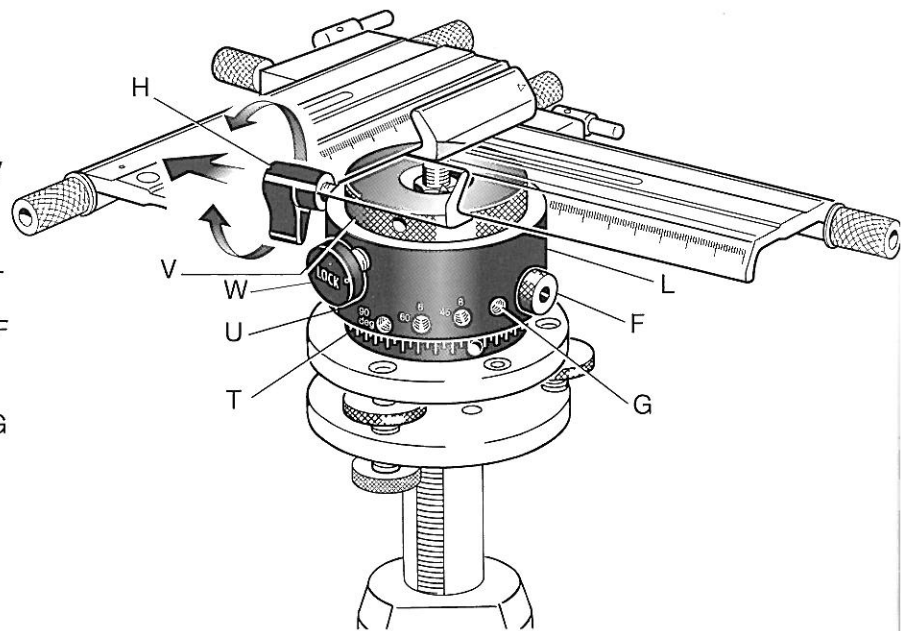


303



5

303PLUS



4

The "VR" kit is designed to allow virtual scenes to be created by Computer from a panoramic sequence of digital or digitised photographs.

There are three 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 in the "Nodal Point" of the lens (the front lens), exactly above the panoramic axis of rotation, to eliminate any parallax problems between the closest and the furthest objects in the scene.

The "VR" Kit comprises three main modules that perform the above mentioned 2-3 functions:

For the 1 function (accurately levelling), you should use the levelling devices available on the Manfrotto range

REFER TO FIGURE 1 :

1. A levelling base (not supplied) with a 3/8" screw for mounting.
2. A Panoramic Head which can adjust the angle of rotation or the number of shots to complete the 360° pan.
3. Camera Support Bracket "R" with 1/4inch camera fixing screw "B" which is mounted onto a double sliding plate "S" and "P" to position the "Nodal Point". The Camera Support Bracket "R" has a quick release plate for switching rapidly from the vertical to the horizontal shot format.

1- MOUNTING AND PAN LEVELLING

Mount the panoramic head on the levelling device (not supplied) and level the system.

2- POSITIONING THE "NODAL POINT":

Mount the camera on the "Camera Support Bracket" "R" in vertical position (see Art.340-USA 3288 instructions included)

To position the "Nodal Point" of the photographic lens exactly above the panoramic axis of rotation the two Sliding Plates "S" and "P" located on the upper part of the KIT are used:

- Art. 303:
Unscrew knobs "O" and slide out the plate "S" or "P"
Do not push the stop button "I" to avoid accidental falling down

- Art. 303PLUS:
Each sliding plate can be moved either micrometricly or quickly.
To achieve micrometric movement, firstly ensure that the locking knob "Z" is loosened.
Next rotate one of the two knobs "Y", the sliding is approximately 1,25mm per knob turn.
To achieve QUICK movement, firstly ensure that the locking knob "Z" is loosened.
Next rotate button "K" as shown in fig.1 whilst simultaneously sliding out the plate "S" or "P".

- **Rough initial positioning** is achieved as follows 2 & 3 :

1. (Ref. figure 2): Once the camera is mounted on the "Camera Support Bracket" "R", align the optical axis of the camera "M" with the panoramic axis of rotation "N", by moving Sliding Plate "S" laterally.
2. (Ref. figure 3): Align the longitudinal plane by adjusting the lower Sliding "P" until the front lens "Q" is placed above the panoramic axis of rotation "N".

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

- **Accurate positioning:** 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 4 4A & 4B :

1. (Ref. figure 4): choose a frame that contains both the nearest object "1" and a furthest object "2" situated along the same line of vision.
2. (see figure 4A and 4B): move the camera on its panoramic axis bringing the two objects first to the left and then to the right of the frame, checking whether their relative distance "X" varies in the two frames: the more the

- distance remains constant, the more accurate the "Nodal Point" positioning.
3. For optimum results, make minor adjustments by moving Sliding Plates "S" and "P".

Once the right position is achieved it is possible to memorise it by noting the positions of the two Sliding Plates "S" and "P" on the indexes on the two graduated scales.

NOTE

The angle of the lever on the ratchet knob "H" 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.

CHOICE OF ANGLE OF ROTATION **5**:

Unscrew locking knob "W" or remove it completely if you do not need (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 angle of rotation between each shot, dependent on lens angle from 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 "F" into the selected setting holes "G".
 - Release locking lever "H" and rotate the camera on top plate "V" to the position of the first shot.
 - Hold the camera in position and rotate the central barrel "L" until the first "click stop" is reached, then lock lever "H".
 - Take the first shot and then rotate the camera to the next "click stop" without releasing "H" and take the next shot.
- Continue this process until the start position is reached.

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