PYSER-SGI LIMITED
PNP-MC Pocket Scope
Operator's Manual

LIMITED WARRANTY

The manufacturer of this **POCKET SCOPE**, has provided a limited warranty to the original purchaser. It was attached to the manufacturer's terms and conditions of sale.

5.3 PNP-MC with head mount / helmet mount fitting guide

1. Attach monocular to the mount with thumbscrew A

2. Depress plunger B to lift monocular into the vertical position (where it will automatically shut off)

3. Adjust pitch setting of the monocular with thumbscrew C

4. Adjust height setting of the monocular with thumbscrew D

5. Adjust lateral setting of the monocular with thumbscrew E

6. Adjust forward/backward setting of the monocular with thumbscrew F

7. For rapid removal of the monocular, fully loosen thumbscrew F, depress plunger G and slide the assembly off its mounting slide away from the face.

8. For safe stowage, press the lens cap, when not in use, onto pin H.

9. For fine adjustment of pitch slacken screws J move monocular to desired attitude and re-tighten screws.
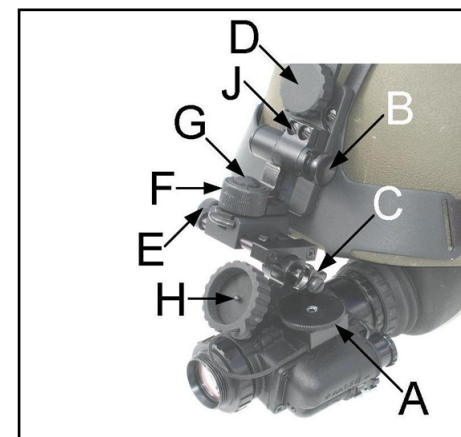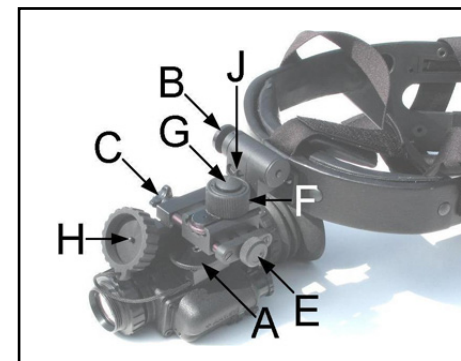
5.2 PNP-MC with switching mount
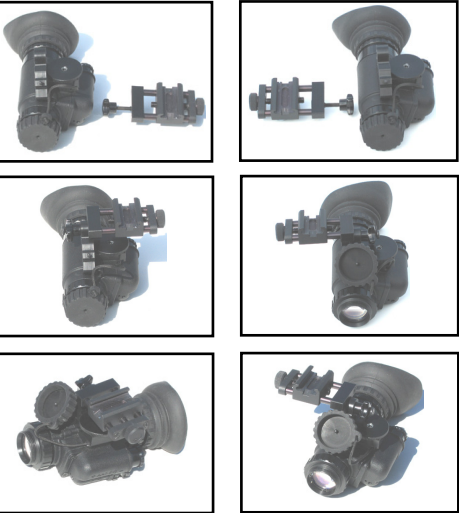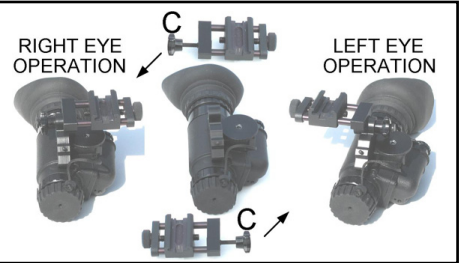
1. Fully unscrew thumb knob C to the end stop

2. Remove the slider block assembly, rotate its orientation accordingly

3. Re attach and tighten thumbscrew C

4. TIP to get maximum tightness, tighten thumbscrew C whilst monocular is at its maximum pitch travel (UP for R/H & DOWN for L/H) then complete tightening whilst turning knob C and simultaneously rotating the monocular into the desired pitch setting.

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Chapter 1

DESCRIPTION

1.1 System description

PNP-MC is a powerful, multi-purpose, lightweight, pocket-sized monocular night scope utilising C-mount CCTV lenses for extra flexibility.
The pocket scope is designed to be used either as a stand-alone night vision device or in combination with a wide variety of standard video, still-photo or CCTV equipment.

The **PNP-MC** is a powerful tool for covert night-time observation and intelligence-gathering purposes using standard photographic media, as well as an effective aid to night-time field missions.

PNP-MC employs an image intensifier tube characterized by high resolution and a clear, bright image. It is equipped with its own IR LED - type illuminator, which provides additional, close-range covert illumination, when ambient light is insufficient - especially effective inside buildings etc.
Special purpose adaptors enable the **PNP-MC** to be mounted onto a wide variety of SLR and video cameras (including CCTV cameras). Thus, standard photographic equipment can be quickly turned into powerful, effective night-time devices, dramatically enhancing your intelligence gathering and observation capability.

As a stand-alone night scope, **PNP-MC** is small and lightweight enough to be unintrusive. It may be easily hand-held.

Chapter 5

ACCESSORIE(S) MOUNTING INSTRUCTIONS

5.1 Dual monocular mounting

Camera lens to C-mount adaptor
(see # 2 of 2.4.3)
Attaches original camera lens directly to **PNP-MC** body in place of CCTV lens

T2 lenses	*Part No: 589-840-403*
M4 lenses	*Part No: 589-840-404*
Canon FD lenses	*Part No: 589-840-405*
Pentax K lenses	*Part No: 589-840-406*
Nikon lenses	*Part No: 589-840-407*
Minolta MD lenses	*Part No: 589-840-409*
Olympus OM lenses	*Part No: 589-840-410*

Others available on request

12v Car Cigarette Plug/Lead
2 outputs (needs 560-012),
powers PNP-MC from vehicle
Part No: 560-011

ATTACH THE TWO MONOCULARS TO THE BINOCULAR MOUNT USING THE TWO THUMBSCREWS. THE BINOCULAR CAN ATTACH TO THE HEAD & HELMET MOUNTS IN THE SAME WAY AS A SINGLE MONOCULAR ON ITS SWITCHING MOUNT.

Anti-Mist for eyepiece
NSN 5855-99-341-1382
Part No: 560-007-010

150mw Illuminator, IR LED
wide, mid and narrow FOV, 805nm.
Effective distance up to 280 metres with
Gen 2 and Gen 3 devices.
NSN 6650-99-731-1262
Part No: 583-340

Lanyard
Part No: 589-855

Camcorder/Camera Adaptor

30mm	*Part No: 589-840-300*
30.5mm	*Part No: 589-840-305*
35mm	*Part No: 589-840-035*
49mm	*Part No: 589-840-042*
52mm	*Part No: 589-840-041*
58mm	*Part No: 589-840-058A*
72mm	*Part No: 589-840-072*

Others available on request

Optical Module (see # 4 of 2.4.3)
Attaches **PNP-MC** directly to camera body
Nikon   *Part No: 589-840-400*
Canon EOS   *Part No: 589-840-401*
Pentax   *Part No: 589-840-402*
Others available on request

1.2 PNP-MC Specifications

Optical

Magnification:	1x
Field of view:	40 Degrees
Focus range (m):	0.25-infinity
Objective focal length (mm):	25mm C-mount
Objective F number:	F1.4
Dioptre adjustment:	Minimum +3 to - 6
Eyepiece lens:	25mm glass aperture
Eye relief	27mm

Electrical

Power source	Single 1.5V "AA" battery or 1.5V "AA" format lithium type L91 (NSN 6135 01 333 6101) or 1.2V"AA" size rechargeable
Battery life:	In excess of 40 hours dependent on tube and battery type
IR on indicator	Red LED in eyepiece
Low voltage indicator	Yellow LED in eyepiece

Physical

Dimensions	42 mm wide x 67 mm high x 114 mm long (with folded eyecup)
Weight	293 gms without battery 308 gms with lithium "AA" battery 318 gms with commercial "AA" battery Weight includes eyecup and lens cap
Tripod mount	Standard ¼" UNC thread
Construction	Moulded glass filled polymer
Eyeguard	Contoured soft fold back rubber eyecup

Environmental

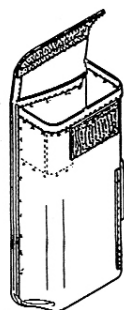|	
Waterproof	Immersion proof 20m 1hr, (only with waterproof lenses) Nitrogen filled
Temperature	Operation -45°C to +55°C Storage -51°C to +65°C

1.3 PNP-MC Standard equipment and accessories

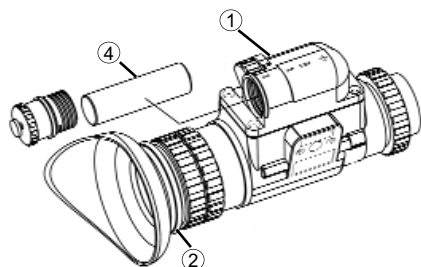

Fig. No. 1 - PNP-MC standard kit

③

①
④
②

TABLE NO. 1
PNP-MC Standard equipment list

No.	Equipment	Qty
(1)	**PNP-MC** pocket scope	1
(2)	Eye guard	1
(3)	Carrying pouch	1
(4)	1.5V "AA" size battery	1
(5)	Operator's manual	1

TABLE NO. 2
PNP-MC Optional accessories

Equipment
Adaptors for SLR and DSLR cameras
Adaptors for Camcorders
CCTV (CCD) relay lens
Face-mask
Helmet mount
Lanyard
Various adaptors for Picatinny or Weaver rails
Bridge Kit to convert to binoculars
Hard carrying case

*Please see data sheet for full list of accessories for PNP-MC*

D   E   A
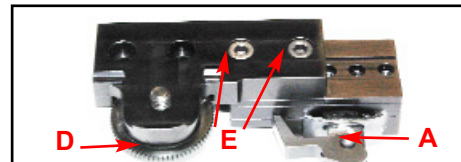
Interface for fitting PNP-MC to Picatinny rail NSN 5304-99-574-0422
Part No: 589-997M

Instructions for use

1. Place the PNP-MC rail adaptor on to the Picatinny (or Weaver) rail and lock it in position in a suitable position on the rail using the over-centre lever "A".

2. Position the PNP-MC on the adaptor so that it is located both by the side support "B" and also by the channels "C". Use the finger knob "D" so that the PNP-MC is fully and firmly tightened down onto the adaptor.

3. Adjust the fore/aft position of the PNP-MC on the adaptor for optimum eye relief by unscrewing the two Allen bolts "E" and moving the upper part of the adaptor into the best position for the firer. It is essential that two bolts are used and are firmly tightened. One bolt is not sufficient.

4. If necessary, to optimise eye relief, reposition the entire mount on the Picatinny rail by using the over-centre lever.

5. The PNP-MC can be removed, if necessary, from the mount and the mount left on the weapon in it's correct position for next use.

6. Remember to use day sights in front of the PNP-MC, not behind it between the firer and the PNP-MC and that any day sight with an illuminated aiming mark must be "Night Vision Compatible". The intensity of the aiming mark must be turned down to the minimum otherwise a burn mark on the image intensifier tube will result.

B
C
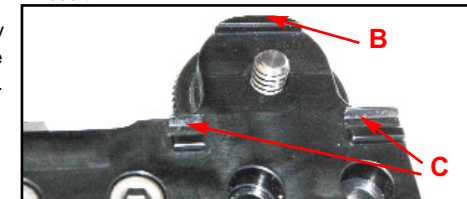
**N.B. Although PNP-MC can be used on head/helmet and weapon mounted applications, this is not advised except for emergency use, in view of the standard lens not being waterproof nor resistant to recoil shocks of weapons.
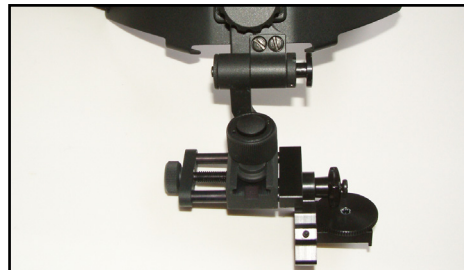PNP-M is the recommended product for those applications.**

Head Harness for left and right eye use and accepts binocular bridge
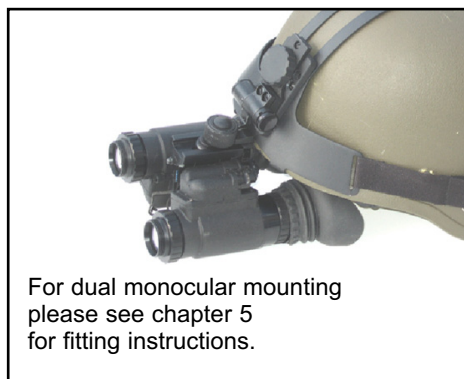NSN 6650-99-407-0566

Part No: 550-006/AM

Bridge Kit →

Bridge Kit
converts
two PNPMC's
into binoculars
NSN 5340-99-934-5341
Part No: 560-007-008

Helmet Mount universal fitting for ballistic helmets. for left and right eye use and accepts binocular bridge
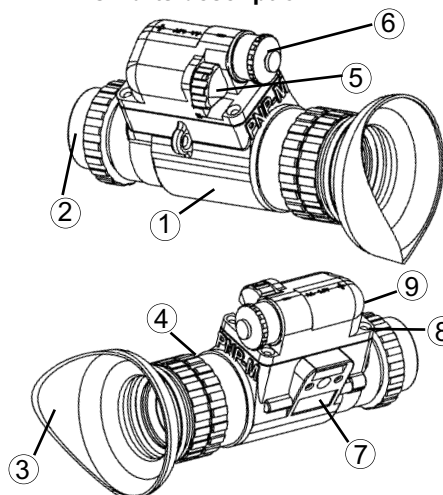NSN 5340-99-812-6225

Part No: 550-006/HM

For dual monocular mounting please see chapter 5 for fitting instructions.

1.4 PNP-MC Main parts
Fig. No. 2
PNP-MC Parts description

(1) Pocket scope
(2) Objective lens "C" mount
(3) Eye guard
(4) Eyepiece (diopter ring)
(5) Operating switch
(6) Battery compartment cover
(7) Mount
(8) I.R. LED
(9) Bright Light Sensor

1.4.1 Objective lens

Standard objective lens in a 25mm F1.4 C-mount lens. (Any C-mount lens can be used).

1.4.2 Image intensifier

The **PNP-MC** utilizes a range of tubes characterized by low weight and high gain, which also reduces the dazzle effect which normally occurs when viewing a bright light source through an image-intensifier night scope.

1.4.3 Eyepiece assembly

The eyepiece has a 27mm eye relief and a diopter adjustment of +3 to -6 diopter. A flexible rubber eye guard can be folded back to enable interfacing the **PNP-MC** to 35mm SLR and video cameras (including CCTV cameras) using special-purpose adaptors fitted to the same threading.

1.4.4 I.R. LED Illuminator

The **PNP-MC** is equipped with a built-in I.R. LED-type illuminator which provides additional, close-range covert illumination when ambient light is insufficient.
The illuminator is activated using the operating switch.

1.4.5 Operating switch

Operation of the scope is controlled by a three-position rotary switch:

● OFF - All power off.

● ON - The scope is on enabling night vision.

● I.R - The scope is on and the built-in I.R. LED illuminator is activated.

"FOR SAFETY, THE I.R. CAN ONLY BE SWITCHED WHEN THE SWITCH KNOB IS FIRMLY PULLED OUT BEFORE TURNING" "A RED LIGHT SHOWS IN THE EYEPIECE TO ALERT THE USER TO THIS FACT"

1.4.6 Bright Light Protection

The image intensifier tube is protected against bright lights by a Bright Light Sensor. The **PNP-MC** can be switched on, with caution and only for a few seconds, in indoor artificial lighting, but the Bright Light Sensor will switch the **PNP-MC** off in daylight, only allowing it to be switched back on when the light level falls. This protection is in addition to the internal bright light protection of the image intensifier tube which only reduces the gain and which does not switch the tube completely off. It can be disarmed for daylight training by covering the sensor orifice with a small piece of electrical tape to prevent daylight entering.

Chapter 4

ACCESSORIES

4.1 Accessories for PNP-MC

Before any accessories are fitted to the eyepiece, fold back the eyecup to expose the mounting thread.

Relay Lens for use with CCTV camera
NSN 5836-99-366-5780
Part No: 550-003F

Shuttered Eyeguard
NSN 6650-99-789-6513
Part No: 550-007

Table No. 4
General troubleshooting

No	Symptom Cause	Probable Actions	Corrective
1	No visible image	a. Objective lens cap has not been removed.	a. Remove cap.
		b. Battery cover loose.	b. Tighten cover.
		c. Incorrect Battery polarity.	c. Re-insert Battery correctly.
		d. Weak Battery.	d. Replace Battery
		e. Iris closed	e. Open Iris
2	Persistent Image Flickers.	a. Faulty intensifier tube.	a. Send unit to repair/ maintenance facility.
3	Poor image quality	a. Dirty or fogged objective lens.	a. Clean lens with lens cleaning tissue. If lens is internally fogged, send unit to repair/maintenance facility
		b. Eyepiece out of focus	Adjust diopter ring to bring picture into focus

Chapter 2

OPERATING INSTRUCTIONS

CAUTION
The PNP-MC is a delicate electro-optical device - handle it with care!

| WARNING |
|---|
| *Permanent damage to the PNP-MC may result if the PNP-MC is used in normal room illumination or bright ambient light. Do not direct the PNP-MC at a bright light source such as the sun, street lights, vehicle lights, or other bright light source, otherwise permanent damage may occur to the image intensifier tube.* |

2.1 Battery installation

1) Ensure operating switch is in OFF position.
2) Open battery compartment cover by unscrewing cap.
3) Insert battery into compartment, notice the polarity marking (see Fig. No. 3).
4) Close battery compartment cover
5) A low battery warning indicator is built into the PNP-MC which gives an amber glow at the edge of the image when looking through the eyepiece.

2.2 Operation

1) Prior to use remove protective lens cap.
2) Turn the operating switch to ON.
3) Adjust eyepiece diopter until the sharpest phosphor screen is obtained.
4) Adjust objective lens focus ring while observing an object until the sharpest image is obtained. - Repeat 3 if necessary
5) Ensure that the iris is open on the lens.
6) To activate the I.R. illuminator turn the operating switch to ON, then pull outwards and turn further to the I.R. position. When the I.R. illuminator is switched on a red LED warning glow can be seen at the edge of the image when looking through the eyepiece.

Fig. No. 3
Battery installation
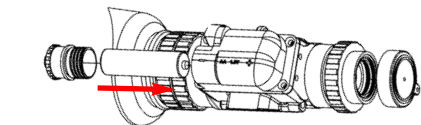
"Off-On-I.R." switch

2.3 PNP-MC Applications

Fig. No. 5
PNP-MC Applications

2.4 PNP-MC Operation with DSLR/SLR cameras (interchangeable lenses)

2.4.1 Installation

1) Use any DSLR/SLR camera with it's lens set to 35-50mm focal length.
2) Load a high sensitivity film B/W (400+1600 ASA) if the camera is a film camera and set the camera accordingly. Digital cameras should be set at the highest ASA if option available
3) Mount the DSLR/SLR adaptor to the **PNP-MC** eyepiece, (after folding back the eyeguard).

2.7 PNP-MC Lens options

1) **PNP-MC** is designed to accept any C-mount lens.

2) PNP-MC can accept photographic lenses from most manufacturers by using a camera lens to C-mount adaptor. See chapter 4 Accessories.

3) The camera lens to C-mount adaptor ensures the iris is always fully open.

Chapter 3

TROUBLESHOOTING

3.1 General Troubleshooting

The following table presents faults which may occur in the **PNP-MC**. In case of malfunction, identify the matching description under the Symptom heading and carry out the corrective actions until the fault disappears. If the fault cannot be corrected by carrying out the specified actions, transfer the **PNP-MC** to a repair/ maintenance facility.

2.6 PNP-MC Operation with CCTV cameras

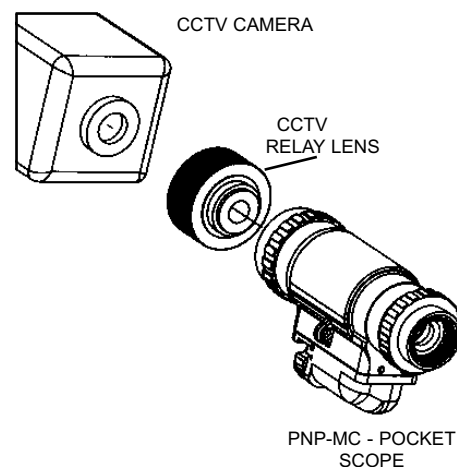### 2.6.1 Installation

1) Mount the CCTV relay lens to the **PNP-MC** eyepiece (after folding back the eye guard).
2) Mount **PNP-MC** with relay lens to the CCTV camera.

2.6.2 System operation

1) Direct the system to the required scenery.
2) Turn **PNP-MC** and CCTV camera on.
3) Adjust eyepiece diopter until sharpest picture is obtained in the monitor.
4) Adjust objective lens focus ring while observing an object until the sharpest image is obtained in the screen.

Fig. No. 8
PNP-MC Installation on CCTV camera

CCTV CAMERA

CCTV RELAY LENS

PNP-MC - POCKET SCOPE

4) Mount the **PNP-MC,** with the DSLR/SLR adaptor.
5) Install the system onto a tripod, if required.

Fig. No. 6
PNP-MC Installation on DSLR/SLR camera lens

DSLR/SLR CAMERA

PNP-MC POCKET SCOPE

SLR RING ADAPTOR
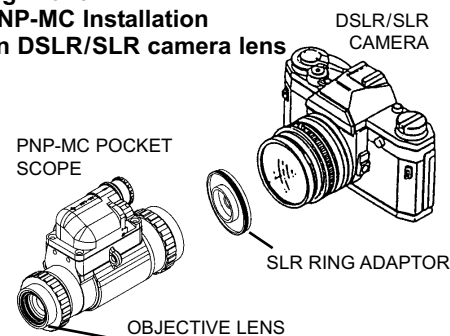
OBJECTIVE LENS

2.4.2 System operation

1) Set the DSLR/SLR camera objective lens to the infinity mark (∞); aperture to its maximum opening.

2) Direct the system to the required scenery.

3) Turn **PNP-MC** on.

4) Adjust eyepiece diopter until the sharpest phosphor screen is obtained through the DSLR/SLR eyepiece.

5) Adjust objective lens focus ring while observing an object until the sharpest image is obtained through the DSLR/SLR eyepiece.

6) Adjust the shutter speed according to the DSLR/SLR lightmeter.

2.4.3 PNP-MC / camera using original camera & lens

DSLR Lens

DSLR Lens mount

PNP-MC body
(C-mount lens removed)

DSLR Optical Module

DSLR Camera body
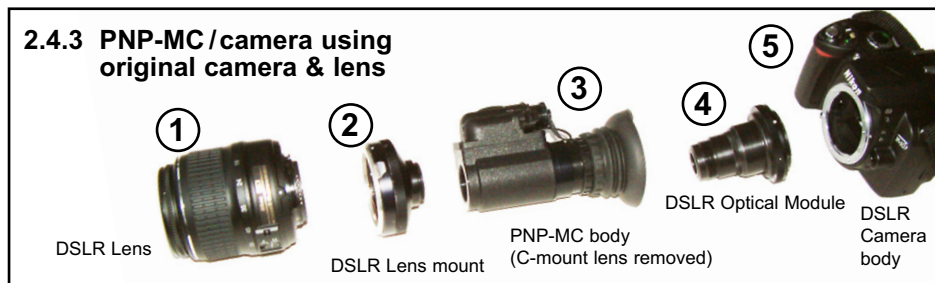
1) Remove original lens from camera (5).and set it to "Manual".

2) Fit appropriate optical module (4) directly to camera then after folding back rubber eyecup attach module to **PNP-MC** (3).

3) Attach camera lens to C-mount adaptor (2) to **PNP-MC** (3). and re-attach original camera lens

4) The C-mount adaptor will have opened the lens iris to maximum. Set the camera film speed to maximum, at least ISO 1600 and use optimum shutter speed (60th or 100th are good starting points). The Night Vision device gives a constant night vision picture brightness so once settings have been established

they will apply in most situations. (Tests are recommended to determine optimum settings).
Then for operation see **2.4.2** paying special attention to adjusting the PNP-MC eyepiece dioptre setting to give the sharpest picture. It is then left at that setting irrespective of camera lens focus settings.
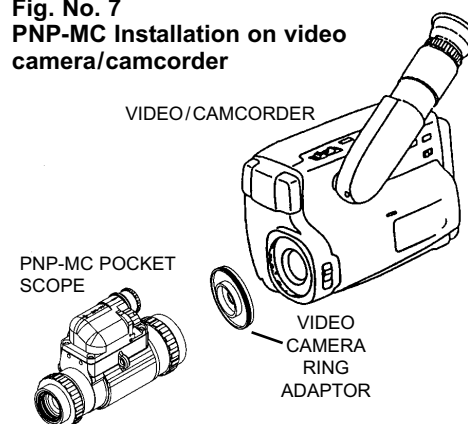
2.5 PNP-MC Operation with video camera/camcorder

2.5.1 Installation

1) Use any video camera (Sony, Sanyo, Panasonic etc….) You will need appropriate 28mm to x adaptor (x = filter thread on video camera

objective lens). Check the markings on your video camera lens. The filter thread diameter is normally marked on the end.

2) Mount the video camera ring adaptor to the **PNP-MC** eyepiece (after folding back the eye-guard).

3) Mount the **PNP-MC** with the adaptor, to the video camera objective lens.

4) Install the system onto a tripod, if required.

**Fig. No. 7
PNP-MC Installation on video camera/camcorder**

VIDEO / CAMCORDER

PNP-MC POCKET SCOPE

VIDEO CAMERA RING ADAPTOR

2.5.2 System operation with video camera

1) Direct the system to the required scenery.

2) Turn **PNP-MC** and video camera on.

3) Adjust video camera zoom until full **PNP-MC** phosphor screen is seen in the video camera view finder.

4) Set **PNP-MC** eyepiece diopter to midway.

5) Adjust objective lens focus ring while observing an object until the sharpest image is obtained in the video camera view finder.