RANGE ADJUSTMENT

Although the front dots are **not** calibrated for range adjustment, you can use them to make estimated range changes as follows:

Step 1: Keep the target between the two top dots.

Step 2: Slowly move the back of the weapon down and observe the sight picture. The sight picture will be slightly different for each range variation.

Step 3: Practice firing at various ranges out to 300 yards or more. Note where the front sight dots are in relation to the rear sight at those different ranges.

Step 4: Use this knowledge gained in practice each time you use the TNS.

MAINTENANCE

The Tritium Night Sight has no moving parts and requires no maintenance other than to keep it clean.

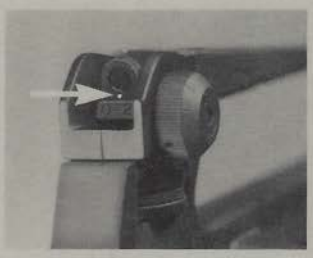
COLT'S MANUFACTURING COMPANY, INC.
P.O. BOX 1868, HARTFORD, CT 06114-1868

Part No. 99048

Tritium Night Sight

M16A2, M16A1 and other rifles with similar raised sight configurations.

USER GUIDE



Designed to accurately engage low visibility targets through precise alignment of illuminated dots.

DAYLIGHT SET-UP

Step 1: With the weapon zeroed, flop the rear sight aperture forward to expose the larger aperture marked 0-2.

Step 2: Look through the rear sight and position the tip of the front sight in the center of the rear aperture.

Step 3: Look through the rear sight aperture and count the number of vertically aligned dots visible on the front sight. Note their relative position with respect to the inner ring of the rear aperture (see Figure 1).

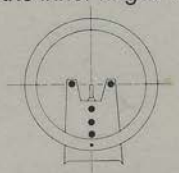


Figure 1

Step 4: While still sighting through the rear sight aperture move the muzzle up and down. Note how the luminous dots are aligned with the muzzle in different positions. Use this information to help you acquire a good sight picture quickly. After practicing in daylight do the same at dusk, and practice until you can acquire a good sight picture rapidly.

CAUTION

This sight contains some small quantities of radioactive tritium gas. No attempt should be made to disassemble or tamper with the luminous parts of the sight. Because the quantity of tritium in each vial is so small, there is no requirement for special handling procedures. Nevertheless, normal care must be taken to avoid breakage. Should a vial break, the tritium will dissipate almost instantly in air. If a vial breaks,

- **Avoid any risk of contamination by washing the affected area with water.**
- **Avoid ingestion (don't swallow it).**
- **Avoid contact with eyes and skin.**

LOW-LIGHT FIRING

Step 1: To quickly sight your target, keep the front and rear sight dots in line as you bring the weapon up to your shoulder. **Note:** Once you are in the firing position and sighting through the rear sight, the front sight dots will be in clear focus and appear brighter than the rear sight dot which looks like a fuzzy, transparent ball (see Figure 2).

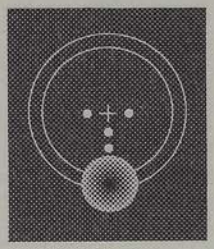


Figure 2

Step 2: Align the front sight vertical dots down through the center of the rear sight fuzzy ball.

Step 3: Tilt the muzzle up or down until you see the same number of vertical dots as you did in DAYLIGHT SET-UP Step 3.

Step 4: Keep this sight alignment and center the target exactly between the two dots on top of the front sight. Your weapon is now pointing directly at the target.

CAUTION

ALWAYS BE ABSOLUTELY SURE OF YOUR TARGET AND THE AREA BEHIND IT BEFORE YOU SQUEEZE THE TRIGGER. This is true in daylight and even more importantly in low-light conditions – if in doubt, don't shoot.

Colt's Manual No. CM 119

Tritium Night Sight

M16A2, M16A1 and other rifles with similar raised sight configurations.

INSTALLATION INSTRUCTIONS AND TRAINING GUIDE

CAUTION

This sight contains some small quantities of radioactive tritium gas. No attempt should be made to disassemble or tamper with the sight's luminous parts. Because the quantity of tritium in each vial is so small, there is no requirement for special handling procedures. Nevertheless, normal care must be taken to avoid breakage. Should a vial break, the tritium will dissipate almost instantly in air. If a vial breaks,

- Avoid any risk of contamination by washing the affected area with water.
- Avoid ingestion (don't swallow it).
- Avoid contact with eyes and skin.

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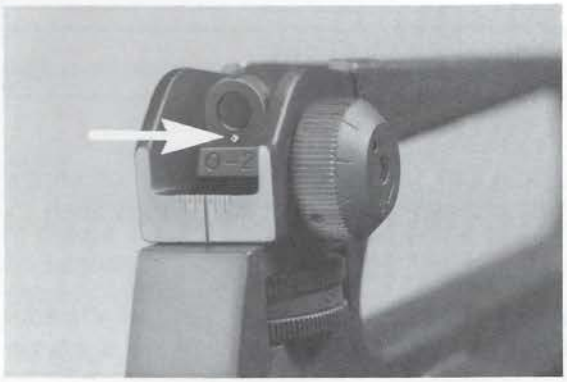
COLT TRITIUM NIGHT SIGHT

1.0 HARDWARE DESCRIPTION

1.1 Overview

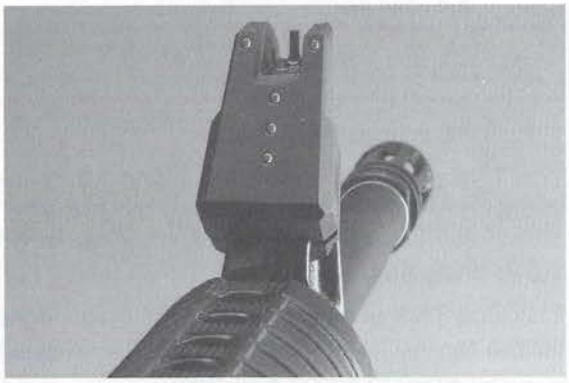
The Colt Tritium Night Sight (TNS) consists of front and rear sighting components. (see Figure 1.1 and Figure 1.2)

FIGURE 1.1 Rear Sight Configuration



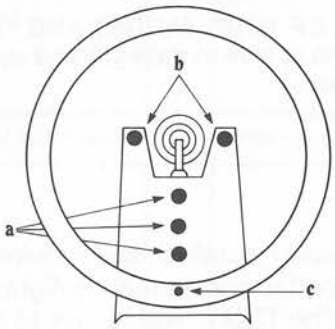
Arrow indicates position of luminous dot inset into the rear sight aperture.

FIGURE 1.2 Front Sight Configuration



Front sight fixture is designed to fit conveniently on standard sight.

FIGURE 1.3 Colt Tritium Night Sight Schematic Representation



1.1.1 Rear Sight

The TNS's rear sight (see Figure 1.1) is a modified version of the standard rear sight. It features a single tritium vial (see Figure 1.3 item c). This vial appears as a luminous green dot in the six o'clock position on the large aperture.

1.1.2 Front Sight

The TNS's front sight (see Figure 1.2) consists of a small metal fixture and clamp bar that attaches to the front sight housing. It has a series of five (5) imbedded tritium vials (see Figure 1.3). These vials appear as luminous green dots. These dots must be in line with the top of the front sight post when the TNS is mounted on the rifle.

Three luminous dots are located vertically, spaced approximately 1/4 in. apart (see Figure 1.3 item a).

Two luminous dots are located on the left and right protective wings of the sight (see Figure 1.3 item b).

CAUTION

This sight contains some small quantities of radioactive tritium gas. No attempt should be made to disassemble or tamper with the sight's luminous parts. Because the quantity of tritium in each vial is so small, there is no requirement for special handling procedures. Nevertheless, normal care must be taken to avoid breakage. Should a vial break, the tritium will dissipate almost instantly in air. If a vial breaks,

- **Avoid any risk of contamination by washing the affected area with water.**
- **Avoid ingestion (don't swallow it).**
- **Avoid contact with eyes and skin.**

1.2 Compatibility

The TNS shown in Figures 1.1 and 1.2 is installed on a Colt M16A2 rifle. It can also be easily installed on the M16A1 and any other model that has a similar elevated sight configuration.

1.3 Application

The Colt TNS is designed for use in low-light situations in which the shooter can see a faintly visible target. In these situations, the TNS enables the shooter to precisely align the sights on a target even in semi-darkness.

CAUTION

ALWAYS BE ABSOLUTELY SURE OF YOUR TARGET AND THE AREA BEHIND IT BEFORE YOU SQUEEZE THE TRIGGER. This is true in daylight and even more important in low-light conditions – if in doubt, don't shoot.

1.4 Advantages

The TNS has no moving parts, is easily installed, and requires no maintenance other than to keep it clean. The TNS can be zeroed under normal daylight conditions. No adjustment of daylight sight settings is required. The TNS is visible only to the shooter. The unique arrangement of the TNS's luminous dots enables the shooter to easily frame the target. This eliminates the problem that exists when tritium is placed directly over the target which then reduces the target's visibility. By aligning the rear dot with the dots appearing on the front sight, the shooter can quickly and successfully bring the sights to bear on any visible target. In poor light, targets can be engaged at ranges up to and sometimes exceeding 300 yards.

The TNS can also be used successfully on low-intensity, backlit targets whose relative darkness prevents the front sight from being seen by the shooter. The TNS's luminous dots easily overcome this limitation.

2.0 INSTALLATION

2.1 Tools Required

- Flat blade screw driver
- 3/32 in. Allen wrench
- 1/16 in. pin punch
- 8 oz. hammer

2.2 Rear Sight Installation

Replace the standard rear sight with the TNS rear sight. This should be performed by an armorer in accordance with the instructions contained in Sections 2.2.1 and 2.2.2.

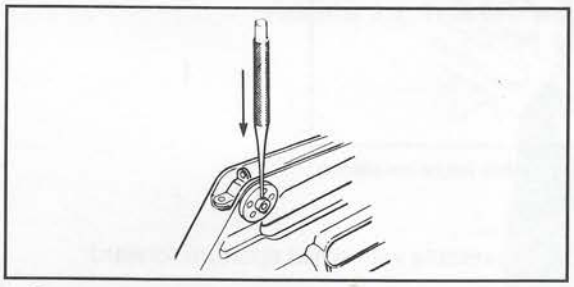
CAUTION

ENSURE RIFLE IS UNLOADED. REMOVE MAGAZINE AND LOOK IN CHAMBER TO SEE THAT IT IS EMPTY.

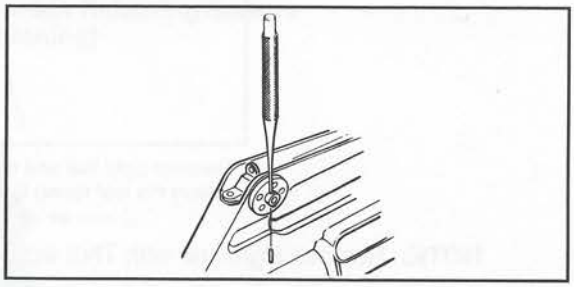
2.2.1 Field Sight Replacement

To replace the sight leaf of the fieldsight with the TNS sight leaf, follow the procedure shown in Figure 2.1. Note the position of the sight leaf before removal so that the TNS sight leaf can be assembled to approximately the same position. This should allow the TNS rear sight to be reset quickly and accurately.

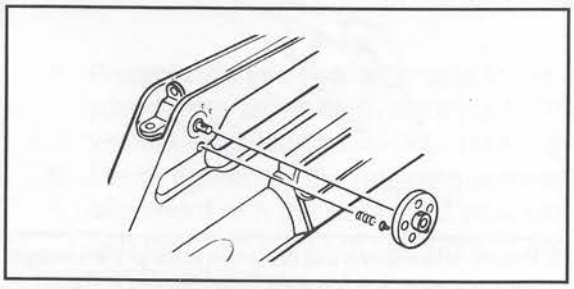
FIGURE 2.1 Replacement of Sight Leaf Field Sight



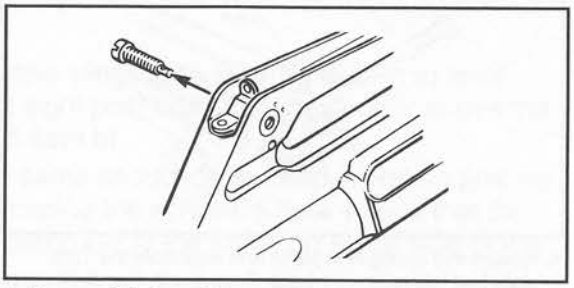
1. Remove Windage Drum Roll Pin using 1/16 in. pin punch.



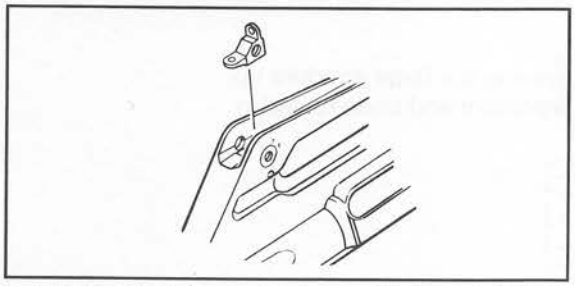
2. Windage Drum Roll Pin removed ... retain for reassembly.



3. Remove Windage Drum and retain for reassembly. Make sure detent and spring are in place.



4. Remove Windage Screw and retain for reassembly.



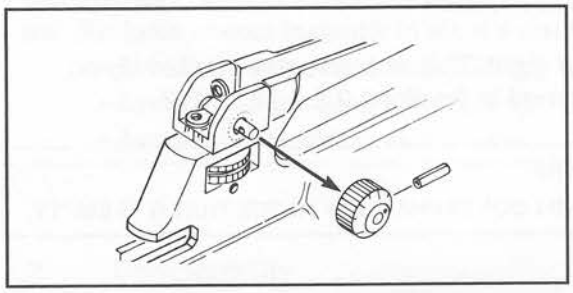
5. Remove sight leaf and retain for possible future installation. Leave the leaf spring in place.

NOTE: Now replace sight leaf with TNS sight leaf and reassemble by reversing the removal procedure sequence, i.e. 5 through 1. Make sure that the TNS sight leaf is installed with the small aperture forward. This will ensure that the luminous dot will be visible to the shooter when the large aperture is selected.

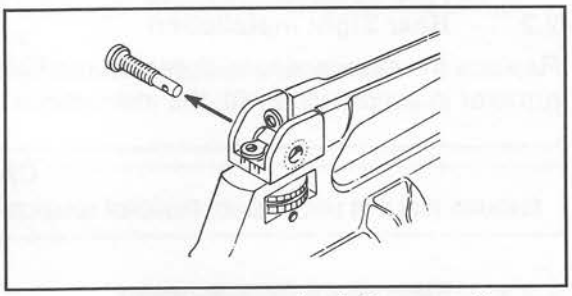
2.2.2 Target Sight Replacement

To replace the sight leaf of the target sight with the TNS sight leaf, follow the procedure shown in Figure 2.2. Note the position of the sight leaf so that the TNS replacement can be assembled to the same position and thereby reduce zeroing time.

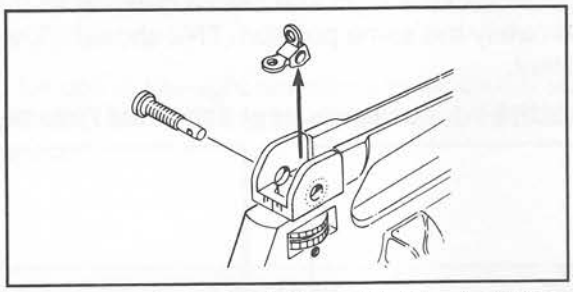
FIGURE 2.2 Replacement of Sight Leaf Target Sight



1. Using the 1/16 in. pin punch remove roll pin and windage knob. Watch for ball and detent spring and set aside for reassembly.

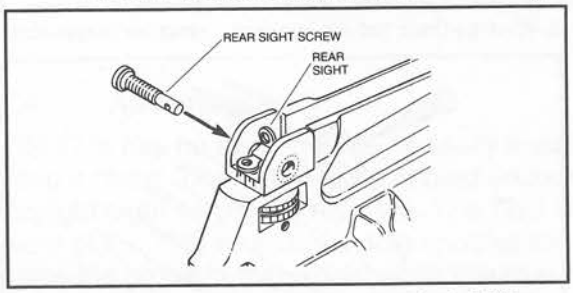


2. Remove rear sight screw and retain for reassembly.

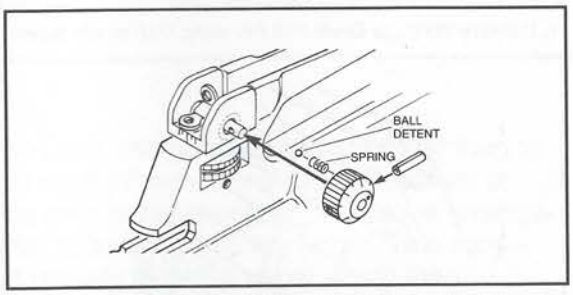


3. Remove sight leaf and retain for possible future installation. Leave the leaf spring in place.

NOTE: Replace sight leaf with TNS sight leaf and assemble with small aperture forward.



4. Ensure leaf spring is in place and assemble the TNS sight leaf into rear sight base. Secure with rear sight screw, from left to right.



5. Ensure detent spring and ball are in place of the windage knob and assemble it to sight screw. Secure with pin. With small aperture up, position the TNS sight leaf to same position as original sight leaf.

NOTE: Flip the sight leaf forward, leaving the large aperture up. Check that the tritium vial is present and undamaged in the base of the sight leaf.

2.3 TNS Front Component Installation

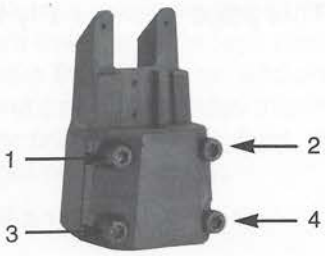
To install the TNS front component, perform the following steps:

1. Position the TNS front component onto the front sight housing as shown in Figure 2.3.
2. Place clamp bar on back side of front sight fixture to "sandwich" the rifle sight.
3. Start the four (4) screws into the front sight fixture through the clamp bar holes.

FIGURE 2.3 Installing TNS Front Component

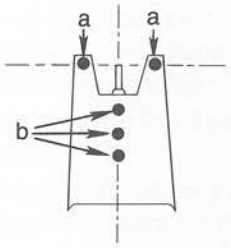
4. With both the front sight fixture and the clamp bar seated against the rifle front sight, use the 3/32 in. Allen wrench to **lightly tighten** the four retaining screws in the order shown in Figure 2.4.

FIGURE 2.4 TNS Front Component Retaining Screws (Order of Tightening)



5. Position the two luminous dots in the protective wings (see Figure 2.5 item a) level with the top of the front sight post. The front sight post must also be directly above the vertical line of luminous dots (see Figure 2.5 item b).
6. Finish tightening the retaining screws in the same sequence as Step 4. Retain precise alignment with the front sight post while tightening the screws. Check to see that the gap between the front component and the clamp bar is the same on either side of the combined unit.

FIGURE 2.5 TNS Front Component Final Alignment with Front Sight Post



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3.0 OPERATING PROCEDURE

3.1 Set-Up

After installing the TNS, it will be necessary to establish the accuracy of the sight because the rear sight has been replaced. However, it may be unnecessary to carry out a full zeroing procedure because there was no need to move the front sight post. If you can achieve accurate shooting results through minor rear sight adjustments there is no need to do more.

If zeroing is necessary, see Colt Manual CM 101 2nd Edition, Chapter III, Section 6 to zero the fully adjustable sights on **M16A2** rifles. Setting the sights on the **M16A1** rifle requires adjusting the front sight post for elevation and the rear sight for windage. Information on this sight arrangement is given in CM 101 2nd Edition, Chapter II Figure 2-10, 5 and 7.

Once you have established sight accuracy, recheck the alignment of the TNS front component with the front sight post. Reposition the TNS front component if necessary (see Section 2.3).

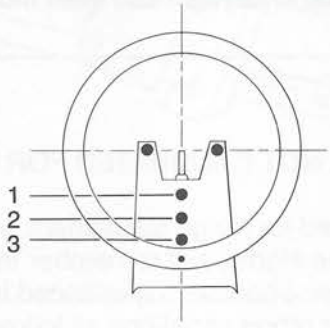
3.2 Use of TNS

3.2.1 Daylight Set-Up

In daylight conditions, flip the rear sight to the 0-2 position and sight through it. Move the rifle until the top of the front sight post appears in the center of the rear sight aperture. Count the number of vertically aligned luminous dots (see Figure 3.1 items 1, 2, 3) that you can see through the rear sight aperture and note their relative position with respect to the inner ring of the aperture.

The number of dots you see will not necessarily be the same for everyone since it depends on the distance of your eye from the rear sight (eye relief). Now, while still sighting through the large rear sight aperture, move the muzzle up and down. Note how the luminous dots are aligned with the muzzle in different positions,. Use this information to help you acquire a good sight picture quickly. After practicing in daylight, do the same at dusk, and practice until you can acquire a good sight picture rapidly.

FIGURE 3.1 Daylight Set-Up



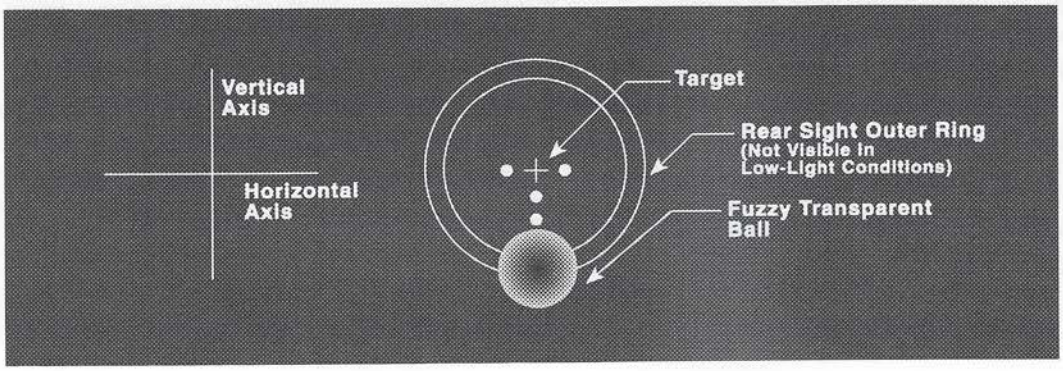
3.2.2 Low-Light Firing

For low-light firing and backlit targets in which the front sight post is not visible, align the same number of vertical dots as in the daylight set-up procedure (see Section 3.2.1). Use the information and techniques gained in practice and consider the following:

- In low-light conditions, the luminous dots of the front sight are brighter than the dot on the rear sight.
- When you see your target, keep the front and rear sight dots aligned while bringing the weapon up to the shoulder. This will help you acquire the target quickly.

- Once you are in the firing position and sighting through the rear sight, the front sight dots should appear clearly. The rear sight dot should now be out of focus; it should appear visible to you only as a fuzzy, transparent ball (see Figure 3.2).

Figure 3.2 Target Alignment in Low-Light



- Align the front sight vertical dots down through the center of the rear sight fuzzy ball. This ensures that the front sight is in the center of the rear sight aperture on the horizontal axis (side to side or windage), (see Figure 3.2).
- Tilt the muzzle up or down until the same number of vertical dots viewed during daylight set-up are seen. This ensures that the front sight is in the center of the rear sight aperture on the vertical axis (up and down), (see Figure 3.2).
- While keeping this sight alignment, center the target exactly between the two dots on the top of the front sight. The weapon is now pointing directly at the target; **but before firing, be sure the correct target is in the sights.**

CAUTION

ALWAYS BE ABSOLUTELY SURE OF YOUR TARGET AND THE AREA BEHIND IT BEFORE YOU SQUEEZE THE TRIGGER. This is true in daylight and even more important in low-light conditions – if in doubt, don't shoot.

NOTE: THE FRONT SIGHT DOTS ARE **NOT** CALIBRATED FOR RANGE ADJUSTMENT.

While the front sight dots are **not** calibrated for range adjustment, you can use them to make estimated range changes. Do **not** alter the sights, just remember the sight picture and how it is slightly different for each range variation. Shooters experienced in the use of the TNS should be, with practice, able to adjust for range variations as follows:

1. Keep the target between two top dots.
2. Slowly move the back of the weapon down and observe the sight picture. The front sight dots will appear higher in the rear sight ring. The range will be longer.
3. Practice firing at various ranges out to 300 yards or more. Note where the front sight dots are in relation to the rear sight ring at those different ranges and remember this for future use.

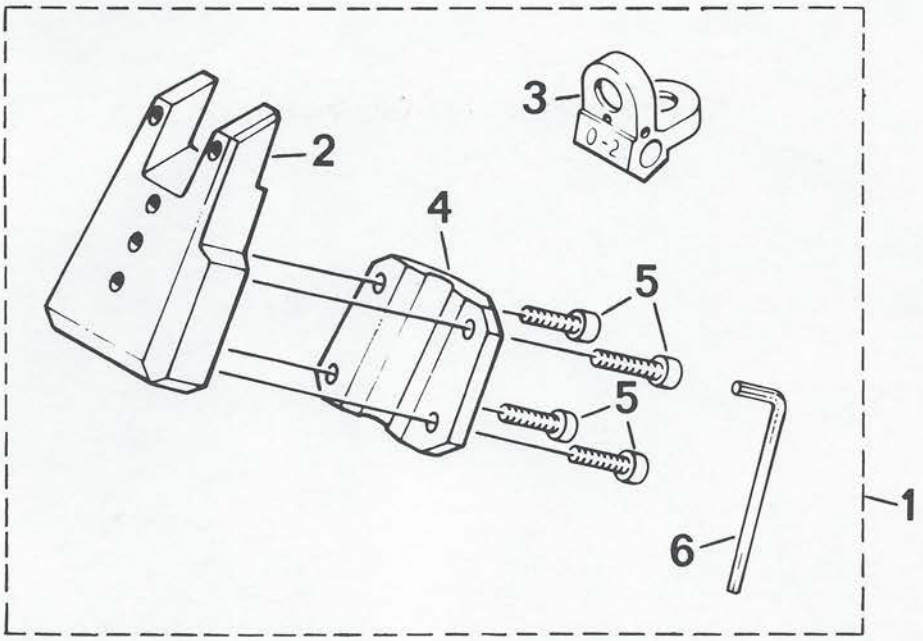
4.0 SPARE PARTS LIST

When ordering spare parts for the TNS, specify part numbers as shown in Table 4-I.

Table 4-I TNS Spare Parts List

	Item	Part No.
1.	Complete Tritium Night Sight Kit	62635
2.	Front Sight Base Assembly	62640
3.	Rear Sight Assembly	62641
4.	Front Sight Clamp	62637
5.	Socket Head Cap Screw (Qty. 4)	99040-1
6.	3/32 in. Hex Wrench	62639
7.	Tritium Night Sight – User Guide	99048

FIGURE 4.1 TNS Exploded View



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