b. The NOD was not used effectively in battalion defensive positions (fire bases) because of the range limitations imposed by vegetation and terrain.

c. The NOD was not used in rifle company defensive positions because of range limitations imposed by vegetation and terrain.

d. The NOD, when employed in division and brigade static defense roles, provided early warning, helped identify enemy movement, assisted in adjustment of indirect fire, and facilitated control of friendly patrols and passage through their own lines.

e. Use of the NOD in RVN did not result in a change in night defensive operations or tactics.

f. Weight and bulk of the NOD did not adversely affect its suitability in brigade and division static defense positions.

g. The NOD were operated effectively by personnel who had received less than 1 hour of formal training.

B. OBJECTIVE 2 - PERFORMANCE

This objective was established to describe and evaluate the performance of NOD in RVN. Areas considered were combat effectiveness of the NOD for night surveillance, limitations imposed by environmental factors, design suitability, and the use of artificial sources of illumination. Data were obtained from observation, reports of using and maintenance support units, and questionnaires completed by 57 selected personnel, including NOD operators, unit commanders, and maintenance personnel.

1. Operational Environment

The 1st Brigade, 101st Airborne Division; the 173rd Airborne Brigade; the 1st Cavalry Division; and the 1st Infantry Division were engaged in combat operations during the evaluation in widely differing terrain. As stated in objective 1, however, the NOD were used in static base positions because the terrain and vegetation in forward combat areas normally restricted use of the NOD to less than 1000 meters, which was in range of lighter weight night vision devices. The terrain that surrounded these base positions was flat or slightly rolling and varied from no vegetation to grass and low bushes (under 4 feet). Small clumps of trees were located in most of the base areas, but the tree clumps were isolated and surrounded by open terrain that could easily be viewed by the NOD. Eighty-eight percent of the base areas were described in this manner, while the remaining 12 percent were described as hilly with sparse vegetation varying to heavily wooded areas.
2. Range

The rated range of the NOD is 1500 meters. However, this range is not meaningful without consideration of the ambient light and tactical parameters involved. The maximum range obtainable may be a result of either the terrain or of weather conditions as applied to scope capabilities, whichever is the more restrictive.

No instance was reported where the range capability of the NOD was a limiting factor in its tactical employment. The NOD were used under conditions that varied from cloudy to clear during all moon phases, and on nights with fog, haze, smoke, and light to heavy rain. While the range capability of the NOD varied with the ambient light level, respondents reported it always provided a marked advantage over the battery commander's telescope M65, binocular M13A1, and the naked eye under identical conditions. The data indicated that on 43 percent of the nights the NOD were used, light conditions varied from 3/4 moon or equivalent, to full moon. Ranges obtainable under these conditions varied from 1500 to 2000 meters, and 70 percent of the operators who used the NOD under these light conditions indicated that they could see an average of 1700 meters (figure 2). Under conditions varying from 1/2 to 3/4 moon or equivalent, operators indicated that they could see distances varying from 1000 to 1500 meters, with the majority indicating 1200 meters. Operators using the NOD on nights with conditions varying from 1/4 to 1/2 moon indicated ranges of 700 to 800 meters. On nights with less than 3/4 moon or equivalent, 41 percent of the operators could see a distance of 500 meters, while the remaining 59 percent indicated ranges varying from 100 to 400 meters. Interviews with operators revealed that under ideal light conditions, with terrain permitting, a walking man could be detected at a maximum range of 800 to 1000 meters and a stationary man at a maximum range of 650 to 750 meters (figure 3). Numbers of personnel, standing side by side or in a close group, could be counted at ranges to 800 meters. Groups of personnel over 10 could be identified while either walking or standing at distances to 1600 meters. Identifiable objects at ranges exceeding 1600 meters were lights that could not be seen with the naked eye and large objects such as vehicles. All operators indicated that the range provided by the NOD was adequate.

Minimum range to which the NOD could be focused ranged from 40 to 70 meters, depending upon the operator/NOD combination. The minimum range obtainable was adequate in all instances.

3. Artificial Illumination

The NOD is so designed that it cuts off when the ambient light being amplified exceeds the capacity of the scope. Optimum resolution and ranges are obtained just before the ambient light reaches this intensity. This optimum point is roughly that intensity equivalent to conditions on a clear night with full moon.
(C) FIGURE 2. Mean tactical range obtainable by NOD under varying light conditions.

(C) FIGURE 3. Mean distance objects can be identified by NOD under ideal light conditions.
The increase in effectiveness of the NOD is generally proportional to the increase in ambient light and a significant advantage appeared to result from the use of artificial illumination, especially when ambient light was less than the equivalent of a 1/4 moon. No instance was reported when the NOD was used in conjunction with a searchlight, but 14 instances were reported when flares or illuminating rounds were used with the NOD when light conditions were 1/4 moon or less. All of the operators involved indicated an increase in the NOD effectiveness under conditions varying from the equivalent of 1/2 to full moon. The NOD could not be aimed directly at such sources but the NOD did assist in detecting targets in the surrounding areas.

The depth and clarity of vision provided by the NOD under these circumstances was reported to be superior to that provided by binoculars or with the naked eye. Two operators stated that with the aid of binoculars, they could identify a man walking at a distance of 400 meters, but if the man stopped it became very difficult to distinguish him from a background of low bushes and grass. This same man could be seen quite clearly, while either walking or standing, with the NOD.

4. Environmental Effects

There were no adverse effects on the operation of the NOD caused by the temperatures encountered. Temperatures ranged from a low of 50 degrees Fahrenheit at night to 100 degrees Fahrenheit in the day. No freezing temperatures were experienced during the test period.

Humidity is consistently over 50 percent in RVN and normally is in the 70 to 90 percent range. This humidity accentuated the need for constant maintenance and contributed to slight condensation within optical elements. A specific problem relating to the high humidity and frequent precipitation was absorption of water by the liners in the metal shipping container.

The most significant environmental effect was the ambient light condition. As previously stated, the usable range of the NOD was dependent upon the ambient light available. Even though the effect was generally proportional, light levels less than those equivalent to a 1/4 moon on a clear night restricted the capability of the NOD. Clouds, fog, and rain directly decreased the ambient light level, which proportionally decreased resolution and range capabilities of NOD.

5. Magnification and Field of View

Magnification and field of view are discussed together since they are related and inversely proportional. The magnification of the NOD is 7 power and its field of vision is 157 miles, or about 9 degrees. These data are meaningful only when considered in light of the range of the NOD.
The rated range of the NOD is 1500 meters. Therefore, at maximum range, the sight will provide a field of view of 235 meters and objects therein will appear to be at a distance of 214 meters.

Users of the NOD reported that magnification and fields of view were adequate and did not recommend increasing one at the expense of the other.

6. Adjustments

Only two adjustments were required for operation of the NOD. These adjustments were for diopter and range. The diopter adjustment was required only once for each individual, who turned it until the reticle became clear and distinct. Once established, this setting remained constant, and the only further adjustment necessary was for major changes in range using the range knob. No difficulties were reported in making these adjustments.

7. Mounting and Dismounting

The NOD may be mounted on either the adaptor assembly tripod (figure A-11) or the large tripod (figure A-12). Fifty-one percent of the operators used the large tripod while the remaining 49 percent used the adapter assembly tripod. Of 49 operators, 4 experienced difficulty in mounting the NOD. These four indicated they had difficulty keeping the detent portion of the lock stud aligned properly so that the bottom of the yoke could be slipped over the top of the adapter assembly. An investigation of this difficulty revealed that 5 to 10 minutes of training during daylight hours would have overcome this problem.

8. Reticle Operation

There was no indication that operators experienced difficulty in seeing the reticle under different light conditions. For a detailed description of the reticle, see annex A.

9. Oscillator Noise

Oscillator noise was not a tactical spoiling factor. The NOD and Small Starlight Scope utilize identical oscillators.

10. Orientation

There was no indication that operators experienced difficulty in orienting the NOD while using it on either the small or large tripod. However, 13 percent of the operators indicated that they had difficulty in completely locking the azimuth set screw. When this situation occurred,
operators had to hold the azimuth dial while traversing the device in order to maintain the correct orientation. Elevation and depression limits of plus 600 and minus 400 mils were adequate for operation of the NOD.

11. **Shortcomings**

Individuals who had used the NOD reported outstanding overall reliability. During the 90-day field evaluation period, only four devices became inoperative, with two of these four devices requiring only minor repair or replacement that was accomplished within 5 days. This may be attributable to the NOD's being employed only in the defense and the fact that it was not often moved about the battle area.

Only three shortcomings were noted in different components of the NOD:

a. The rubber eyepiece became deformed after continuous use and exposure to inclement weather. This shortcoming was corrected after the field data collection period had been completed. A new type of eyepiece was issued to all direct support units with instructions to replace those in the field.

b. The shipping container for the NOD was found to absorb moisture quite readily in the humid environment of RVN and was very difficult to dry out after it became damp.

c. There have been many reports received from operators indicating difficulty in completely locking the azimuth set screw. The size of this knob makes it difficult to grip even though it is knurled.

12. **Findings**

a. The NOD was simple and easy to operate for the average US Army combat soldier.

b. When used in a brigade or division static defense position, the NOD provided the combat soldier with a practical and effective instrument to obtain good night vision of the surrounding areas which varied from 40 to 2000 meters.

c. The NOD provided a significant advantage over other optical observation devices used under identical conditions.

d. Artificial light sources were found to be effective substitutes or supplements for improving a low level light condition to the equivalent of 1/2 to full moon.
e. Usable range depended upon terrain, vegetation, weather, and ambient light conditions.

f. The parts of the NOD were reliable during the evaluation except the azimuth set screw did not permit secure locking of the azimuth dial.

g. The following supporting equipment of the NOD required correction:

1) Metal shipping container - The upper and lower liner absorbed moisture which can cause damage to the NOD.

2) Azimuth set screw - Did not permit secure locking of the azimuth dial.

C. OBJECTIVE 3 - MAINTENANCE AND LOGISTICS

This objective was established to describe and evaluate maintenance and logistical support requirements for the NOD. General areas considered were supporting maintenance facilities, maintenance evacuation procedures, and adequacy of maintenance allocation charts in available technical manuals.

The NOD has been employed in the field since August 1966. Detailed maintenance instruction had been given to all maintenance units by the beginning of the evaluation on 18 September 1966, but neither an adequate supply of repair parts and major components, nor maintenance float of end items was available during the evaluation. This lack of repair parts and maintenance float for the NOD was caused by a vast increase in provisioning requirements for RVN and the need to centralize these items at one location in order to assure the best utilization. This policy was directed by US Army Materiel Command, which established the following specific guidance: "Units will evacuate end items requiring maintenance to the direct support units in accordance with standard maintenance procedures. The direct support unit will perform maintenance responsibilities as shown in the appropriate technical manuals. Unserviceable recoverable components or end items requiring general support, or higher, will be evacuated by air from the direct support unit to Sacramento Army Depot for repair." This policy was put into effect in VN by G4 USARV in April 1966. By November 1966, direct and general support units had still not received repair parts for the night vision devices and G4 USARV directed that "Equipment requiring direct and general support level maintenance will be evacuated to the Sacramento Army Depot, by organic direct support units." This policy is still in effect and is operating satisfactorily. The average "turn around" time for NOD shipped by direct support units is 3 to 4 weeks.
1. Maintenance and Logistics Functions

The technical manuals accompanying each piece of equipment provided operators with adequate detailed maintenance information. Operators were primarily responsible for the care, cleaning, and daily inspections that could be done without disassembling major components. Defective batteries were the only parts authorized for replacement by the operators.

During the field data collection period, 4 of the 26 NOD evaluated became inoperative. Two of the NOD had inoperative image tubes and were returned to Sacramento Army Depot for repair and return. Direct support units were able to return the other two NOD to using units by repairing a faulty switch and replacing a faulty oscillator with an oscillator removed from an NOD scheduled for shipment to Sacramento.

When operational requirements have been satisfied through initial issue, replacement parts will be issued to direct and general support unit level. To date, this has not been done and no evaluation can be made as to direct and general support unit capability of maintaining NOD.

2. Maintenance Publications and Guides

All maintenance personnel indicated that the maintenance allocation charts published in Technical Manual 11-5850-228-15 adequately defined responsibilities for each echelon of maintenance and that the basic issue items list in the technical manuals was adequate.

3. Maintenance Shop Conditions

There was no need to establish special environmental conditions (i.e., "clean rooms", controlled humidity, or air conditioning) in which to maintain the NOD. There were no adverse effects determined from the lack of any such special conditions.

4. Findings

a. The maintenance authorized to be done by operators was accomplished without difficulty.

b. The lack of repair parts for the NOD at direct and general support level necessitated direct evacuation of defective devices from direct support units to Sacramento Army Depot.

c. Direct and general support units did not have the necessary replacement parts to participate in the maintenance and logistical program at the start of the evaluation.
d. Maintenance allocation charts were adequate.

e. There were no adverse effects determined from the lack of controlled environmental conditions in areas where maintenance was performed.

D. OBJECTIVE 4 - BASIS OF ISSUE

This objective was established to determine the suitability of the Department of the Army basis of issue (DA BOI).

User reaction to the NOD under combat conditions, its gross weight, and means of transportation were taken into consideration with the tactical and logistical aspects to determine suitability of the DA BOI.

As of 15 May 1967, there were the following number of base camps which had a potential use for NOD:

- Brigade-size base camps - 9
- Division-size base camps - 5
- Larger than division-size base camps - 3

The current DA recommended BOI for the NOD is as follows:

- One per rifle company OP
- One per 4.2-inch mortar FO (infantry, armor, and mechanized units)
- Selected reconnaissance and surveillance elements (all units)

1. Distribution

Twenty-six of the NOD's were received and distributed to the four major ground combat units that participated in the evaluation. The limited number of NOD received and tactical expedience precluded distribution of the NOD as battalion packets and major units issued them pro rata among their subordinate units. Some units evaluated received additional NOD, but none had the complete packet authorized by the DA BOI. For instance, some maneuver battalions had no NOD, while others had only one or two. Only three NOD were issued to reconnaissance and surveillance elements, two to Troop A, 2/17 Cavalry 1st Brigade, 101st Airborne Division and one to Troop D, 1/9 Cavalry, 1st Cavalry Division (Airmobile).

2. Changes

As described in objectives 1 and 2, the NOD had potential for aiding the soldier in night operations but only when used in brigade
and division static defensive positions. The NOD was not used or re-
quired in company or battalion defensive positions located in forward
combat areas because of its weight and bulk and the limitations imposed
by terrain and vegetation. The Small Starlight Scope (range 400 meters)
was found to be adequate in that environment.

The current DA BOI was determined to be invalid based on a review
of data from units evaluated, discussion with the 26 company grade officers
mentioned in objective 1, and an assessment of perimeter security require-
ments in terms of typical brigade and division static defense positions.

The NOD were employed in separate brigade and division static
defense positions and located to achieve maximum coverage. Seventy-six
percent of the operators who had used NOD in static defense positions,
that occupied a portion of a brigade or division defensive position, indi-
cated that it gave adequate coverage of their battalion sector. The
remaining 24 percent indicated that coverage was not adequate and that
it would take two or three NOD to completely cover their particular de-
fensive position. Interviews with several operators who had indicated a
need for more than one NOD, and visits to the static defense position
concerned, revealed that a majority of the areas that caused concern
were shadowed defilades immediately in front of the battalion perimeter.
Further investigation revealed that in most instances these areas were
less than 400 meters to the front of that unit's perimeter and could have
been or were being viewed with the available Small Starlight Scopes or
Crew-Served Weapons Sights.

The three NOD issued to reconnaissance and surveillance elements
were not used in forward combat because of weight and bulk and the lim-
itations imposed by vegetation and terrain. When reconnaissance and
surveillance elements, not organic to maneuver battalions, operated in
forward combat areas, they operated in the same type terrain as described
in objective 1. It was for this reason that they used the NOD only in
brigade and division static defense position.

3. Findings

a. NOD is not required at company level as organic equipment
in Vietnam.

b. Battalions and other units performing static defense in rear
area base camps require 1 or 2 NOD.

c. Reconnaissance and surveillance elements, not organic to
maneuver battalions, used their NOD only in brigade and division static
defense positions.
III. (C) CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

It is concluded that:

1. The NOD is not suitable for night offensive operations in Vietnam because of its weight and bulk.

2. The NOD was not used in rifle company or battalion defensive positions located in forward combat areas because of its weight and size and the limitations imposed by vegetation and terrain.

3. Requirements for night vision devices in forward defensive positions were adequately met with SSS.

4. The NOD was effectively employed only in brigade and division static defense positions and provided early warning, helped identify enemy movements, assisted in the adjustment of indirect fire, and facilitated control of friendly patrols and passage through their own lines.

5. The weight and bulk of the NOD did not adversely affect its suitability in static defense positions.

6. The NOD can be used effectively without formal individual training.

7. The NOD increases the ability of the soldier to accomplish night surveillance from static defensive positions.

8. The NOD can withstand the rugged environmental conditions in RVN. There is a shortcoming in the azimuth lock knob and metal shipping containers that requires correction.

9. At the close of the data collection period, spare parts and a maintenance float had not been established at direct or general support unit level.

10. The basic issue items listed in the manuals were adequate.

11. The variables of mission and terrain do not permit a definitive DA BOI to be stated.
B. RECOMMENDATIONS

It is recommended that:

1. The DA BOI not be applied to units in Vietnam.

   2. Quantities of NOD fulfilling current base camp defensive position requirements be the BOI. NOD are now used as follows:
      a. Brigade-size base camps = 4
      b. Division-size base camps = 8
      c. Larger than division-size base camps = 10

3. Shortcomings noted in objective 2 findings be corrected.

4. A maintenance float of major components and end items be established at general support level and that repair parts authorized direct and general support units be issued.
The Night Observation Device, Medium Range, is a portable, battery-powered electro-optical device for night visual observation of distant objects. This device may be used at night under ambient skylight conditions (i.e., moonlight, starlight, or artificial light) for surveillance or by forward observers in adjusting indirect fire of artillery. This device is one of the newest members of the family of night vision devices and it possesses a distinct advantage over its predecessors. The primary advantage is that it does not project visible or infrared light. It also provides a sharper image, is simple to operate and maintain, and permits use at greater range under most light conditions.

The NOD assembly (figures A-1 and A-2) consists of the following basic components: main housing containing the objective assembly, objective shade lock, image tube housing containing the image tube, battery and oscillator power supply, on-off switch, range focusing ring, eyepiece assembly with eyepiece focusing ring reticle and eyeshield, yoke assembly with elevation dial and vernier, adapter assembly with azimuth dial and vernier, and adaptor assembly legs. The NOD can be used in the prone or upright position through the use of these legs and adapter assembly or available large tripod and adapter assembly (figure A-3). The NOD is also equipped with an objective lens cover which prevents use of the device during hours of daylight.

The main housing and image tube housing are machined castings which contain all principal components and sub-assemblies of the observation device. The main housing possesses a basic tubular configuration and the image tube housing is an open cast frame enclosing the image focusing tube and power supply assembly. The rear of this housing is threaded to receive the eyepiece assembly.

The objective lens assembly consists of a primary mirror assembly and four cell assemblies, all of which are contained within the objective housing (figure A-4).

The objective housing is mounted to the yoke by means of two trunnions symmetrically located at the rear of the housing.

The adapter assembly is installed in the base of the yoke and secured by the yoke mount lock knob. The three legs are screwed into the adapter assembly.

The image tube housing is secured to the rear of the objective lens housing by means of cap screws. It contains the image focusing tube
(U) FIGURE A-1. Night observation device, medium range, rear view.

(U) FIGURE A-2. Night observation device, medium range, left side view.
(U) FIGURE A-3. NOD large tripod mount.

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(u) FIGURE A-4. Objective lens assembly.
which is moved along the optical axis by means of a focusing ring threaded to the rear of the housing. The image focusing tube houses the image tube, and the high voltage power is mounted on the upper surface of the focusing tube. The high voltage power supply system consists of a 6.75 volt mercury battery, high voltage oscillator, and a toggle switch. One battery is used for operation of the NOD. The battery is installed by removing the battery cap and inserting the battery, positive (plus) end first, into the power housing (figure A-5). The oscillator mounts directly on the top forward portion of the image intensifier tube and an electrical connection is made at this point (figure A-6). A connector is placed over a contact point on top of the oscillator and provides the 6.75 volt input to the oscillator. The oscillator and image intensifier tube are grounded by means of a grounding spring. The oscillator is held in place by a knurled cap. A two-position toggle switch provides for device "on" - "off" positions. This switch is protected from accidental movement by a red protective guard. The guard will move the switch to the "off" position when depressed (figure A-7).

The eyepiece assembly (figure A-9) mates to the rear of the image focusing tube. The eyepiece consists of seven glass elements, three doublets and four singlets. Two of the doublets and one of the singlets are capable of forward and rearward movement along the optical axis by means of the eyepiece focus ring. This movement enables the operator to select his own diopter setting. The eyepiece focusing ring contains diopter marking for reference. Attached to the eyepiece assembly is a rubber eyeshield which protects the eye from injury and prevents the visible glow emitted from the rear of the scope from illuminating the operator's face.

The reticle is a dark line pattern (figure A-9). The horizontal reticle pattern consists of a dashed line. Each dash is 10 mils long and each space is also 10 mils. In the center of the horizontal reticle is a vertical graduation which indicates the center of the field of view. From this vertical graduation left to right to the first 10 mil line is 5 mils. The vertical reticle pattern is also graduated in 10-mil increments.

The yoke and adapter assembly tripod (figure A-10 and A-11) are fixed to the trunnions on the objective assembly housing. The yoke contains the elevation vernier in position over the elevation dial mounted on the left hand trunnion and the elevation lock knob is located at the top of the left hand trunnion block of the yoke assembly. The clips for stowing the three legs are fixed to the side of the yoke assembly. The azimuth vernier and adapter assembly socket are at the base of the yoke. The adapter assembly is positioned into the socket at the base of the yoke assembly and secured by the yoke mount lock knob. The adapter assembly contains the azimuth scale which is moveable.
(U) FIGURE A-5. Installation of battery.

(U) FIGURE A-6. Removal and installation of oscillator.
(U) FIGURE A-7. Starting the night observation device.

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(U) FIGURE A-8. In-line eyepiece assembly.
(U) FIGURE A-9. Reticle pattern.

(U) FIGURE A-10. View of assembled adapter assembly tripod.
(U) FIGURE A-11. View of yoke installed on adapter assembly tripod.

for setting and secured by the azimuth scale set screw. The adapter assembly has three threaded receptacles to receive the three legs. For operation in the upright position, a large tripod may be used by removing the three legs from the adapter assembly and storing them in the clips provided on the yoke. The adapter assembly may then be threaded onto the large tripod (figure A-12).
(U) FIGURE A-12. Installation of adapter assembly on large tripod.
**ANNEX B**

**DISTRIBUTION**

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<td>Office of the Chief of Staff, Department of the Army, ATTN: Special Assistant for Special Warfare Activities</td>
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<td>Deputy Chief of Staff for Logistics, Department of the Army</td>
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<td>The Asst Chief of Staff for Intelligence, Department of the Army, ATTN: ACSI-DSRT</td>
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<td>Asst Chief of Staff for Force Development, Department of the Army</td>
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<tr>
<td>Chief of Research &amp; Development, Department of the Army, ATTN: Special Warfare Division</td>
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<td>Chief of Research and Development, Department of the Army, ATTN: Dir of Army Research</td>
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Chief of Research and Development, Department of the Army, ATTN: Dir of Developments
Office of the Chief of Communications-Electronics, Department of the Army
Commanding General, US Army Materiel Command
Commanding General, US Army Materiel Command, ATTN: Dir of Research & Development (AMC RD)
Commanding General, US Army Materiel Command, ATTN: Proj Manager, Special Warfare (AMCPM-SW)
Commanding General, US Army Electronics Command
Commanding General, US Army Strategic Communications Command
Commanding General, US Army Intelligence Command
Commanding General, US Continental Army Command
Commandant, US Army Armor Sch
Commandant, US Army Arty & Msl Sch
Commandant, US Army Inf Sch
Commandant, US Army Intelligence Sch
Commandant, US Army Southeastern Sig Sch
Commandant, US Army Special Warfare Sch
Commandant, Armed Forces Staff College
Commandant, Command & General Staff College
Commandant, US Army War College
Commanding General, US Army Combat Developments Command, ATTN: CDCRE-T
Commanding General, US Army Combat Dev Command/Experimental Command
Commanding Officer, US Army LWL
President, US Army Armor Board
President, US Army Inf Board
Commanding General, John F. Kennedy Cen for Special Warfare (Abn)
Commanding General, US Army Test & Eval Command
Commanding Officer, 8th SFG
Commanding Officer, 10th SFG
Commander-in-Chief, USARPAC
Commanding General, USARV, ATTN: AVHGC
Commanding General, I FFORCEV
Commanding General, II FFORCEV
Commanding General, 1st Inf Div
Commanding General, 4th Inf Div
Commanding General, 9th Inf Div
Commanding General, 25th Inf Div
Commanding General, 1st Cav Div (Airmobile)
Commanding General, 1st Signal Brigade
Commanding General, 1st Bde, 101st Abn Div
Commanding General, 173rd Abn Bde
Commanding General, 196th Lt Inf Bde

ANNEX B  B-2
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<tr>
<td>Commanding Officer, 11th Armd Cav Regiment</td>
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<td>Senior US Advisor, ea ARVN Corps (4)</td>
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<tr>
<td>Senior US Advisor, ea ARVN Div (9)</td>
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**United States Navy**

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**United States Marine Corps**

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**United States Air Force**

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<td>Commander, 7th Air Force</td>
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<td>ACTIV-Project Officer, ATTN: GCD</td>
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<td>ACTIV-Library</td>
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B-3  ANNEX B
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ANNEX B

B-4
The purpose of the basic project was to evaluate first generation night vision devices (small starlight scope, crew-served weapons sight, night observation device, and infrared driving binoculars) used by US Army units in the Republic of Vietnam (RVN) to obtain data on tactics and training, system performance, maintenance experience, and suitability of the DA basis of issue. This addendum presents information on the night observation device, which was not available for the original evaluation. An addendum B will be published on the infrared driving binoculars. (C)

The evaluation disclosed that the NOD was effectively employed only in static defensive positions, and that its limitations in this role were imposed by weather, terrain, and vegetation, rather than design. The NOD was not employed during offensive operations or in forward company or battalion defensive positions because of its weight, size and the limitations imposed by terrain and vegetation. (C)

It was concluded that the NOD is of value to the combat soldier in Vietnam, but only when employed in brigade and division static defensive positions that offer extended range of observation. The recommended Department of the Army basis of issue is not valid because the NOD are not used in forward combat areas. It is recommended that the Department of the Army basis of issue not be applied to units in Vietnam, and that US Army initial issue be 4 per brigade base camp, 8 per division base camp, and 10 per base camps larger than division. (C)
Night vision devices
Night observation device used by US troops in Vietnam