CHAPTER 3

ASSETS AND EQUIPMENT

Before you can develop an R&S plan you must know the characteristics of available assets and equipment. This chapter discusses the organic and supporting R&S assets and equipment available to you, the maneuver battalion, and the brigade S2. This chapter also discusses the basic capabilities and limitations of these assets.

Due to security classifications, detailed information on some assets is not included. Refer to the appropriate field manuals for further details. Some assets are staff officers; this chapter gives you the types of information they can provide and equipment they might use.

ASSETS AND EQUIPMENT ORGANIC TO THE MANEUVER BATTALION

At the battalion level the commander is fighting close-in operations. To support the commander, focus the collection effort at the lst- and 2d-echelon battalions of lst-echelon regiments (out to 15 kilometers). The assets available to conduct R&S missions at the battalion are limited. Since the assets available to conduct R&S missions at the battalion are limited, the S2 faces a challenge when planning R&S operations. Some of the available assets are scouts, patrols, OPs/LPs, soldiers, and equipment.

SCOUT PLATOON

The scout platoon's primary missions in support of the battalion are reconnaissance and screening. FM 17-98 contains a detailed discussion of scout platoons. Presently all scout platoons are being reequipped with 10 high mobility multipurpose wheeled vehicles (HMMWVs).

Capabilities

The scout platoon can perform missions--

o Mounted or dismounted.

o In various terrain conditions.

o Under all weather conditions.

o Day and night.

The primary mission of the scout platoon is reconnaissance. The scout platoon, with fire support protection, can conduct reconnaissance missions

10 to 15 kilometers beyond the FEBA. These distances vary with the type of scout platoon and METT-T.

The scout platoon is the only asset found at the maneuver battalion specifically trained to conduct reconnaissance. Other missions the scout platoon conducts are--

o Quartering party duties.

o NBC reconnaissance, including chemical detection and radiological surveying and monitoring.

o Limited pioneer and demolition.

o Security missions.

o Reconnoiter and establish OPs and LPs.

Limitations

The scout platoon conducts reconnaissance operations as part of a larger combined arms force. The scout platoon depends on its parent unit for combat support and combat service support to augment and sustain its operations. Remember, the scout platoon's design and training is to reconnoiter platoon size areas only.

In addition, a full strength platoon--

o Reconnoiters only a single route during route reconnaissance; METT-T is the determining factor.

o Reconnoiters a zone 3 to 5 kilometers wide; METT-T may increase or decrease the zone.

o During screening missions, is extremely limited in its ability to destroy or repel enemy reconnaissance units.

NOTE: Airborne and light infantry scouts are not mounted; they reconnoiter areas out 500 to 1,000 meters during most missions.

o During CR operations, can only acquire and maintain visual contact with the enemy; can kill or repel enemy reconnaissance elements only if augmented or task organized with infantry, armor, or AT assets.

o Operates six OPs for limited periods (under 12 hours); or three OPs for extended periods (over 12 hours). The light scout platoon usually operates three OPs.

o Is restricted in the distance it can operate from the main body, due to communications range and range of supporting elements.

o Cannot operate continuously on all battalion nets (such as battalion command, operations and intelligence, rear operations, and mortar) while operating on the platoon net. The platoon leader can monitor only two nets at the same time.

o Uses the HMMWV with only a 30-inch fording capability; its reconnaissance, surveillance, target acquisition, and night observation equipment includes the AN/UAS-11, Night Vision Sight; AN/PVS-4, Night Vision Sight, Individual Weapon; AN/PVS-5, Night Vision Goggles; and binoculars.

PATROLS (MANEUVER ELEMENTS)

There are two basic categories of patrols: reconnaissance and combat. A patrol is a detachment sent to conduct reconnaissance, combat, or both. It consists of at least two people who may be accompanied by specially trained personnel or augmented with equipment essential to the mission. All maneuver elements conduct patrols during combat operations to provide reconnaissance, CR, security, and small-scale combat operations.

Reconnaissance patrols collect information and confirm or disprove the accuracy of previously gained information. The three types of reconnaissance patrols are route, area, and zone.

Combat patrols provide security and harass, destroy, or capture enemy personnel, equipment, and installations. The three types of combat patrols are raid, ambush, and security.

Capabilities

Patrols can conduct missions mounted or dismounted in various terrain and weather conditions. Patrols can also conduct missions 10 to 15 kilometers beyond the FEBA. Patrols sometimes pass through the scout platoon to conduct missions. Indirect fire should support patrols at all times. The distance for patrol missions varies with the type of patrol and METT-T. The company must always coordinate with the battalion before the patrons departure to eliminate redundancy and gaps.

Limitations

Patrols have many of the same limitations as the scout platoon. Patrols normally do not provide surveillance for extended periods. Patrols can reconnoiter an area, establish OPs/LPs for a limited period, and then leave.

OBSERVATION POSTS/ LISTENING POSTS (MANEUVER ELEMENTS)

Units establish OPs/LPs to provide security, surveillance of NAI, and early warning of enemy activities. They are in use extensively during limited

visibility. Proper emplacement includes concealment and unit support by fire.

Patrols differ in training and logistic support from scout platoons and normally do not establish OPs/LPs for extended periods. If you use patrols to conduct surveillance for extended periods, you are mismanaging your R&S assets. OPs/LPs are tasked to provide surveillance for extended periods as long as they meet the requirements stated above.

Capabilities

Units can employ practically an unlimited number of OPs/LPs. They can provide 24-hour coverage if they have the proper day and night observation devices, GSRs, or sensors. They can remain undetected due to lack of movement. Units can use OPs/LPs all over the battlefield as long as they are provided with fire support.

Limitations

OPs/LPs cannot operate for 24 hours if they do not have the proper equipment. A security element must be near the OP/LP to provide support and security in a timely manner.

SOLDIERS

During combat, soldiers are scattered all over the battlefield; thus, they can provide a large quantity of real-time information. You must get involved in the training to increase the timeliness and accuracy of information reported. All soldiers, from private to general officer, must know how to properly send information up the chain.

Capabilities

Soldiers can determine the types and numbers of enemy approaching.

Limitations

Soldiers do not always have the right equipment to send information quickly.

EQUIPMENT

Night observation devices (NODS) are either active or passive equipment designed to permit observation during darkness. Active equipment transmits infrared or white light to illuminate the target. Passive devices use either ambient light (from the stars, moon, or other low-intensity illumination) or operate by detecting the differences in heat (infrared energy) radiated by different objects. Heavy rain, snow, fog, or smoke degrade the effectiveness of these devices. You should use NODS on night patrols and OPs/LPs. Figure 3-1 shows observation equipment associated with the maneuver battalion.

DEVICE	CAPABILITIES	CHARACTERISTICS	ADVANTAGES AND DISADVANTAGES
AN/PVS-2 NV Individual Weapon	200 to 400 m	Weight 6 lbs 4 x magnification	Not detectable.
AN/TVS-2 NV Sight, Crew-served Weapons	1,000 m starlight, 1,200 m moonlight	Weight 15 lbs	Not detectable.
AN/TVS-4 NV	1,200 to 2,000 m	Weight 3.6 lbs 7 x magnification	Not detachable.
AN/PVS-4 NV Sight, Individual Weapons	400 m starlight, 600 m moonlight	Weight 3.6 lbs	Not detectable.
AN/TVS-5 Sight, Crew-served Weapons	1,000 m starlight, 1,200 m moonlight	Weight 7 lbs	Not detectable.
AN/PVS-5 NVG	150 m	Weight 1.9 lbs	Not detectable. Eye fatigue after 3 to 5 hours.
An/TAS-5 Thermal Dragon Sight light	1,000 m (+)	Weight 22 lbs	Penetrates all conditions of limited visibility and foliage. Not detectable. Short battery and coolant bottle life.
AN/UAS-12 Thermal TOW Sight	3,000 m (+)	Weight 18.7 lbs	Same as AN/TAS-5.

Figure 3-1. Observation equipment associated with the maneuver battalion.

DEVICE	CAPABILITIES	CHARACTERISTICS	ADVANTAGES AND DISADVANTAGES
AN/UAS-11 Thermal NOD	3,000 m (+)	Weight 58.4 lbs w/tripod	Same as AN/TAS-5.
Binoculars	Intensifies natural light.	7 x 50 power or 6 x 30 power	Not detectable. Requires some type of visible light.
AN/PAQ-4 Infrared Aiming Light	150 m (limited by PVS-5)	Weight .5 lbs Used with AN/PVS-5 and mounts on M16.	Permits aimed fire during darkness. Detectable.
AN/PAS-7 Hand-Held Thermal Viewer	Detects personnel at 400 m, at 1 km.	Weight 9.5 lbs	Penetrates all conditions of limited visibility and light foliage. Not detectable.

Figure 3-1. Observation equipment associated with the maneuver battalion (continued).

ASSETS AND PERSONNEL NORMALLY SUPPORTING THE MANEUVER BATTALION

Assets and personnel that normally support the maneuver battalion include GSR, REMBASS, field artillery, engineer platoon, air defense artillery platoon, Army aviation, and tactical Air Force.

GROUND SURVEILLANCE RADAR

GSR provides the tactical commander with timely combat information and target acquisition data. The primary capability of GSR is to search, detect, and locate moving objects during limited visibility. GSR is capable of accurately locating targets for rapid engagement. It provides early warning of enemy movement and assists friendly forces in movement control.

Tasks

GSR is used to--

o Detect enemy movement during limited visibility.

o Monitor NAI.

o Monitor barriers and obstacles to detect enemy breaching.

o Monitor flanks.

o Extend the capabilities of patrols and OPs/LPs.

o Vector patrols.

o During daylight, detect enemy obscured by haze, smoke, or fog.

o Monitor possible drop zones or landing zones.

Capabilities

GSRs can--

o Penetrate smoke, haze, fog, light rain and snow, and light foliage.

o Operate in complete darkness.

o Detect moving personnel and equipment.

o Be moved around on the battlefield.

o Provide adjustment of indirect fire.

Limitations

GSR limitations are--

o Emits active radar waves which are subject to enemy detection and electronic countermeasures (ECM).

o Performance is degraded by heavy rain or snow and dense foliage.

o Line of sight (LOS) operation only.

o Limited mobility of the AN/PPS-5.

o Limited range of the AN/PPS-15.

Characteristics

GSR should be used with NODS as complementary surveillance devices, since each device can be used to overcome the limitations of the other. Figure 3-2 shows GSR characteristics. GSRs are organic to the MI battalion, intelligence and surveillance (I&S) company. The MI Battalion provides GSRs in direct support (DS) of brigade operations. GSR teams that are DS to the brigade can be attached to maneuver battalion and company elements to support the commanders.

Radar Allocation

Radar is allocated as follows:

o Heavy Division:

--Three squads of four teams each.

--One PPS-5 per team equals 12 PPS-5's.

o Light Division:

--Four squads of three teams each.

	AN/PPS-5	AN/PPS-15
RANGE: Personnel Vehicles	6,000 m 10,000 m	1,500 m 3,000 m
ACCURACY: Range Azimuth	±20 m ±10 mils	±20 m ±10 mils
* SECTOR SCAN:	Automatic - 553, 1,067, 1,600, and 1,955 mils (selectable)	Automatic 800 or 1,600 mils
INDICATORS:	Audio and visual (A- and B- scope)	Audio and visual (digital readout)
REMOTE CAPABILITY:	15.24 m	9.144 m

* Both radars can be manually rotated to any azimuth and manual scanning can be performed.

Figure 3-2. GSR characteristics.

--One PPS-15 per team equals 12 PPS-15's.

o Airborne division and air assault division:

--Three squads of four teams each.

--Three PPS-15's per squad equal nine PPS-15's (two-person team).

--One PPS-5 per squad equals three PPS-5's (three-person team).

Site Selection Factors

General site selection should be made in close coordination with the GSR team leader whenever possible; specific site selection should always be left to the team leader. This takes advantage of the team leader's expertise and knowledge of the GSR. Site selection should provide--

o Protection by combat elements, as far forward as possible to provide the earliest warning.

o LOS between radar and target.

o Communication capability.

o Concealment and cover.

o Protection against ECM.

Remember, radars are an extreme electronic security risk. Both the main and side lobes emit sufficient energy for the enemy to detect and use radio ECM. GSRs, once detected, can give indicators to the enemy showing the size

and disposition of friendly elements. GSRs can be destroyed or jammed. The following are common-sense OPSEC measures to be used with GSRs:

o Use terrain or vegetation to absorb or scatter side lobes.

o Place radar site so the target is between the radar and the hills or forests to limit the detection range.

o Schedule random operating periods of short duration.

GSRs can be used in tandem with two or more widely dispersed radars having the capability to illuminate the same target area, alternating operation times. The GSR can also be used with a night vision device that may not have the same range capability, but will provide some coverage when the radar is turned off.

REMBASS

REMBASS is organic to the airborne, air assault, and light division MI battalion, I&S company. REMBASS can remain under division, in general support (GS); or the division can provide it in DS to maneuver brigades, division support command headquarters, armored cavalry squadron, or maneuver battalion. REMBASS teams report directly to the G2 or S2 of the supported unit. The sensor monitoring set, which functions as the sensor output display, provides target identification and classification. In most cases, the sensor monitoring set is placed at the supported unit's TOC.

REMBASS teams hand deploy the sensors and repeaters; they also provide personnel to operate a monitoring device. REMBASS allocations are different for all divisions and are based on each divisions particular mission. It is important to remember to include the REMBASS team leader in planning REMBASS missions.

Capabilities

REMBASS is an all-weather, day or night surveillance system, activated by magnetic, seismic-acoustic, or infrared changes from moving targets. REMBASS transmits target data by FM radio link to the monitors. With this data the operator can determine the target's--

o Direction of travel.

o Rate of speed.

o Length of column.

o Approximate number.

o Type (Personnel or wheeled or tracked vehicles).

REMBASS can operate in unusual climatic conditions and

on varied terrain. REMBASS has transmission ranges of 15 kilometers (ground-to-ground), and 100 kilometers (ground-to-air). Because of the flexibility and wide range of REMBASS application, various sensor combinations can be selected to suit any given mission.

Limitations

Hand emplacement of sensors and repeaters in hostile areas increases employment response time. The sensor requires radio LOS to transmit data to the monitor. The equipment's weight and size limit the amount and distance personnel can hand carry for emplacement. REMBASS receivers are highly susceptible to electronic jamming; barrage jamming being the most effective. Operator proficiency greatly affects the results obtained.

Equipment

REMBASS teams normally use three different types of sensors: magnetic, seismic-acoustic, and infrared-passive. The sensors are arrayed in strings which complement one another. The sensors function automatically, transmitting information when movement, sound, or heat activates them.

Each sensor has detection and classification techniques suited to the physical disturbance (such as magnetic, seismic-acoustic, infrared-passive). Each sensor has a self-disabling and anti-tampering feature built into it.

Experience during Operation Desert Shield indicates an increased radius of detection for sensors emplaced in sand or sandy soil with a silica base, while sensors emplaced in loose rocky soil degrades sensor detection radius. Therefore, it is very important to check the detection radius of each sensor in the type soil of its intended employment and annotate the results on the Sensor Operator Data Record, if the situation permits.

<u>Magnetic sensor</u>. The magnetic sensor uses a passive magnetic technique to detect targets and determine the direction of movement (left to right and right to left). This sensor detects moving objects that are at least partially made of ferrous materials. The magnetic sensor will not classify targets. The magnetic sensor is most effectively used as a count indicator for vehicles.

Detection ranges of the magnetic sensor are--

o Armed personnel, 3 meters.

o Wheeled vehicles, 15 meters.

o Tracked vehicles, 25 meters.

Due to these detection ranges, REMBASS teams must use these sensors within proximity of the expected routes of travel. The weight of this sensor and battery is 3 kilograms.

Seismic-acoustic sensor. The seismic-acoustic sensor detects and classifies personnel and wheeled or tracked vehicles by analyzing target signature. It transmits a target classification report to the monitor. The weight of the sensor and its battery is 3 kilograms.

Detection ranges for the seismic-acoustic sensor are--

o Personnel, 50 meters.

o Wheeled vehicles, 250 meters.

o Tracked vehicles, 350 meters.

Infrared-passve sensor. This sensor detects and responds to a temperature change of 1.5 degrees Celsius within its field of view. It can determine the direction of motion relative to the sensor position. The infrared-passive sensor is most effectively used as a count indicator for personnel. The weight of the sensor and battery is 3 kilograms.

Detection ranges of the infrared-passive sensor are--

o Personnel, 3 to 20 meters.

o Vehicles, 3 to 50 meters.

Radio repeater. The radio repeater relays data transmissions between the sensors and the monitoring sites. The radio repeater intercepts the encoded radio message from either a REMBASS sensor or another like repeater.

Ranges of the repeater are--

o 15 kilometers ground-to-ground.

o 100 kilometers ground-to-air.

The repeater, like the sensors, has a self-disabling and antitampering feature built into it. The weight of the repeater and three batteries is 15 kilograms.

Additional equipment. Additional equipment for the sensor includes--

o A code programmer for programming a sensor or repeater to a desired operating channel.

o The antenna group for the REMBASS sensor monitoring set receives transmissions from extended ranges.

o Sensor monitoring sets for monitoring REMBASS radio-linked sensor and repeater transmissions.

o A portable radio frequency monitor to monitor sensors and repeaters. It is used primarily during emplacement of sensors to test operational status and radio LOS. It can also be used as a backup if the sensor monitoring set becomes inoperative.

Figure 3-3 shows site symbols. Adjacent brigades or battalions can monitor the same sensors if they exchange radio frequency information. This lateral monitoring increases the surveillance of units and promotes the exchange of intelligence. For additional information on REMBASS characteristics and employment techniques, refer to FM 34-10-1.

FIELD ARTILLERY

To properly integrate field artillery assets into the R&S and CR plans, you must understand the capabilities and limitations of this equipment.

A field artillery battalion is both a producer and a consumer of combat information. Field artillery battalions in DS of brigades provide each maneuver battalion headquarters a fire support element (FSE). This element is headed by an FSO. The FSE helps plan, direct, and coordinate fire support operations. The FSE also provides a fire support team (FIST) to each maneuver company.

Forward observers (FOs) from each FIST are deployed to platoons (except in armor battalions) and may accompany reconnaissance patrols or help operate OPs. FOs observe the battlefield to detect, identify, locate, and laser-designate targets for suppression, neutralization, or destruction. They report both targeting data and combat information to the maneuver battalion FSO and S2.

The FISTs and FOs are specially equipped for their mission. The laser range finder provides an accurate distance measurement to a target. Using the ground or vehicular laser locator designator, the FO can determine distance, direction, and vertical angle. The FO can also laser-designate targets for Army, Navy, and Air Force laser-guided munitions.

The capability of the FIST to provide real-time combat information cannot be overemphasized. The FIST vehicle (FISTV) is capable of accurate target location through the combination of a manual calculation laser range finder and a self-location capability. It has a digital and voice interface with the fire support system and a thermal sight.
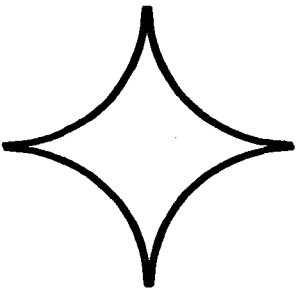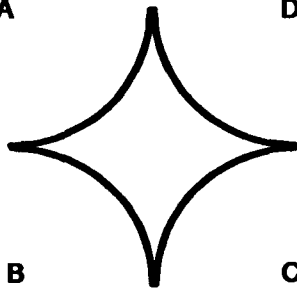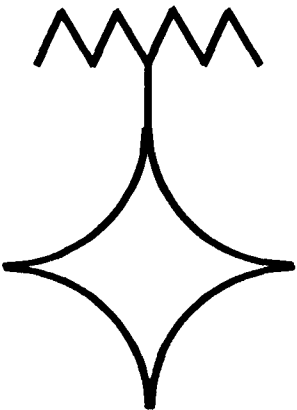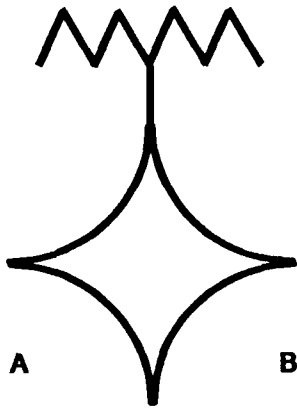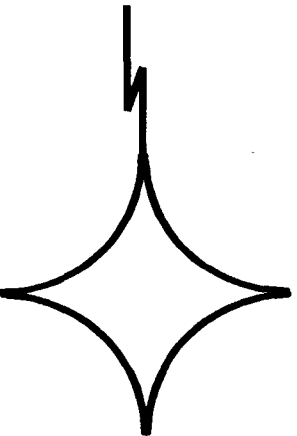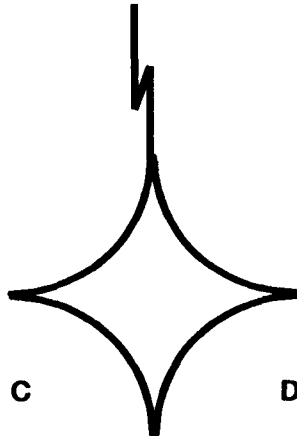
SENSOR SYMBOL	REQUIRED INFORMATION	INFORMATION LEGEND
	A D B C	A = Type of sensor (such as Mag, SA, IR) B = ID code(s) and channel of sensor C = Team and unit emplacing sensor D = SMS pen number
MONITOR SYMBOL	**REQUIRED INFORMATION**	**INFORMATION LEGEND**
	A B	A = Receiver channel (designate A or B when using the SMS) B = Team and unit
REPEATER SYMBOL	**REQUIRED INFORMATION**	**INFORMATION LEGEND**
	C D	C = Receiver and transmitting channel D = Team and unit emplacing the repeater NOTE: The bottom of the diamond points to the sensor location.

Figure 3-3. Site symbols.

The FISTV can locate targets out to 10 kilometers and designate targets out to 5 kilometers. However, its electro-optics capability cannot provide acquisition beyond direct fire range (5 kilometers).

Maneuver company and troop FISTS and combat observation and laser teams use the FISTV. The FISTV has only LOS target-acquisition capability. When on the move, it cannot designate targets. The thermal sight's range limitation is within 3 kilometers of its field of vision. Being mounted on an M113 chassis, it lacks the mobility and armor protection of the maneuver forces it supports.

ENGINEER PLATOON

The maneuver battalion receives engineer support from the engineer company normally placed in DS of the brigade. Usually an engineer platoon supports a battalion. The mission of this engineer platoon is to provide mobility, countermobility, survivability, and general engineering support.

As the S2, you should learn to tap into this valuable resource for detailed information on natural and constructed terrain features. The S3 and the engineer support officer need to coordinate with each other to integrate engineer assets into the R&S and CR plans. The engineer

support officer can provide key information about the terrain without your having to send out a reconnaissance patrol. In some cases it would prove valuable to have engineers go along with reconnaissance patrols. Engineers can provide expert terrain and obstacle analysis.

AIR DEFENSE ARTILLERY PLATOON

Short-range air defense elements normally support the maneuver battalion. These may include Stinger teams or sections and Vulcan squads. The air defense artillery (ADA) platoon or section leader functions as the battalion air defense officer. The ADA leader works closely with the battalion S2, S3-air, FSO, and air liaison officer (ALO) to plan and coordinate air defense support.

Specifically, the ADA leader would coordinate with you to pinpoint areas of enemy air and ground activity. The battalion air defense officer can tap into resources that look through the battlefield to determine areas of enemy air activity, thus revealing enemy ground activity.

The forward area alerting radar (FAAR) and target data display set provide air alert warning information to Vulcan squads and Stinger teams. This warning includes tentative identification, approximate range, and azimuth of

approaching low-altitude aircraft out to 20 kilometers.

ARMY AVIATION

Aviation units support maneuver brigade and battalion commanders. They provide a responsive, mobile, and extremely flexible means to find, fix, disrupt, and destroy enemy forces and their supporting command, control, and communications (C^3) facilities. Some aviation assets are capable of performing limited reconnaissance missions; however, most will collect information only as part of normal aviation missions.

You can find out from the army aviation support officer information concerning enemy activity in areas where aviation assets fly missions. Helicopters can resupply, insert, or extract OPs/LPs or patrols. Combat aviation companies provide airlift support for troops and evacuate equipment, casualties, and enemy prisoners of war (EPWs).

The OH-58D is found in the attack helicopter battalion supporting maneuver brigades and battalions. The crew of the OH-58D consists of a pilot and an artillery fire support coordinator and observer. This aircraft performs two functions. First, when in support of maneuver battalions with FSEs, it is primarily a target acquisition and target attack system. Second, when in support of units where no FSE exists, the OH-58D crew performs a fire support planning and coordination function.

The OH-58D has many of the same capabilities as the FISTV. It has a thermal sight; a laser range finder and designator; a self-location capability; and a digital and voice interface with the fire support C^3 system. It can locate and designate targets out to 10 kilometers. Under less than ideal weather conditions it can only detect and recognize targets to within direct fire ranges.

This system provides--

o Digital interface with fire support C systems.

o Digital interface with Army aviation aircraft equipped with the airborne target handover system (such as the AH-64 Apache).

o Interface with Air Force assets so equipped.

These characteristics make the OH-58D a primary member of Joint Air Attack Team (JAAT) operations.

TACTICAL AIR FORCE

JAAT is a combination of Army attack and scout helicopters and Air Force close air support (CAS). It normally operates in support of maneuver brigade or battalions. All

staff officers participate in planning missions for Air Force support, especially the S2, S3, S3-air, FSO, and ALO. Coordinate through the ALO to receive real-time information from these Air Force assets.

The ALO also provides the means to forward immediate tactical air reconnaissance requests up the chain. Air reconnaissance reports, in-flight combat information reports, and air situation reports are all available through the ALO. The ALO weighs this information against information from the CR and the R&S plans. In this way the ALO can confirm or deny the accuracy of those plans.

ASSETS AND PERSONNEL NORMALLY SUPPORTING THE MANEUVER BRIGADE

At brigade level, the commander is fighting the close-in battle. You, as the brigade S2, must support the commander. To do this you must focus your collection effort at the 1st-echelon regiments and the 2d-echelon regiments capable of influencing your commanders battle (out to 30 kilometers) . The brigade has limited assets available to conduct the collection effort. Here are some assets and personnel you can use to enhance your R&S and CR operations.

IEWSE

The IEWSE officer provides expertise on the capabilities, limitations, and employment of the intelligence and electronic warfare (IEW) equipment supporting the brigade. The IEWSE--

o Coordinates IEW support of the maneuver brigade.

o Is the link to the MI battalion for support.

o Communicates with the MI bn to receive targeting and tasking information.

EPW INTERROGATORS

Interrogators screen and interrogate EPW, detainees, and refugees. Their mission is to collect and report all information possible to satisfy the commander's PIR and IR. FM 34-80 contains the types of information interrogators can obtain and provide.

COUNTERINTELLIGENCE

The counterintelligence (CI) support team can evaluate the vulnerability of friendly R&S assets to detection by threat R&S and target acquisition assets. CI members of support teams can identify and counter the specific enemy target acquisition means which pose a significant threat to brigade operations. These include--

o Human intelligence (HUMINT).

o Imagery intelligence (IMINT).

o SIGINT.

Based on enemy R&S activities, you could determine which operations security (OPSEC) and deception operations would work against the enemy, after coordination with CI personnel. FM 34-80 has detailed information on CI support.

GSR AND REMBASS

GSR and REMBASS can be kept under brigade control. See the above paragraph titled "Assets and Personnel Normally Supporting The Maneuver Battalion" for specific information.

ELECTRONIC WARFARE COLLECTION SYSTEMS

These assets operate near or within the brigade AO. They provide intelligence from intercepted enemy emitters. Ground-based systems include the following:

o AN/TSQ-138 (TRAILBLAZER) is a ground-based HF and VHF communications intercept and VHF DF system. It is found in heavy divisions only.

o AN/MSQ-103C, Heavy Divisions, AN/MSQ-l03B, Airborne and Air Assault Divisions, (TEAMPACK) is a ground-based noncommunications intercept and line-of-bearing (LOB) system. It is found in all divisions except light.

o AN/TLQ-17A (TRAFFIC JAM) is a ground-based HF and VHF communications intercept and jamming system. It is found in all divisions except light.

o AN/TRQ-32 (TEAMMATE) is a ground-based HF, VHF, and UHF communications intercept and LOB system. It is found in all divisions.

o The AN/PRD-10\ll/12 is a ground-based radio DF system capable of being carried by one person. It is found in air assault, airborne, and light divisions, and some heavy divisions.

o AN/ARQ-33A or AN/ALQ-151 (QUICKFIX) is an airborne communications intercept, jamming, and DF system. It is found in all divisions.

There are also numerous communications jamming resources that will be available to the commander in or near your brigade AO. FM 34-80 has detailed information about electronic warfare (EW) equipment.

DIVISION INTELLIGENCE OFFICER

The G2 can provide many kinds of detailed intelligence. The G2 has various assets available to collect information and can pass this down to you as intelligence. FM 34-10 has specific information concerning these assets.

FIELD ARTILLERY

Like the maneuver battalion, the maneuver brigade has an FSO to coordinate fire support. The FSO can communicate with numerous weapon-locating radars.

Fire Finder Radar

The target acquisition battery of division artillery (DIVARTY) has three AN/TPQ-36 mortar-locating radars and two AN/TPQ-37 artillery-locating radars.

The AN/TPQ-36 detects mortars and artillery out to 12 kilometers and detects rockets out to 24 kilometers.

The AN/TPQ-37 detects artillery and mortars out to 30 kilometers and rockets out to 50 kilometers.

Moving Target Locating Radars

The DIVARTY target acquisition battery has either one AN/TPS-25A or one AN/TPS-58B moving-target-locating radar. These battlefield surveillance radars are similar to the GSR. They can detect, locate, and distinguish wheeled and tracked vehicles and dismounted personnel.

The AN/TPS-25A detects moving vehicles out to 18 kilometers and personnel out to 12 kilometers.

The AN/TPS-58B detects moving vehicles out to 20 kilometers and personnel out to 10 kilometers.

Field Artillery Battalion Observation Posts

Survey parties and other trained personnel of the field artillery battalion operate the battalion OPs. These personnel survey designated target areas, and record high-burst and mean point-of-impact registrations. They send targeting data and combat information to the fire direction center or the FSO at the maneuver battalion or brigade.

Aerial Fire Support Officer

The DIVARTY support platoon of the heavy division's combat aviation brigade provides rotary wing aircraft for DIVARTY air observers. Their mission is to call for or adjust fires from the fire support assets. Aerial fire support officers--

o Cover areas masked from ground observers.

o Cover thinly resourced areas.

o Provide coverage while ground-based R&S and target acquisition assets displace.

o Reinforce surveillance of vulnerable areas.

o Report targeting data and combat information to the FSO at the maneuver battalion or brigade, DIVARTY TOC, or the fire direction center.

ENGINEER AND AIR DEFENSE ARTILLERY

Engineer and ADA support officers are located at the maneuver brigade. Types of information these personnel can provide is discussed in the above paragraph titled "Assets and Personnel Normally Supporting The Maneuver Battalion."

AIR AND ARMORED CAVALRY SQUADRON

This squadron supports the division by conducting reconnaissance and security missions. There are four types of air and armored cavalry squadrons:

o The air and armored cavalry squadron of the heavy division consists of two ground cavalry troops (M3 equipped); and two air cavalry troops (OH-58s and attack helicopters).

o The air cavalry squadron of the air assault division consists of three air cavalry troops; and one air assault troop.

o The air cavalry squadron of the airborne division consists of three air cavalry troops; one ground cavalry troop (tube-launched, optically tracked, wire guided [TOW] missile systems and scout HMMWVs); and one air assault troop.

o The air cavalry squadron of the light division consists of two air cavalry troops; and one ground cavalry troop (TOW and scout HMMWVs).

Headquarters and headquarters troops and maintenance troops are not included in the above list.

ARMY AVIATION

Attack Helicopter Battalions

These battalions are primarily trained to "kill" enemy tanks. They can also--

o Provide aerial escort and suppressive fires to support air assault operations.

o Destroy enemy C^3 and logistic assets.

o Conduct JAAT operations.

If these assets support your brigade, they can provide detailed information about enemy activity. The key to obtaining this information is to coordinate with the S3-air and the Army aviation support officer. Refer to the above paragraph titled "Assets and Personnel Normally Supporting The Maneuver Battalion" for additional information. Figure 3-4 shows an asset deployment matrix. This matrix may be

If these assets support your brigade, they can provide detailed information about enemy activity. The key to obtaining this information is to coordinate with the S3-air and the Army aviation support officer. Refer to the above paragraph titled "Assets and Personnel Normally Supporting The Maneuver Battalion" for additional information. Figure 3-4 shows an asset deployment matrix. This matrix may be used by brigade and battalion S2s to keep track of deployed assets.

MILITARY POLICE PLATOON

The military police (MP) platoon supports the maneuver brigade during some missions. If you have an MP platoon supporting your unit, you should coordinate with the MP platoon leader for information. The MP platoon can usually coordinate with other MPs who are normally scattered all over the AO.

ASSET (each system)	DESIGNATION (call sign)	LOCATION (keep current)	TARGET (coordinate description, NAI)	PERSONNEL OR EQUIPMENT REMARKS (report channels)

Figure 3-4. Asset deployment matrix.