thrown from both types of boats during the daytime, on an unscheduled basis, along possible swimmer/sapper routes of approach. When there was a reported build-up in the area, or intelligence reports indicated impending sapper attacks, additional concussion grenades were thrown. During normal daytime operations only one or two concussion grenades were thrown per hour from each boat, but during periods of increased enemy activity this number was increased to as many as six per hour.

2. Night operations were conducted in the same manner as daytime operations except for the additional requirement of illumination. The boat spotlight and hand-fired illumination flares were used to provide light for inspection of port facilities and vessels. At night, concussion grenades were thrown at an average rate of six per hour. If suspicious bubbles or debris were noticed, a grenade run was made through the area, throwing about 15 grenades. Occasionally at night, boat engines were shut down and the boat was allowed to drift for a period of time. This allowed the crew to listen for swimmers that might be operating illegally in the area.

(c) Special Missions

The Cat Lo detachment had the additional mission of providing VIP security for visiting dignitaries. Two PBR's stayed within 100 meters of VIP craft at all times. The mission of the PBR's was to keep VN boats away from the VIP craft and to provide close-in security. Occasionally the Cat Lo detachment aided in the search for a suspected drowning victim, or transported personnel from the pier to ships anchored in the outer harbor.

(3) Qui Nhon

(a) Deployment of Boats

The detachment at Qui Nhon used two PBR's and one BW from 0630 hours to 1830 hours, and two PBR's and two BW's from 1830 hours to 0630 hours, to patrol in designated sectors of Qui Nhon harbor.

(b) Routine Patrol Operations

The BW and one PBR patrolled dock and pier facilities and the close-in anchorage, while the other PBR patrolled the deep water. The boats kept VN craft out of restricted areas and, in the overall patrol areas, spot-checked these craft, their cargoes, and crews. The Qui Nhon detachment included interdiction of enemy supply lines as part of routine patrol operations. Supervisory personnel from the PBR detachment attended daily intelligence briefings conducted by the 5th TTC covering such operational items as identification of sensitive cargo, unusual port activities, and current enemy situation. This information was disseminated to boat crews during informal briefings or at roll-call formations

prior to patrols. Boats in operation were mutually supporting, with off-duty boats and crews designated as a reaction force. Communications were maintained on the 458th detachment radio frequency, monitored by both the 5th TTC and the 93d MP Battalion. During alerts the boats often switched to the 5th TTC TOC frequency for the duration of the operation. Prior to making grenade runs or firing crew-served weapons, clearance was obtained from the 5th TTC TOC through the detachment NCO; however, this procedure was unnecessary if the situation was covered by the Rules of Engagement. Grenade runs were more frequent and intense at night and were conducted at unscheduled intervals, in a random fashion. Even the daytime grenade runs were made almost exclusively by PBR's because of their greater speed and stability. A concerted effort was made to avoid any discernible pattern in grenade employment. A procedure frequently employed at night was to shut down the engines and drift through the patrol area in a listening attitude. If available, either radar or a starlight scope was employed to discern movement. Spotlights and flares were also used to illuminate the AO either randomly or for cause. Another procedure occasionally used involved setting up the boat as a decoy in hopes of drawing enemy fire. This was accomplished by idling the engines, talking loudly, smoking, and turning lights on and off; crew stations were manned and ready to employ full firepower immediately if the enemy exposed himself. No ambushes were directed against the boats; however, they occasionally received small arms fire from the shoreline and jungle-covered hills. In the few contacts made, enemy effectiveness was neutralized by the high volume of suppressive firepower delivered by the PBR's. Since portions of the area surrounding the waters in which the PBR's operated were densely populated, crews found it very difficult to obtain clearance to fire the .50-caliber machineguns. There were fewer difficulties, however, in obtaining permission to fire the M60 machineguns or the automatic grenade launcher.

(c) Special Missions

1. The Cui Chon detachment was occasionally called upon to perform escort missions for vessels carrying sensitive cargo from the outer harbor into the inner-harbor anchorage. This involved one PBR in escort of each ship involved. The PBR crew ran their boat ahead of the escorted ship, throwing concussion grenades to reveal any enemy swimmers/sappers or mines within the ship's path.

2. In the early phases of PBR employment, before the 18th MP Brigade regulation prohibited such action, PBR's were occasionally used in limited offensive actions. These actions were usually called for by forward air controllers (FAC's) upon spotting suspicious movement in the swamp. When entering the swamp, the PBR's occasionally became involved in fire-fights; in a few instances, the crews beached the boats and went ashore with small arms to rout the enemy, using their boat as a base of fire.

(4) Vung Ro Bay

(a) Employment of Boats

At Vung To Bay one PBR or BW was used during the day, and one PBR, at night. The BW generally remained within the immediate anchorage area; the PBR's covered this area and also patrolled outward to the entrance of the bay and to the northern (inner) reaches of the bay. When the BW was used alone for patrol, one PBR and crew remained on standby, in case a faster boat was needed or coverage of the farther reaches of the bay was indicated.

(b) Routine Patrol Operations

1. Day patrol began at 0600 hours and provided visual inspections of the water surface, port facilities, and vessels. The three areas of responsibility were the pier, the POL discharge point, and the anchorage. (There seldom were more than one or two ships in Vung Ro harbor.) At night concussion grenade runs were made around all three areas. The boats carefully patrolled the farthest shoreline and the entrance to the bay for enemy sampans infiltrating the northern end of the bay. On an average of twice a week, the boats were called upon to provide direct fire support to shore installations. Before the boats could fire weapons ormake grenade runs, they had to obtain clearance from the harbor TOC through their RTO.

2. The boats were mutually supporting and the immediate backup reaction force consisted of the off-duty personnel and boats. Air or artillery fire support had never been used, but had it been needed, the request would have gone through the harbor TOC. In the event of an enemy attack, the boat's first responsibility was to help clear the harbor of ships. Once this was accomplished, they would patrol around the POL discharge point and pier. When the enemy probed the perimeter or attacked with ground forces, the boats were used to provide close-in fire support. The harbor TOC directed them to fire into certain areas and advised them which weapons to employ. They used .50-caliber machineguns, M60 machine-guns, and 40mm automatic grenade launchers.

3. A technique frequently practiced at night was to shut down the engines and drift silently, listening for sounds and looking toward lighted areas for movement. If starlight scopes were available, the crews used them when patrolling the mouth of the bay or shoreline. Spotlights were not used, but hand-fired illumination flares were. Radar was used whenever available. As at Qui Nhon, the crews occasionally set themselves up as a decoy to draw enemy fire.

4. The detachment NCOIC received harbor operations information, intelligence, and free-fire zone information from the harbor

TOC. If the harbor TOC had a mission for the PBR's, it was relayed to the boats through the detachment RTO. If there was enemy contact, the boats and the detachment RTO switched to the harbor TOC frequency for the duration of the action and were controlled by the TOC. Before the boats could make grenade runs or fire, the detachment RTO had to obtain clearance through the harbor TOC. In reality, the harbor TOC controlled PBR operations, without having actual authority.

5. Vietnamese civilian boats and sampans were restricted from entering the bay. If a VN sampan came into restricted waters, it was stopped, identification papers were checked, and the boat was searched. The northern portion of the bay was an area of suspected VC activity. Vung Ro had no VN police capability, and the American crews had to do all police work. When a VN civilian was detained as a VC suspect or just for being in the harbor, he was eventually turned over to the PIO at Phu Hiep, 25 miles from Vung Ro Bay. The detachment had no organic transportation, and, in most cases, the VN police would not pick up detainees, this was especially true during the hours of darkness, because the roads were closed after 1800 hours. Detainees were kept at the PBR detachment until a vehicle could be obtained to transport them to the VN police station.

(c) Special Missions

Because of the isolation of Vung Ro Bay and the virtual lack of shipping in the area, this detachment had no escort mission. It was called upon, only on rare occasions, to provide waterborne fire support for land sweeps by friendly troops. It had no special supply interdiction mission other than that performed by routine patrols in their control of sampan traffic.

(5) Cat Lai

(a) Employment of Boats

The Cat Lai detachment used four PBR's during the day, and six at night. The harbor was covered 24 hours a day by two-boat patrols; one PBR patrolling the outer harbor, while the other provided inner-harbor security. During the day, in addition to the two boats on harbor patrol, an average of two PBR's provided escort and security for barges carrying ammunition or POL to Conido. Night patrols used two PBR's on the lower Saigon River and two more on the Nha Be, in addition to the two assigned to Cat Lai harbor security.

(b) Patrol Operations

1. The day patrol, initiated at 0600 hours, provided visual and physical inspections of harbor facilities, barges, ships, and sampans. The inner-harbor PBR patrol crew consisted of two MP's, two TC's, and a VN policeman. They were responsible for Cat Lai Harbor, with emphasis

placed on ammunition ships anchored in the harbor and off-loading into barges. Primary responsibility was the security of ammunition ships; therefore, all VN boats were kept away from the general area. VN watercraft were stopped and searched by the VN police on the PBR's. The outer-harbor patrol, in its coverage of the open water between Cat Lai and Nha Be, bore most of the responsibility for the detachment's mission of interdicting VC/NVA supply routes. No VN police were carried by this patrol; however, joint checkpoints were set up with the VN police several times a week, when VN boats were stopped and searched. Concussion grenades were not used during the day because of the frequent presence of friendly divers in the area performing hull inspections and other maintenance.

2. Night operations in both inner and outer harbor were conducted in the same manner and with the same number of crewmen as daytime operations. Flares and the boat spotlight were used to provide illumination for visual inspections; concussion grenades were occasionally employed, but only after clearance from the 159th Transportation Battalion TOC. At night, additional VN patrols were used. Two PBR's with normal crews provided security at the Nha Be harbor facility and its POL tank farms. Operations consisted of visual inspection by use of illumination devices and search of all VN boats entering the area. Two additional PBR's patrolled the open water between Nha Be and Cat Lai at night, with their primary mission the interdiction of NVA/VC supply lines. They did not carry VN police.

3. All PBR's communicated through the detachment RTO on the 458th TC frequency. The detachment RTO had either landline communication with the company or radio contact via relay. If a higher level decision was needed, the company used landline communication with the 95th MP Battalion.

(c) Special Missions

Cat Lai had the additional mission of daytime escort of ammunition barges from Cat Lai and POL barges from Nha Be to be offloaded at Cogido (Long Binh/Bien Hoa). Escort missions, each consisting of one PBR with a normal four-man crew, averaged two a day. The PBR preceded the escorted tug and barge, provided close-in security, and maintained radio contact on the 159th Transportation Battalion frequency. This allowed them to communicate with the tug as well as the Transportation TOC for requesting fire support and reaction forces. PBR's often received fire from small arms, automatic weapons, and RPG's while performing this mission. If a heavy volume of fire was encountered, the PBs would immediately return suppressive fire until the tug and barge cleared the area. When a small volume of fire (i.e., sniper action) was encountered, the crew obtained clearance to fire from the 159th Transportation Battalion TOC before returning fire.

(6) Newport

(a) Employment of Boats

The Newport detachment used two BW's and one PBR from 0630 hours to 1830 hours to conduct waterborne security operations within the Saigon-Newport area of the Saigon River. From 1830 hours to 0630 hours, two PBR's and one BW were on patrol with the BW patrolling the area in the immediate vicinity of the Newport docks. Emphasis was placed on observation of the water surface for enemy swimmer/sapper personnel and for explosive devices near or attached to ships or piers.

(b) Patrol Operations

1. Day patrols provided visual inspection of water surface, port facilities, and vessels in the area. (Large cargo vessels were usually tied to the Newport docks, and their cargo off-loaded directly onto trucks.) During the day, the PBR patrolled the entire port area, making visual inspections as well as physical searches of VN boats on the river. The two BW's patrolled close to the port facilities and vessels to perform inspections.

2. Night operations employed two PBR's and one BW. The BW performed close-in scrutiny of the vessels and port facilties, while the PBR's supported each other in patrolling the entire harbor area. Illumination devices were used to aid visual inspections. Composition of night crews was the same as that of daytime crews.

3. Radio contact was maintained with the boats by the detachment RTO. The AN/VRC-49 was used on the PBR and an AN/PRC-25 on the BW. The detachment operated on the 458th TC frequency and could request fire support through the company TOC. If a higher level decision were required, the company contacted the 95th MP Battalion by landline.

(7) Cogido

(a) Employment of Boats

The Cogido detachment used two PBR's to provide close-in security for ammunition discharge points at Long Binh and Bien Hoa on the Dong Nai River. The PBR serving the Bien Hoa site also conducted periodic security checks of the Dong Nai sand-dredge site. A third PBR conducted open-river patrols within the entire Cogido area of responsibility and was on call if needed by the PBR's securing the two ammunition discharge sites. All three PBR patrols were operational 24 hours a day.

(b) Routine Patrol Operations

1. Day patrol was initiated at 0600 hours and consisted of visual inspection of the water surface, ammunition discharge sites, and those barges and vessels within the particular patrol area. The two patrols securing the ammunition discharge sites had three-man crews, each composed of two TC's and one MP, who generally performed visual inspection while drifting. All VN boats were kept away from the discharge sites. The patrol covering the entire Cogido area of responsibility had a crew of two MP's, two TC's, and, normally, an ARVN interpreter. This patrol checked the entire waterway and VN craft in the area. The ARVN interpreter had no actual police authority, but did search VN boats. The Cogido detachment was under the operational control of the 720th MP Battalion, because Cogido was located in its TAOR. (If B Company needed a boat for support, the center patrol PBR was used, rather than either of those patrolling ammunition discharge sites. Second to B Company's requirements in priority was coverage of ammunition discharge sites.)

2. Night operations were conducted in much the same manner as daytime patrols and with the same crew compositon. Flares and boat spotlights were used to provide illumination for visual inspection. Patrol areas, mission priorities, and methods of operation remained the same as for daytime patrols. Fire support was available through the 720th MP Battalion TOC.

(c) Special Missions

The Cogido detachment had the mission of providing water-borne fire support to ground troops of B Company, 720th MP Battalion operating in the Cogido area. They also had the mission of transporting backup troops to various areas in the TAOR, if required by the ground commander.

(8) Nha Be

Nha Be detachment had a company maintenance function but no tactical mission. Although authorized 20 maintenance personnel under supervision of a warrant officer, strength at the time of evaluation was only nine; both the unit maintenance officer and the detachment NCOIC considered this number most inadequate in view of the workload. The primary maintenance functions served by Nha Be were replacement of engines and other major components and repair of hulls. Lower echelon maintenance was performed at individual detachment level, and more extensive maintenance requirements were referred to Marine Maintenance Activity, Vietnam. The detachment used Navy facilities and tools.

b. FINDINGS

(1) Intelligence furnished the 458th TC detachment affected only vigilance and usage of concussion grenades or flares; boat commitments were made at group level [II-2a(1); p. II-21].

(2) Intelligence furnished the detachments was not timely, due to delays in its transmission through channels from the 18th MP Brigade, 89th and 16th MP Groups, and the various battalions [II-2a(2); p. II-21].

(3) After-action reports were sent to local commanders and to 18th MP Brigade [II-2a(3); p. II-21].

(4) Whenever possible, a VN policeman was carried on board to conduct boarding and search of VN watercraft [II-2b(1); p. II-22].

(5) As a means of protecting against boobytraps, both US personnel and VN police used the technique of having occupants of halted VN watercraft perform the actual search of their own boats [II-2b(2); p. II-22].

(6) The main armament of PBR's was seldom used for covering halted sampans once they were alongside [II-2b(2); p. II-22].

(7) Eighty-five percent of PBR crew members interviewed indicated a preference for a shotgun for close-in coverage of halted watercraft and a pistol for use when boarding and searching [II-2b(2); p. II-22].

(8) All detachments considered swimmer/sappers the primary threat against which they operated; techniques for countering this threat consisted of visual surveillance and concussion grenade runs [II-2c; p. II-22].

(9) The six operational detachments used PBR's for all deep-water or rough-water patrols and whenever speed and/or firepower were factors; BW's were used only to augment PBR's (generally on daytime patrols) in close-in areas (i.e., around docks, piers, anchorages, and general inner-harbor inspections) [II-2d(1); p. II-24].

(10) All six operational detachments operated 24-hour coverage, divided into two patrol shifts of 12 hours each; day patrol started at either 0600 hours or 0630 hours, depending on the particular detachment [II-2d(1); p. II-24].

(11) The Cat Lo detachment kept a complete harbor log of all vessels - arrivals, departures, type and apparent condition of cargo, and other information of possible use [II-2d(2)(b); p. II-24].

(12) Some detachments reported using the technique, at night, of drifting silently with engines shut down and listening for signs of enemy activity [II-2d(2)(b)3; p. II-25; and II-2a(4)(d)2c; p. II-27].

3. OBJECTIVE 3: CAPABILITIES AND LIMITATIONS OF THE PBR AND THE BOSTON WHALER INCLUDING WEAPONS AND COMMUNICATIONS SYSTEMS.

a. PBR Capabilities and Limitations

(1) PBR Design

(a) General

All personnel interviewed indicated that the PBR was a suitable craft for the missions performed in RVN. The boat is capable of providing high-speed mobility on inland waterways and port areas, and has some deep-water capability. The organic PBR armament provided the capability of delivering a high volume of suppressive fire.

(b) Size

The tidal effects on the depth of the inland waterways in RVN limited the areas in which the PBR could travel. Many of the inland waterways have sandbars. At low tide, the PBR had to remain in the river channel or risk damage. Although the PBR draws only 2 feet when dead in the water, it cannot traverse many of the side streams that feed the rivers. This has not been a serious problem, as PBR's were seldom required to travel on small streams. The PBR displayed a relatively high degree of stability, an attribute which is particularly useful in port areas where the waters become rough during evening hours.

(c) Safety Equipment

1. The water-safety equipment on board was generally considered adequate by the crew members. However, the standard kapok life jacket supplied was bulky, uncomfortable, and severely restricted movement. As a result, many crew members did not wear it, and suggested that it be replaced with a compact, inflatable type.

2. The firefighting equipment for the PBR consisted of two dry-chemical fire extinguishers; crew members did not consider these adequate. The loss of a boat at Cat Lo in May 1969 demonstrated that the two on-board extinguishers are not sufficient to extinguish a electrical fire. It was suggested that two CO_2 fire extinguishers be added to eliminate this problem.

3 Deck shoes are authorized for wear aboard the boats, but generally have not been available through supply channels. This shortage presented a safety hazard, because heavy boots and bloused trousers make it difficult for a crew member to swim or even stay afloat, if thrown into the water.

(d) Crew Stations

All crew stations were considered adequate except for the forward gun emplacement tub, which was found to restrict the operator's movement, especially when the kapok life jacket was worn. This made the operation of the weapons difficult; at times gunners were unable to cock the twin .50-caliber machineguns without assistance from another crew member. Enlargement of the gun tub, or movement of the guns forward, along with the adoption of a CO_2 inflatable life belt were suggested to alleviate this problem.

(2) PBR Propulsion System

(a) General

The propulsion system was considered adequate by all personnel interviewed. Problems encountered were attributed to lack of training, improper or inadequate maintenance, and environmental effects.

(b) Engine

Maintenance personnel stated that the major problem encountered with the engine was cracking of cylinder sleeves and heads. They felt that improper operating procedures was the probable cause. The PBR engine has a required warm-up and cool-off period when initiating or concluding operations, and these procedures were not always followed. For a detailed discussion of engine problems, see paragraph II-5d(2).

(c) Waterjet Pumps

The Jacuzzi waterjet pumps were considered adequate by all personnel interviewed. However, excessive wear was experienced, causing a decrease in the efficiency of the pumps. It was considered by PBR personnel that this problem is directly related to the debris and silt content in the RVN waterways and has been compounded by the lack of replacement parts in the supply system. Adequate routine maintenance could reduce or prevent the actual clogging of the pumps with debris, which occurred occasionally.

(d) Controls

The controls for the boat (see Figure II-12) were considered adequate by all personnel interviewed. Brighter control-panel lights for night illumination was the only change recommended. It was recommended that a higher wattage bulb with rheostat control be installed.

(e) Fuel Systems

The only problem area noted in the fuel system was the large number of inoperative fuel gauges. This did not cause major operational problems, however, because each boat was equipped with a fuel measuring dip-stick.

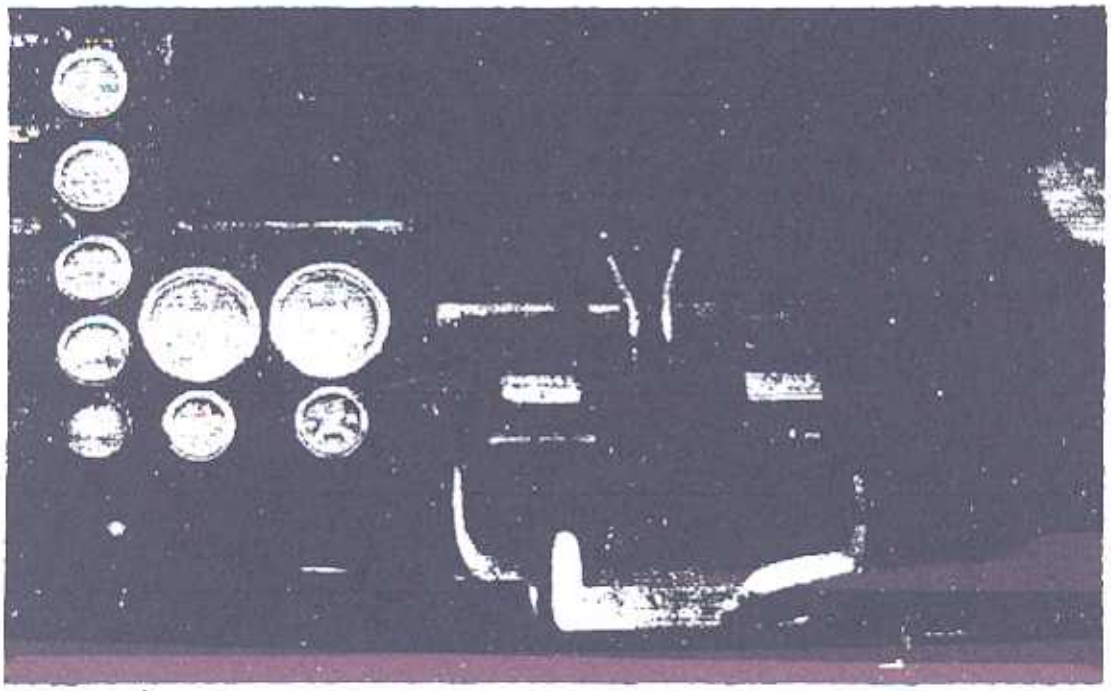


FIGURE II-12. Control Panel (Coxswain's Station).

(3) PBR Electrical System

The PBR power supply is a 24-volt, two-wire, negative-ground electrical system, consisting of power sources and regulation equipment, power distribution equipment, and power loads. Major problems in the electrical system had been encountered (an electrical fire resulted in the total loss of one PBR); however, the 458th was authorized no maintenance personnel trained to repair the electrical system, resulting in attempts by crew members or other maintenance personnel to repair the system. This generally compounded the electrical problem, since the "quick-fix" was usually wired around the problem area rather than correcting it.

(4) PBR Pumping Systems

The PBR has three pumping systems; seawater, fuel stripping, and bilge.

(a) Seawater Pumping System

The primary purpose of the seawater pumping system is to cool the fresh water in the engine cooling system. Secondary purposes are to cool engine exhaust and to prime the bilge pump. The seawater pumping system was judged adequate by personnel interviewed; problems encountered in this area resulted from crew inefficiency or lack of knowledge, rather than from inherent equipment shortcomings.

(b) Fuel-Stripping System

The hand-operated fuel-stripping pump, with a capacity of 3 quarts per minute, permits the fuel tanks to be purged of water and other impurities that collect in the tank sump. This system can also be used to empty the fuel tanks. All personnel interviewed considered the system adequate.

(c) Bilge Pumping System

The bilge-pumping system is a two-way system with both power and manual pumping capabilities. The power bilge pump is operated by the port engine and has a capacity of 110 gpm. It was considered adequate by all those interviewed. The bilge system also includes an emergency suction hose (see Figure II-13, pump-out attachment kit) which can be attached to either Jacuzzi propulsion pump and has the capability to displace a large volume of water quickly. Many of the outports experienced problems with the bilge-pumping system, caused by a large amount of silt and debris in the water. There were several instances noted in which an electrical bilge pump from an APC had been installed to replace the original bilge pump. This was due to a lack of readily available replacement pumps in the supply system. Crew members considered the power bilge pump to be satisfactory when in proper working condition. Failure of the bilge system could not be considered a limitation during routine operation of the boat; however should the hull become damaged and the PBR start to take on water, the boat might have to be beached in order to prevent sinking.

(5) PBR Weapons Systems

(a) On-Board Armament

PBR armament includes forward-mounted twin M2 .50-caliber machineguns, a single M2 .50-caliber machinegun aft, and a 40mm automatic grenade launcher mounted to the rear of the cockpit.

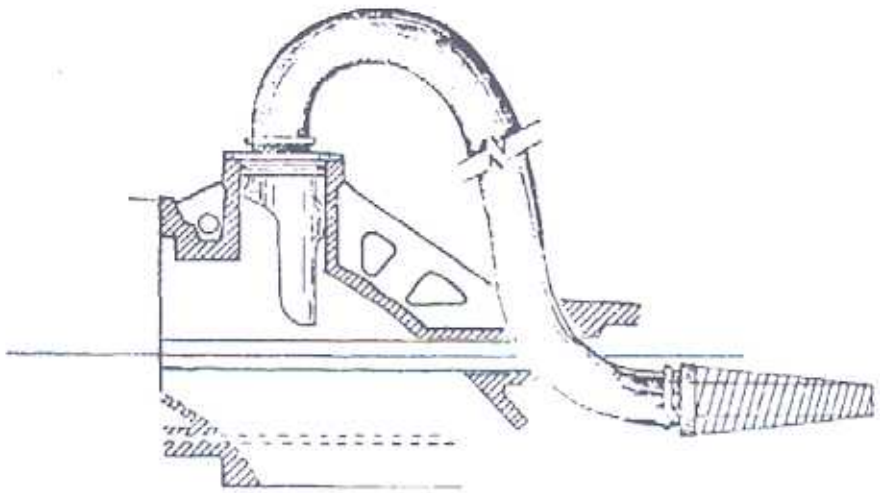


FIGURE II-13. Pump-Out Attachment Kit.

1. The forward emplacement consists of gunner's tub and a MK 56 Mod-0 universal gun mount (see Figure II-14). Although this position can accommodate twin .50-caliber machineguns, M60 machineguns, 20mm cannon, or 40mm grenade launchers, the only weapons used in this mount by the unit were twin .50-caliber machineguns. A 450-watt searchlight was coaxially mounted on the forward guns. The forward twin .50-caliber machineguns were considered adequate by all personnel interviewed. However, some outports would have mounted twin M60 machineguns had they been available.

2. The aft emplacement (see Figure II-15) consisted of a MK 46 Mod-1 gun mount, which can accommodate the same weapons as the MK 56 Mod-0 mount, or a US Navy 60mm mortar. The aft gun emplacement was considered adequate by all personnel.

3. An additional gun mount for the organic Honeywell 40mm automatic grenade launcher (see Figure II-16) had been added to the starboard aft ballistic plate. All crew members interviewed felt that a 40mm automatic grenade launcher was not only desirable but actually mission-essential, due to the requirement for area-suppressive fires. However, there was unanimous dissatisfaction with the Honeywell MK 18, due to its high failure rate.

FIGURE II-16. MK 18 40mm Honeywell Grenade Launcher Mounted on Starboard Aft Ballistic Plate.

4. Machineguns

Many of the PBR's mounted an M60 machinegun in addition to the automatic grenade launcher, or in place of the launcher when it was not operational. Crew members stated that the M60 had proven to be an excellent intermediate weapon between the .50-caliber machinegun and the M16 rifle. With the exception of the Vung Ro Bay detachment, all detachments had problems associated with firing in populated areas. Severe .50-caliber machinegun restrictions did not apply to the M60 machine guns; therefore, it had a high degree of acceptance by crew members. None of the crews interviewed criticized the .50-caliber machinegun on the basis of performance. It appeared that, in some detachments (notably those operating in congested areas) a mix of .50-caliber and twin M60 machineguns was necessary for mission accomplishment. The concept of twin machineguns is a concession to the difficulties encountered in delivering accurate fire from a constantly moving gun platform such as the PBR.

5. One outport obtained a US Navy 60mm mortar (see Figure II-17) and mounted it on the aft emplacement of the PBR. This weapon can be drop-fired or trigger-fired, and used for both direct and indirect fire.

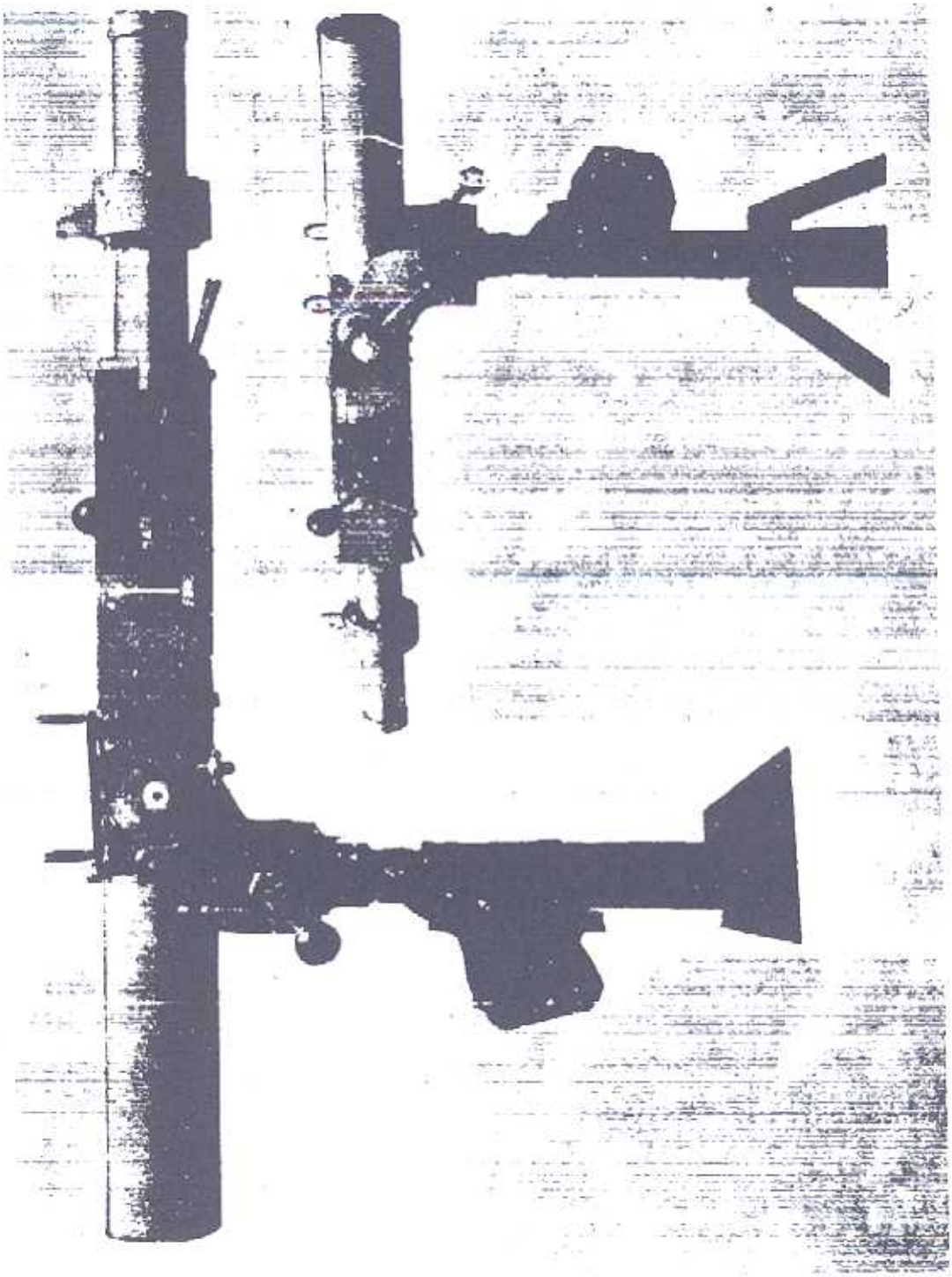


FIGURE II-17. 60mm Naval Mortar on Gun Pedestal.

(b) Individual Crew Weapons

The complement of small arms for each PBR consists of two M79 40mm grenade launchers, three M16 service rifles, one 12-gauge shotgun, and one .38-caliber revolver. This authorization of small arms was generally considered adequate. However, there was a critical shortage of shotguns, due to maintenance and supply problems. Some crews stated a preference for a second shotgun to be issued in lieu of a service rifle. Crew members considered the shotgun an ideal weapon for covering boat crews while conducting searches, because of its ease of handling, broad coverage, and psychological impact.

(c) Ballistic Protection

Ballistic protection is provided on each gun mount. The forward cockpit has three ballistic plates to protect the coxswain. These plates were designed to withstand .30-caliber ball ammunition at zero obliquity. Crew members were satisfied with the location and characteristics of the ballistic plates.

(d) Concussion Grenades

Concussion grenades have been employed as defensive weapons at all outports to force enemy swimmers/sappers to the surface. The unit SOP gave specific instructions for their employment; however, the number of grenades used per hour or per shift was governed by local policy, available supply, direction and speed of tide or river currents, and by the level of enemy activity. Some outports prohibited use of fragmentation grenades; others used them if concussion grenades were not available. The use of concussion grenades was considered a suitable psychological deterrent against enemy attacks, particularly when massively employed in a concentrated area. Preplanned grenade runs were made from PBR's instead of BW's because outport personnel considered the PBR to be safer for that mission.

(e) Weapons and Ammunition Storage

1. Weapons and ammunition storage was generally considered satisfactory. Some crew members recommended that a waterproof weapon storage locker be mounted in the upright position to protect the weapons while making access easier.

2. The ammunition storage capacity for the PBR was considered satisfactory. Ammunition in excess of the basic load was often carried with no storage problems encountered.

(6) PBR Communications System

(a) Equipment

Each PBR is equipped with the AN/VRC-49 radio system consisting of two transceivers (AN/VRC-46's) operating independently with

separate antennas, a remote control box, and auxiliary loudspeakers. Both transceivers are inclosed in watertight cases and mounted on a shock-insulated platform. All personnel interviewed considered the radio satisfactory and adequate for the mission requirements. However, a high deadline rate occasionally limited each PBR to only one AN/VRC-46 radio; this severely restricted the communications capability.

(b) Procedures

1. All outposts had an RTO on duty 24 hours a day. With the exception of Cat Lo, all outposts used the RTO located at the outpost headquarters to dispatch and to control the boats. The Cat Lo boats operated on the Vung Tau Provost Marshal net and were controlled by the MP desk sergeant in Vung Tau. The Cat Lo outpost had no radio capability, communicating by landline telephone with the MP desk sergeant. Communications procedures were generally the same as for the mainland and control element. The RTO at the outposts (with the exception of Cat Lo) monitored all patrol radio traffic within the Tactical Area of Responsibility (TAOR), and relayed messages, incidents, reports, and other significant traffic to the appropriate MP battalion TOC. When the MP battalion TOC received requests, they were relayed to MR Group headquarters for approval/disapproval. Retention of decision-making authority by higher headquarters frequently caused considerable delay. Figure II-20 illustrates the outposts' communications nets.

2. All outposts maintained the respective MP battalion Communications Emergency Operating Instructions (CEOI), and MP-10 series brevity code (a means of shortening radio-telephone transmissions by using numerals to replace phrases or sentences). Each outpost had also developed code words unique to their location and generally transmitted in the clear, using a mixture of MP-10 series codes and unique code words (one example was the call "10-12 for distribution", meaning that the boat was out of service to pick up food). To everyone's knowledge, none of the outposts had ever changed code words.

(7) PBR Radar System

(a) Description

Standard radar on the PBR is a limited-range, high-resolution, low-error, PPI system. It consists of an indicator control unit, mounted inside the coxswain's cabin, and a mast-mounted radar transmitter/receiver head (see Figures II-19 and 20). Interconnecting cabling connects the two major components, and power for the system is drawn from the boat's 24-volt DC system.

(b) Operational Requirements

Boat captains and crew members considered radar capability a requirement for night patrols. Port facilities and inland waterways

patrolled by the various detachments were minimally lit if at all, and supplementary lighting consisting of boat spotlights and hand-fired illumination flares had proven only partially effective. (The spotlight has limited candlepower, and flares have a brief burn time.) Visual inspection was the primary mission of the patrols, and the radar system greatly facilitated mission accomplishment during periods of darkness or other periods of low visibility. The system allows the crews to shut down engines, drift through the control area, and maintain area surveillance without compromising their own position.

(c) Problem Areas

The PBR radar set was a component of the boat; therefore, the company initially had 39 radar sets. One set was lost when a PBR was destroyed by fire, and of the remaining 38 radar sets, only four were operational at the time of the evaluation. Interviews with crew members revealed that radar usage was minimal, due to crew unfamiliarity and/or equipment downtime. [A discussion of radar maintenance problems is presented in paragraph II-5d(5)].

b. Boston Whaler Capabilities and Limitations

(1) BW Design

All personnel interviewed stated that the BW was generally satisfactory for the assigned missions. Its only limitation was imposed by rough water. The only modification to the boat design was the installation of an improvised control console (see Figure II-22). Some crew members also recommended a design change to reinforce the rim around the top of the boat.

(2) Outboard Motors

(a) The authorized outboard motors and the motors on hand during the evaluation period are summarized in Figure II-21.

SIZE MOTOR (HP)	MOTORS AUTHORIZED	MOTORS ON HAND	
		DEC 1969	MAY 1970
85.0	0	2	0
80.0	0	2	0
40.0	36	22	17
9.5	0	2	2
TOTAL	36	28	19

FIGURE II-21. Summary of Outboard Motors Authorized and On Hand.

(b) When the BW's arrived in country, both 40-hp and 80-hp outboard motors were provided. However, the manufacturer of the 80-hp motor stopped production of that model and began manufacturing an 85-hp motor. The US Navy used the 85-hp motor as the standard outboard motor for the BW, and encountered problems relating to the interchangability of parts and components because of the manufacturer's changing models. Experience with the 80/85-hp motors revealed that operation at slow speeds resulted in a high rate of carboning and battery drainage.

(c) Patrolling congested waterways required slower speeds; therefore, 9.5-hp motors were issued for use in a dual role with the 80/85-hp motors. The concept was to use the 9.5-hp motor as the primary patrol motor and to use the larger motor for higher speeds; i.e., to overtake other watercraft and to respond to calls.

(d) An evaluation of outboard motor problems in RVN was made by USAMC, Mobility Equipment Command. Their recommendation was to standardize the 40-hp outboard motor as the general-purpose motor for use in RVN. This recommendation was based on mission requirements, logistical support, and safety. It was felt that using two 40-hp motors instead of an 80/85-hp motor would provide greater flexibility if one of the motors failed. However, during the evaluation period, no BW's were observed using twin 40-hp motors. The outports operated with only one 40-hp motor per boat, due to high failure rates and shortages of authorized assets. It was felt by all BW crew members that one 40-hp motor did not provide sufficient power and flexibility to satisfy mission requirements.

(3) Weapons Systems

The BW has no organic armament. However, an M60 machinegun pedestal mount, similar to the one used on gun-jeeps, was installed on some of the boats. The armament for the BW included the M60 machinegun and the crew's individual weapons. The two-man crew normally had one M16 rifle, one M79 grenade launcher, service pistols, and/or one M60 machinegun. A shotgun was also frequently carried when available.

(4) Communications

The BW does not have organic communications capabilities. A battery-powered, portable radio (AN/PRC-25) was used when available. When radios were available, the crews used the same procedures as PBR patrols. It was observed that crews frequently went on patrol without a communications capability.

c. Findings

(1) PBR Boat Design

(a) The PBR was a suitable craft for accomplishing the major portion of the missions performed [II-3a(1)(a); p. II-33].

(b) Water-safety equipment for the PBR was adequate, except that the standard kapok life jacket was too bulky and uncomfortable, deck sheet were generally unavailable, and there was a need for two additional CO_2 fire extinguishers [II-3a(1)(c); p. II-33].

(c) All crew stations were considered adequate except for the forward gun tub, which restricted movement to such an extent that crew gunners incred the access necessary to seek the twin .50-caliber machineguns. This problem was accented when the kapok life jacket was worn [II-3a(1)(d); p. II-34].

(2) PBR Propulsion System

(a) The propulsion system was considered adequate by all personnel interviewed. Problems encountered with the propulsion system were attributed to lack of training, improper or inadequate maintenance, and environmental effects [II-3a(2)(a); p. II-34].

(b) The Jacuzzi waterjet pumps were considered adequate by all personnel interviewed, even though they experienced excessive wear [II-3a(2)(c); p. II-34].

(c) The controls for the boat were considered adequate except for dim panel lights [II-3a(2)(d); p. II-34].

(d) The fuel system was considered satisfactory except for inoperative fuel gauges [II-3a(2)(e); p. II-35].

(3) PBR Electrical System

(a) Major problems were encountered in the electrical system [II-3a(3); p. II-35].

(b) The company was not authorized trained maintenance personnel to repair the electrical system [II-3a(3); p. II-35].

(c) Crew members or other company maintenance personnel usually attempted to repair the electrical system by wiring around the problem area [II-3a(3); p. II-35].

(4) PBR Pumping Systems

(a) The seawater-pumping system, fuel-stripping system, and hand-operated bilge pump were judged adequate by all those interviewed [II-3a(4)(a)(b)(c); p. II-36].

(b) The power-operated bilge pump was considered satisfactory providing it was in working condition [II-3a(4)(c); p. II-36].

(5) PBR Weapons Systems

(a) All crew members interviewed felt that a 40mm automatic grenade launcher was not only desirable, but actually mission-essential [II-3a(5)(a)3; p. II-37].

(b) The Honeywell MK 18 experienced a high failure rate [II-3a(5)(a)3; p. II-37].

(c) Because of the severe restrictions placed on employment of the .50-caliber machineguns, many PBR's mounted the M60 machinegun as an intermediate weapon between the .50-caliber and the M16 rifle [II-3a(5)(a)4; p. II-39].

(d) One outport obtained a US Navy 60mm mortar and mounted it on the aft emplacement of the PBR [II-3a(5)(a)5; p. II-39].

(e) The complement of small arms for each PBR was generally considered adequate by crew members [II-3a(5)(b); p. II-41].

(f) Concussion grenades were employed as defensive weapons at all outports and were considered a suitable psychological deterrent against enemy attacks by swimmer/sappers [II-3a(5)(d); p. II-41].

(g) Preplanned grenade runs were made from PBR's instead of BW's because PBR's were considered safer [II-3a(5)(d); p. II-41].

(h) Weapons and ammunition storage was generally considered satisfactory [II-3a(5)(e), p. II-41].

(6) PBR Communications System

(a) A high deadline rate occasionally resulted in the availability of only one AN/VRC-46 radio for use on patrol, severely limiting the communications capability [II-3a(6)(a); p. II-41,42].

(b) PCO's monitored all radio traffic and relayed messages, reports and incidents and requests to the respective MP Group Headquarters [II-3a(6)(b)1; p. II-42].

(c) Although all outports had the MP Battalion CEOI and MP-10 series brevity code, each outport developed code words unique to their location and generally transmitted in the clear, using a mixture of the 10-series codes and their unique code words [II-3a(6)(b)2; p. II-42].

(7) PBR Radar System

(a) Even though requirements existed for a radar capability on night patrols, crew members generally did not use it because they were unfamiliar with the equipment, or it was not operational [II-3a(7)(b)(c); p. II-42,46].

(b) Of 38 radar sets, only four were operational at the time of evaluation [II-3a(7)(c); p. II-46].

(8) Boston Whaler Capabilities and Limitations

(a) The BW was considered satisfactory; the only recommended modifications were to install a control console and to reinforce the rim around the top edge of the boat [II-3b(1); p. II-46].

(b) The unit was authorized 36 40-hp outboard motors, but in May 1970 had only 17 on hand [II-3b(2)(a); p. II-46].

(c) The unit used four different types of outboard motors [II-3b(2)(a)(b)(c); p. II-46,48].

(d) The 40-hp outboard motor had been selected by USAMC, Mobility Equipment Command as the standard outboard motor for BW use in RV [II-3b(2)(d); p. II-48].

(e) During the evaluation period, no BW's were observed using two 40-hp outboards [II-3b(2)(d); p. II-46].

(f) All BW crew members felt that one 40-hp outboard motor did not provide sufficient power and flexibility to satisfy mission requirements [II-3b(2)(d); p. II-48].

(g) An M60 machinegun and the crew's individual weapons composed the armament of the BW [II-3b(3); p. II-46].

(h) An M60 machinegun pedestal was mounted on some of the BW's [II-3b(3); p. II-46].

(i) The BW did not have an organic communications capability; a battery-powered, portable radio (AN/PRC-25) was used when available [II-3b(4); p. II-46].

(j) BW's frequently went on patrols with no communications capability [II-3b(4); p. II-46].

4. OBJECTIVE 4 - ADEQUACY OF THE MTOE - ORGANIZATION, EQUIPMENT, AND CREW COMPOSITION - TO ACCOMPLISH ASSIGNED MISSIONS

a. General

The 458th Transportation Company was organized under MTOE 55-138C, 8 May 1969 (See Annex B). Figure II-23 depicts the organization of the company as prescribed by the MTOE; Figure II-24 depicts the actual organization of the company during this evaluation. The following paragraphs, based upon interviews with personnel of the company, supporting units, and senior commanders as well as the personal observations of the project officers, will address the adequacy of the MTOE in terms of command structure, personnel, and equipment.

b. Command Structure

Command structure within the company basically followed normal Army command procedures. The 458th Transportation Company was assigned to the 57th MP Group. From the company commander the command channels branched to the various detachment OIC's or NCOIC's as shown in Figure II-24. The unique command structure of the company was caused by two factors: the wide geographical dispersion of the detachments, and the fact that MP's working at two of the detachments were attached to the 308th MP Company (Fort Lai and Newport). At the other four detachments, the MP and transportation personnel lived and worked together, but were under separate commanders. The various detachments were located near their respective port or pier facilities and supervised by an OIC or NCOIC of the Transportation Corps unit, which technically had no command over the MP's. The distance between the detachments and the supporting MP company was such that it prohibited the MP company commander from supervising his personnel directly.

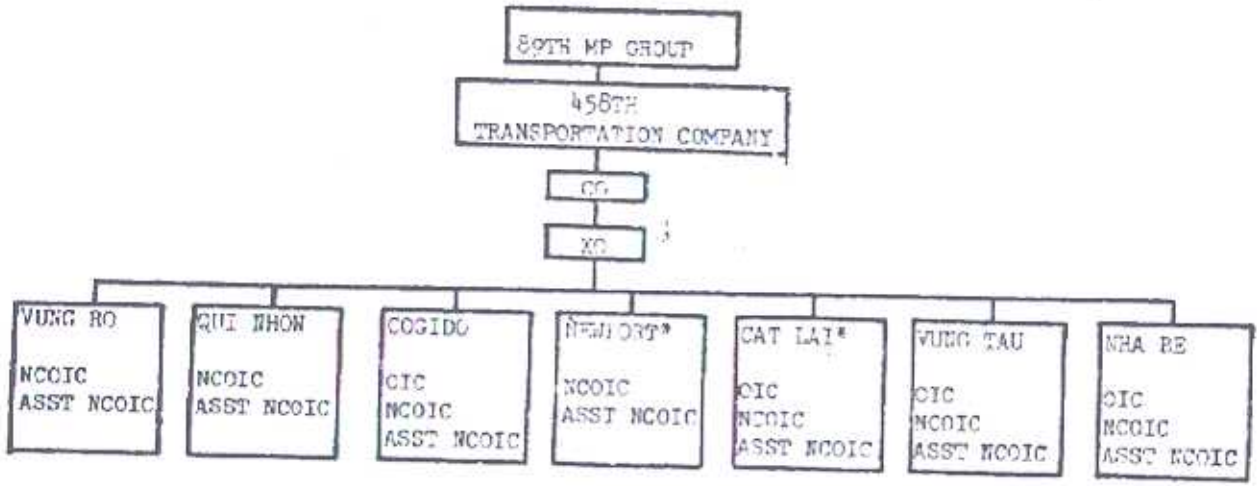
c. Personnel

The MTOE authorized four officers, one warrant officer, and 162 enlisted personnel; as of 1 April 1970, the company had only 119 enlisted personnel, an operating strength of 74 percent.

(1) Company Administration/Operations

(a) The company administration and operations sections were combined into one section (see Figure II-25).

(b) The combined section was responsible for routine administrative functions such as morning reports, duty rosters, and correspondence. Additionally, the section maintained training records and established and supervised required company training. Company training was generally conducted at detachment level in accordance with a master training schedule



* Indicates MP's attached to detachment for all purposes.

FIGURE II-24. 458th Command Structure.

TITLE	GRADE	No.
Commanding Officer	03	1
Executive Officer	02	1
First Sergeant	E8	1
Operations Sergeant	E7	1
Assistant Operations Sergeant	E6	1
Company Clerk	E5	1
Operations Clerk	E4	3

FIGURE II-25. Company Administration/Operations Section.

published by the company administration/operations section. The number of personnel attending the training was forwarded to the company for posting to the individual training records.

(c) While the authorization for Commanding Officer, Executive Officer, and 1st Sergeant appeared adequate, it was the opinion of the project officers that the workload required one additional clerk over the one authorized. In addition, they were of the opinion that three drivers were needed, one each for the Commanding Officer and Executive Officer, and one for administrative runs. An operations officer, preferably an MP lieutenant, should also be authorized because of the complex and diverse missions performed. One of the three operations clerks could be released to perform the functions of the additional administration clerks mentioned above, and another clerk released to perform as a driver for the section. In the combined section, then, the project officers considered that the total requirement was for three officers and nine enlisted men, an increase of one officer and two enlisted men over the existing MTOE authorization.

(2) Detachment Administration/Operations

The MTOE does not authorize personnel for detachment administration/operations requirements; the OIC or NCOIC normally handled these functions [see also paragraph II-4c(4)]. In addition, each detachment maintained a 24-hour base station radio which required two RTO's per day. These RTO's also functioned as clerks for the detachment.

(3) Crew Composition

The crew composition prescribed by the MTOE (four for the PBR and two for the BW) was considered adequate; personnel shortages frequently forced many detachments to operate PBR's with three-man crews and rotate personnel from crew to crew; however, all personnel considered this to be unsatisfactory.

(4) Supply

(a) The company supply section was authorized one E6 supply sergeant, one E4 supply clerk, and one E4 armorer. This section furnished MTOE supplies to the company headquarters element and the various detachments and it furnished all other supplies to the detachment in its local area; i.e., Newport, Cogido, and Nha Be. The company supply section occasionally furnished the Vung Tau detachment, but distance usually precluded this. The supply section at detachment level consisted of the detachment OIC and/or NCOIC. Supplies for other detachments (Cat Lo, Cat Lai, Vung Ro Bay, Qui Nhon) were obtained from supporting MP units or through supply channels in the various areas. The company armorer maintained the weapons of personnel working in company headquarters and the Newport detachment, as well as the weapons PLL for the entire company. Weapons located at the various detachments were maintained by each individual but were sent to the company armorer for organizational repairs.

(b) As a result of the complexities of the supply system, which were compounded by the diverse locations of the detachments, it was generally agreed by company personnel that the supply section should comprise one supply sergeant (E7), one supply specialist (E5), one supply clerk (E4), one armorer (E4), one PLL clerk (E4), and one driver (E3). No supply personnel were considered necessary at the detachments.

(5) Maintenance

(a) Figure II-26 depicts the authorized maintenance personnel.

(b) The company had unique maintenance requirements for wheeled vehicles, PRR's and PW's.

1. Vehicles

a. Maintenance Organization

The company wheeled-vehicle maintenance section and the wheeled-vehicle maintenance section from two other companies were consolidated into a combined motor pool. The wheeled-vehicle PLL for the 458th, including all of its detachments, was maintained there. The detachments had no MTOE wheeled-vehicle maintenance capability, but depended on scrounging parts, using assigned personnel maintenance skills, or utilizing the supporting MP unit maintenance section for required maintenance. Detachments located in the vicinity of company headquarters could evacuate a vehicle to the company motor pool, but this only occurred when the vehicle could not be repaired at the local detachment. Distance to the outlying detachments precluded evacuating vehicles to the company motor pool.

b. Maintenance Personnel

The present authorization of two wheeled-vehicle mechanics did not appear adequate to the evaluators to maintain the seven

POSITION	RANK	NUMBER AUTHORIZED
Maintenance Supervisor	E-5	1
Senior Radio Mechanic	E-5	2
Senior Marine Mechanic	E-5	1
Marine Engine Mechanic	E-4	2
Wheeled Vehicle Mechanic	E-4	1
General Vehicle Mechanic	E-4	1
PLL Clerk	E-4	1
Marine Engine Mechanic Apprentice	E-3	11

FIGURE II-26. Maintenance Personnel Authorization.

authorized wheeled vehicles, with geographical dispersion of the unit being the major factor contributing to this problem area. Secondarily there exists no authorization for a wheeled-vehicle maintenance supervisor and there are no provisions for a PLL or maintenance records clerk.

2. Parts

a. Maintenance Organization

The company maintained a vessel supply office (VSO), collocated with company headquarters, which maintained a PLL for all assigned boats. PLL items, such as generators and spark plugs, were stocked for DX at detachment level, but these parts were obtained through, and managed by, the VSO. The company's major marine-maintenance facility was located at Nha Be. Maintenance personnel there utilized both TOE equipment and Navy equipment and facilities in order to perform their mission. Maintenance functions performed at Nha Be were only replacement and major hull repair.

b. Maintenance Personnel

A serious problem encountered was in the marine maintenance field. The lack of experienced marine-maintenance supervisory personnel contributed to this problem. The present authorization of an E5 maintenance supervisor provides neither the rank nor experience necessary to supervise the maintenance of 39 PBRs. An E7 marine-maintenance supervisor should satisfy this requirement. The dispersion of the detachments and the requirements for supervision of detachment-level maintenance functions imposes a requirement for an E6 assistant marine-maintenance supervisor. (No marine-maintenance personnel are authorized at detachment level, although much of

the company maintenance was performed at this level. Each detachment used one or more of their assigned personnel to perform the detachment marine maintenance). The present authorization of two E4 marine engine mechanics and eleven E3 marine engine mechanics apprentices was inadequate for the workload. This authorization does not provide the experienced personnel necessary to perform the maintenance functions imposed on the company by a lack of support from MTOE. Interviews, review of the company maintenance history, and an analysis of the maintenance functions actually performed revealed a requirement for six E5 senior marine engine mechanics and twelve E4 marine engine mechanics. The volume of clerical work associated with the maintenance responsibilities of this section created a definite problem area; however, the addition of an E4 clerk typist should alleviate this problem. The dispersion of the detachments and the imposed travel requirements for maintenance and supervision necessitate the addition of an E3 driver to the maintenance section.

(c) The company was authorized two 1.5-kw, one 3-kw, and one 5-kw generator to provide electrical power on a 24-hour basis; however, existing MTOE did not authorize trained generator operators/repairmen for these items.

(d) In the opinion of the project officers the quantity and types of authorized communications-electronics equipment justified a requirement for an E6 communications chief. The addition of this position would provide a more experienced individual to coordinate, supervise, and repair the communication-electronics equipment of the company headquarters and detachments.

d. Equipment

(1) Patrol Boat River

Thirty-eight PBR's were issued in lieu of the 39 picket boats authorized by MTOE. At the time of the study, mission accomplishment required 29 PBR's be operational 12 hours per day each [See paragraph 11-2n(3)]. Of the 38 boats issued, an average of 13 PBR's per day were deadlined for maintenance or parts, leaving only 25 to meet mission requirements. To compensate for this deficit, some PBR's were run 24 hours a day, and in other cases, BW's were substituted for PBR's. One PBR was operated 79 consecutive days without going in for maintenance.

(2) Boston Whalers

The company acquired 18 BW's and 36 outboard motors through the ENSURE program (Expedited Non-Standard Urgent Requirement for Equipment). At the time of this evaluation, 14 of these motors had been redistributed by the 18th MP Brigade leaving 18 BW's and 22 motors on hand. On the average, eight of the BW's were deadlined per day, exclusively due to motor failure rather than to problems with the boat itself; routine motor maintenance

usually claimed another two BW's per day. This left only eight BW's instead of the nine needed to satisfy daily requirements. The above calculations are based on one motor per boat, a configuration which was judged to decrease effectiveness by limiting both maneuverability and speed.

(3) Weapons [See also paragraph II-3a(5)].

(a) Organic

Each PBR had assigned three .50-caliber machineguns, one Honeywell 40mm grenade launcher, three M16 rifles, two M79 grenade launchers, one shotgun, and one .38-caliber revolver. The organic PBR weapons were used as individual weapons for personnel while serving on the boats, and they remained with the boat. Company personnel felt that the addition of an M60 machinegun to the organic PBR weapons would bridge the gap that existed between the .50-caliber machinegun and the M16 rifle. Additionally, the company was authorized four 7.62mm machineguns with tripod mount, 180 caliber .45 automatic pistols, and 22 M16 rifles. Crewmen reported the .45-caliber pistol to be of little value while serving on the boats; they generally had no need for a short-range weapon, and when they did, they used the shotgun. The company's officers suggested that E7's and above be authorized .45-caliber pistols, and that E6's and below be authorized M16 rifles.

(b) Mortar

Crew members and the unit commander desired to have the 60mm naval mortar included in the unit's MTOE for employment on an optional basis. This weapon is capable of firing a variety of ammunition, including fragmentation, smoke, and illumination rounds. There were instances in which this weapon would have been more effective than available weapons in returning fire - specifically, at Vung Ro Bay, parts of Qui Nhon harbor, and sections of the waterborne convoy security escort routes in the vicinity of Cat Lo, Saigon, and Cat Lai/Cogido. It was believed that a more effective area coverage could have been provided in penetrating thick foliage, boulder-covered hills, and bunkered enemy ambush positions than was provided by the on-board organic weapons. The design and construction of the PBR precludes the use of direct-fire weapons such as the recoilless rifle. However, the characteristics of the US Navy 60mm mortar appear to be ideal in providing the PBR's with a heavier firepower capability.

(4) Communications Equipment [See also paragraph II-3a(6)].

The company had all of its authorized communications equipment: 78 AN/VRC-46 radios mounted in PBR's, four AN/VRC-46 radios mounted in 1/4-ton trucks, two AN/VRC-47 radios, two antennas, two inverters, and two radio-set control groups. In addition, each outport operated a radio control group for each PBR and a base-station radio.

(5) Other Equipment

The company was authorized one 5-ton tractor truck, one 5-ton wrecker, one 2 1/2-ton tank truck, four 1/4-ton trucks, one water trailer, and nine cargo trailers, all of which were on hand during the study. The company headquarters required three vehicles and the supply section and VSO two vehicles each. The three local detachments were supported by the company headquarters, but the remaining detachments had to rely on the supporting MP units for their vehicle requirements due to the distances between them and company support functions. All of the company's officers felt that more vehicles should be authorized as follows: one vehicle each at Newport and Vung Ro Bay, and two vehicles each at the two remaining detachments. All other items of equipment authorized by the MTOE, e.g., equipment for administration, supply, and maintenance, were not investigated in this study.

e. Findings

(1) The 458th Transportation Company operated under MTOE 55-138E, 8 May 1969. One captain, and three lieutenants, one WO, and 162 EM were authorized [II-4a, 4c; p. II-55].

(2) The MTOE structure differed from the company's actual, operational organization [II-4a; p. II-55].

(3) The 458th Transportation Company was assigned to the 89th MP Group. The company had a unique command structure caused by wide geographical dispersion [II-4b; p. II-52].

(4) On 1 April 1970 the company was at 74 percent of its authorized strength [II-4c; p. II-55].

(5) Due to the complexity and diversity of the missions performed by the company, an operations officer was believed to be required [II-4c(1); p. II-55].

(6) Administration and operations at detachment level were handled by the OIC and/or NCOIC [II-4c(2); p. II-55].

(7) Project officers considered that the administration/operation section should be increased by one officer and two enlisted men [II-4c p. II-55].

(8) Because of personnel shortages, many detachments were utilizing a three-man crew on the PBR's in lieu of the normal complement of four [II-4c(3); p. II-55].

(9) A two-man crew for the Boston Whaler was considered to be adequate [II-4c(3); p. II-55].

(10) The company supply section furnished MTOE supplies to the company headquarters element and the various detachments. Other supplies were obtained from supporting units. Organizational repairs on weapons were accomplished by the company armorer [II-4c(4); p. II-56].

(11) Company personnel agreed that the company supply section should comprise one E7 supply sergeant, one E5 supply specialist, one E4 supply clerk, one E4 armorer, one E3 PLL clerk and one E3 vehicle driver [II-4c(4)(b); p. II-56].

(12) The company had unique maintenance requirements due to its equipment - wheeled vehicles, PBR's and Boston Whalers [II-4c(5); p. II-56].

(13) The company was issued 39 PBR's in lieu of the 39 picket boats authorized by TOE 55-317 [II-4d(1); p. II-58].

(14) On a daily average, 13 PBR's were deadlined for maintenance or parts, leaving 25 operationally ready. Twenty-nine PBR's were required for mission accomplishment [II-4d(1); p. II-58].

(15) The company was authorized 18 Boston Whalers and 36 outboard motors; 18 Boston Whalers and 22 outboard motors were on hand; nine Boston Whalers were required for 12 hours daily. The average daily availability of BW's was one less than required [II-4d(2); p. II-58].

(16) Suggestions were made to improve the mix of weapons authorized the company [II-4d(3)(a); p. II-59].

(17) Crew members and the unit commander desired to have the 60mm naval mortar included in the unit's MTOE for employment on an optional basis [II-4d(3)(b); p. II-59].

(18) A base-station radio set is operated at each outport [II-4d(4); p. II-59].

(19) All of the company's officers felt that the authorization for only seven vehicles was inadequate [II-4d(5); p. II-60].