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SUBJECT: THE LANCAY PRODUCT IMPROVED (P.I.) M9 BAYONET

The Phrobis III Corporation was the original designer of the U.S. Army's M9 bayonet. The company then went on to win the Army's competitive bayonet trials, and to successfully complete the first U.S. Army M9 contract. The last of the Phrobis contract bayonets were delivered to the Army in 1989.

Due to economics and the drastic cutbacks in military procurement after Desert Storm, Phrobis fell in to extreme economic straits. This problem was also exacerbated by the fact that Phrobis had not had time to develop a sustainable market for civilian and foreign military sales. In 1992 Phrobis officially went out of business, although the company had ceased producing edged weapons before this date.

It was not until August of 1991 that the Army announced an open bid for further M9 bayonet production. Bids were due in December of 1991, and previous to the bid the Army's engineers at Rock Island had made a number of modifications to the original Phrobis M9 design.

On 31 March 1992 the bid was awarded and the competition was won by the LanCay Corporation. Surprisingly LanCay had never previously built edged weapons or civilian cutting tools of any sort. The new contract was DAAA09-92-C-0406 (the "92" refers to "fiscal" year 1992), and LanCay delivered its first bayonets under this contract to the Army on 28 May 1993.

On 28 April 1995 the second M9 contract, and the first M9 contract produced by LanCay was completed.

Previous to LanCay's completing its first M9 contract it was also successful in bidding on and winning the U.S. Army's third M9 contract, DAAA09-94-C-0571. This was done during the fall of 1994.

Backing up in time LanCay began its first contract by manufacturing the Army's Rock Island redesigned M9 bayonet. Once production was stabilized, LanCay, with the assistance of myself, began working with the Rock Island to make further improvements to the design of the M9. This cooperative effort during the first contract resulted in two major variations of the Rock Island redesigned bayonet, as well as two somewhat less major variations. This count does not include the new Product Improved M9 bayonets that were used to complete the first LanCay M9 contract.

The first major variation was the forged-blade bayonet with a fuller in its blade,

similar to the original Phrobis design. This bayonet also had the old style Phrobis scabbard (but with the web pouch deleted) and the original Phrobis-style machined cutter plate.

The second major variation of the M9 had a laser cut blade from which the fuller had been eliminated. The old style Phrobis scabbard was retained, but it now included the new LanCay-Brett designed cutter plate. This improved cutter plate design was investment cast rather than machined, had a tapered head on its T-Lug and included a strong triangular shaped blade stop molded right into its face. Additionally, as the Army insisted on retaining it, the cutter plate's screwdriver was moved from the tip of the cutter plate to its left side.

During the entire first LanCay contract, LanCay, Rock Island and myself worked not only to make immediate improvements to the M9, but to also develop an outline of what we wanted the bayonet to look like in its entirety. As the first contract began to get closer to its completion, and LanCay won its second contract in the fall of 1994, the Army and LanCay began to finally agree on a new pattern of bayonet, this was to become the LanCay produced, Product Improved (P.I.), M9 bayonet.

After finalizing the new Product Improved M9 design LanCay and Rock Island also agreed that in order to keep production from being unnecessarily halted the new design changes could be fitted into the production line incrementally, rather than all at one time. However, it was also agreed that all the bayonets to be produced under the next contract, DAAAO9-94-C-057, would include ALL the new design features, as this is how the contract had been written and bid.

The result of these agreements was that there was to be one more very major M9 model that was produced at the very end of the first LanCay contract.

The LanCay Product Improved M9

A) The Product Improved M9 Scabbard System

The first and most noticeable feature of the Product Improved M9 bayonet is its redesigned scabbard. The new scabbard has had its two upper side slots eliminated and a raised hand guide (or hand stop) molded into its face half way down its body. This feature serves to guide the placement of the soldier's hand when using the M9 for cutting wire. Above the hand guide a large area of non-slip checkering has also been added to the scabbard's face and sides in order to give the soldier a more secure grip when cutting wire.

The two lower side slots were specifically retained on the improved scabbard so that they could be used for tying it to the soldier's leg or equipment when parachuting. A loose object like the M9's scabbard can easily foul a parachute line

during the parachute's deployment stage, thus causing a life threatening malfunction. It is extremely important to properly and securely tie the bayonet down during parachuting.

The Product Improved scabbard design was gradually agreed upon over a period of time, as changes and modifications were worked out between Rock Island and LanCay. When the design was at last finalized, LanCay then had to wait until it had produced a sufficient quantity of the old style scabbards to have a reasonable reserve on hand while it closed down scabbard production in order to have the scabbard mold modified.

The first modification of the scabbard mold resulted in the manufacture of six prototype Product Improved M9 scabbards. Samples of these were then sent to Rock Island for inspection and after a number of conference calls and meetings it was decided to modify the new design further.

First the height and the angle of the curve of the hand guide was greatly reduced. Second the very light and shallow checkering on the prototype scabbards was changed to a much heavier and more open design.

Upon Rock Island's official confirmation of the new altered design, LanCay took one of the prototype scabbards and modified the hand guide in its machine shop. It purposely did not modify the checkering on the scabbard, as its raised nature made this impractical. The newly modified prototype scabbard was then sent to Rock Island for inspection and approval. This further design change meant that the scabbard mold would have to be modified again and thus it still would continue to be out of service.

The scabbard mold was rewelded and remachined a second time and this time only a single scabbard was produced and sent up to Rock Island. Due to an error by the mold machinist the hand guide on this improved prototype scabbard was found to be fractionally outside of the required specifications. Upon receiving the returned prototype LanCay then had the mold modified a third time (this time very slightly).

Finally the new scabbard system met all the necessary specifications and the actual manufacturing of it could begin. The mold was put back into production during the last days of the original LanCay contract and the first of the new scabbards systems accompanied the the laser cut, old-style blade configuration bayonets to the Army on 21 April 1995 (the contract was completed on 28 April 1995).

The new scabbard system was officially parachute tested for LanCay by myself during the VE-Day military parachute jumps in Holland and England in May of this year. The scabbard passed with flying colors.

B) The Product Improved Bayonet

The Product Improved M9 bayonet differs from the earlier LanCay bayonets in a number of very distinct ways.

1) On the top of the blade, the step between the back of the saw teeth and the bayonet's guard was eliminated. The main reason for this change was to simplify manufacture of the blade.

2) The row of saw teeth on top of the blade was shortened in length. The eliminated teeth were removed from the row's back end, thus lengthening the distance from the crossguard to the rear of the teeth. This was done to stagger the stress point of at the back end of the blade's cutting edge, from the stress point on the back end of the saw teeth. Previously these two stress points had created a vertical stress line bisecting the blade.

3) Looking through a magnifying glass it can be seen that the original "V" shaped cut at the bottom of each of the saw teeth has been purposely rounded at the base of each tooth. This improvement reduces any stress at these potential fracture points.

4) A small triangular shaped flat has been machined on the forward end of the blade, tapering toward the blade's tip just in front of the beginning of the saw teeth. The inclusion of this feature removed the original sharp angle which scratched the inside of the scabbard and made inserting and withdrawing the blade from the scabbard somewhat more difficult.

5) Lastly a improved latch plate was included with the bayonet. This latch plate can be readily identified as the area around the bayonet's stud slot has more metal on the slots shoulders. This redesign was done to avoid any potential breakage problems to the latch plate. The new latch plates will be fed into the system immediately, but LanCay may use up any old latch plates it has on hand. This change and improvement was done solely on LanCay's initiative and at LanCay's request.

It should be noted here that the blade markings on the Product Improved LanCay M9s were not changed in any way from the markings on the earlier LanCay bayonets.

It should additionally be noted that there was only one major feature of the P.I. M9 bayonet that completely frustrated myself and LanCay. Disregarding many lengthy discussions, Rock Island still refuses to readopt the web strap that Phrobis had originally designed to cover the bayonet's sharpening stone. In my opinion the failure of Rock Island to recognize that removing this strap was a mistake is based solely on a desire to save face. Even the least educated private can tell you that having an

abrasive stone with its four sharp corners exposed to the soldier's uniform, body and equipment is simply dumb. What more is there to say.

On a different note there is a constant manufacturing cycle of bayonet blades leaving and returning to LanCay. This movement is part of the processing of the blades and includes such as steps grinding, broaching the teeth, heat treating, etc. Due to this cycle, which includes a number of different subcontractors, the flow of available blades can vary.

With this in mind Rock Island approved the introduction of all the Product Improved bayonet design changes into the end of the first LanCay contract, with one notable exception.

The LanCay Product Improved M9 bayonet and scabbard were thus the last M9 bayonets used to complete the first LanCay contract. In the last M9 shipment to the Army on the first contract, 1,064 of the total of 1,075 bayonets were of the new Product Improved M9 configuration (both scabbard and bayonet). It should also be noted that all of these bayonets in the last shipment had blades which were laser cut, regardless of whether they had the new P.I. blade configuration or the old blade design

Thus the final variation of the first LanCay bayonet contract was 1,064 Product Improved M9s with the original LanCay contract gray bead blasted blades. These were the first Product Improved bayonets to have been received by the United States Army.

The new Product Improved LanCay M9 bayonet system (bayonet and scabbard) was first parachute tested by myself in the company of Israeli and Jordanian paratroops in Jordan and Israel. This took place during the "Operation Wings of Peace" military jumps in late June of this year.

The result of the tests were flawless and LanCay formally presented the Israeli Defense Force Parachute School and the Jordanian Special Forces each with a Product Improved M9 bayonet. Both of these bayonets was standard military issue and each bayonet's scabbard was engraved with the words "Wings of Peace" and "June 1995". This engraving was placed between the top of the scabbard's cutter plate and just below its hand guide. A total of four of these presentation bayonets were produced.

LanCay M9 Contract DAAA09-94-C-0571

On ___X___X___X___ 1995, LanCay delivered the first bayonets of the new (and second) LanCay contract, DAAA09-94-C-0571 to the Army. These bayonets, as per Army specifications, all have blades that are **black oxide coated** over the bead blasted finish. This additional non-reflective coating is required on all bayonets

produced under the new contract and black oxide has never been previously used on any of the Army's M9 bayonets.

The first group of bayonets delivered to the Army under the new contract will have laser cut blades in the new Product Improved configuration. However, very shortly LanCay will begin producing the Product Improved blades from **forgings**. This return to the forging process is due to an agreement with the forging company which manufactured the original Phrobis M9 contract blades. The gain to LanCay is a process which uses less metal (the special M9 blade steel is quite expensive), a very high quality forging and the ability to produce blades at a more rapid rate.

LanCay is permitted by Army contract to use up all the previous existing blade steel whether it is in a forged or laser cut form. However, all blades produced must conform to the new Product Improved M9 design specifications and configurations.

THE NEW LANCAY PRODUCT IMPROVED M9 MANUAL

Of special note is the new LanCay Product Improved M9 bayonet manual that will accompany the LanCay second contract bayonets. The original Phrobis manual was a wordy twelve pages long. Then Rock Island rewrote the manual for the first LanCay contract and made it a whopping twenty-four pages long.

Both these manuals were unnecessarily long and verbose, so your author has rewritten the entire manual for LanCay, including all the artwork. The new simple and efficient manual is now only six pages long. This improved manual was not completed in time to accompany any of the bayonets at the end of the first LanCay contract, but it will be issued with the new LanCay contract. The last printing of the previous Rock Island M9 manual was in 1994.

In closing it should be noted that by no means is the evolution of the M9 over, as both myself and LanCay intend to continually work on improving its design. Our future results however are restricted by limitations placed upon us by Rock Island. It is our hope that we will be able to continue to expand those limitations.

Submitted by,



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