



TECHNICAL REPORT
NATICK/TR-03/028

AD._____

**CURRENT AND FUTURE LOAD BEARING
EQUIPMENT OF THE UNITED STATES MARINES:
AN ONLINE SURVEY**

by
Justine Federici
and
Larry L. Lesh*

***GEO-CENTERS, INC.**
Natick, MA 01760

July 2003

Final Report
April 2002 – September 2002

Approved for public release; distribution is unlimited

U.S. Army Soldier and Biological Chemical Command
Soldier Systems Center
Natick, Massachusetts 01760-5020

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188		
The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.						
1. REPORT DATE (DD-MM-YYYY) 03-07-03		2. REPORT TYPE Final		3. DATES COVERED (From - To) April 2002-September 2002		
4. TITLE AND SUBTITLE CURRENT AND FUTURE LOAD BEARING EQUIPMENT OF THE UNITED STATES MARINES: AN ONLINE SURVEY				5a. CONTRACT NUMBER		
				5b. GRANT NUMBER		
				5c. PROGRAM ELEMENT NUMBER 654713		
				5d. PROJECT NUMBER		
6. AUTHOR(S) Justine Federici and Larry L. Leshner *				5e. TASK NUMBER		
				5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Soldier and Biological Chemical Command Natick Soldier Systems Center ATTN: Justine Federici, AMSSB-RSS-P (N) Natick, MA 01760-5020				8. PERFORMING ORGANIZATION REPORT NUMBER NATICK/TR-03/028		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)		
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release: distribution is unlimited.						
13. SUPPLEMENTARY NOTES *GEO-CENTERS, INC., 190 N. Main St., Natick, MA 01760						
14. ABSTRACT The U.S. Army Soldier and Biological Chemical Command (SBCCOM) and the U.S. Marine Corps Systems Command (MARCORSYSCOM) conducted an Internet-based survey to receive feedback on what features and capabilities Marines would like from load bearing equipment. This was done by creating an interactive on-line survey that Marines could access from personal computers. The survey was available on the Internet from July 1 2002 through Aug 31 2002 (62 days). Information and a hyperlink to the survey were posted on the Marine Corps home page. The survey was completed by 7,037 Marines. Approximately one third (n=2439) of these participants were infantry personnel. For the purposes of this report, only the responses from the Marine infantry will be cited.						
15. SUBJECT TERMS MARINE CORPS PERSONNEL LOAD BEARING EQUIPMENT LOAD CARRIAGE SYSTEM RUCKSACK INFANTRY PERSONNEL LOAD CARRYING EQUIPMENT WEIGHT ANALYSIS VESTS MOLLE(MODULAR LIGHTWEIGHT LOAD-CARRYING EQUIPMENT) FRAME RACK SURVEYS ALICE(ALL PURPOSE LIGHTWEIGHT INDIVIDUAL CARRYING EQUIPMENT) PACK FRAME INTERNET						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U	SAR	65	Justine Federici	
					19b. TELEPHONE NUMBER (Include area code) 508-233-4321	

TABLE OF CONTENTS

List of Figures	iv
List of Tables	v
Preface and Acknowledgments	vi
Introduction	1
Method	2
Results	3
Desired Features	3
Problems with Existing Equipment	4
Problems Based on Pack	12
Summary of Key Findings	15
Appendices	17
Appendix A. Summary of Responses: Infantry vs. Non-infantry	18
Appendix B. Screen Shots of Web Site	33
Appendix C. Script for Focus Groups	63

LIST OF FIGURES

Figure 1.	Current Pack Used by Marine Infantry	1
Figure 2.	How Should a Tube Hydrations System Be Carried?	3
Figure 3.	Modularity	4
Figure 4.	Pack Size	5
Figure 5.	Pack Height	5
Figure 6.	Pack Width	6
Figure 7.	Frame Height	6
Figure 8.	Frame Width	7
Figure 9.	Adjustability	7
Figure 10.	Durability	8
Figure 11.	Layout of System	8
Figure 12.	M16	9
Figure 13.	M16 with Grenade	9
Figure 14.	9MM	10
Figure 15.	M4	10
Figure 16.	M4 with Grenade	11
Figure 17.	M249 SAW	11

LIST OF TABLES

Table 1.	Overall Problems	12
Table 2.	M16 Problems	12
Table 3.	M16 with Grenade Problems	12
Table 4.	9MM Problems	13
Table 5.	M249 SAW Problems	13
Table 6.	M4 Problems	13
Table 7.	M4 with Grenade Problems	14

PREFACE AND ACKNOWLEDGMENTS

The U.S. Army Soldier and Biological Chemical Command (SBCCOM) and the U.S. Marine Corps Systems Command (MARCORSYSCOM) conducted an Internet-based survey to determine what features and capabilities Marines would like from load bearing equipment. This was done by creating an interactive on-line survey that Marines could access from personal computers. The survey was conducted by the Natick Soldier Center under Natick Project Number 654713 during the period April 2002 through September 2002. The survey was available on the Internet from July 1 2002 through Aug 31 2002 (62 days). Information and a hyperlink to the survey were posted on the Marine Corps home page. The survey website address was <http://www.thewarriorsvoice.com>

The authors would like to acknowledge the following individuals for their technical expertise, valued contributions and support to this project:

Operational Forces Interface Group

Chuck Greene

Product Optimization and Evaluation Team

Matt Kramer

Rick Bell

Simulation Technologies Inc., Natick, MA (STI)

John-Paul Briggs

Ronald D'Abbraccio

Andrew Cronk

Vannerin Ly

Mark Wishneusky

GEO-Centers Natick, MA

Steve Smith

Marine Corps

Lieutenant Colonel Gabe Patricio

Captain Dave Pinion

Marine Corps Team

John Kirk

James Mackiewicz

We especially would like to thank all of the Marines who took the time to give us their valued feedback and support.

CURRENT AND FUTURE LOAD BEARING EQUIPMENT OF THE UNITED STATES MARINES: AN ONLINE SURVEY

INTRODUCTION

The survey was completed by 7,037 Marines. Approximately one third (n=2439) of these participants were infantry Marines. Per the request of the Marine Corps, results were reported only for the infantry Marines. However, a summary of participants' responses to the survey questions based on whether they were infantry or non-infantry Marines is available in Appendix A. The majority of these Marines were on active duty (81%). The participants varied in rank. Thirty-eight percent ranged from an E1 through E4. Forty-one percent were non-commissioned officers. The remaining participants were either officers (21%) or warrant officers (0.45%). The participants were evenly distributed with Marines representing all three Marine Expeditionary Forces (MEF) as well as other duty stations.

The most common weapons used by the infantry were the M16A2 (54%) and the 9mm (41%). As shown in figure below, the majority of the infantry listed the Modular Lightweight Load Carrying Equipment (MOLLE) II as their currently issued load bearing system (60%). The remaining infantry participants were using the large All Purpose Lightweight Individual Carrying Equipment (ALICE) (22%), the medium ALICE (9%) or the MOLLE I (6%). Only 3% of the infantry responded that they use the lowe vector pack. The Marines indicated they were familiar with their load bearing equipment, having had an average of 3.2 years of experience with the system.

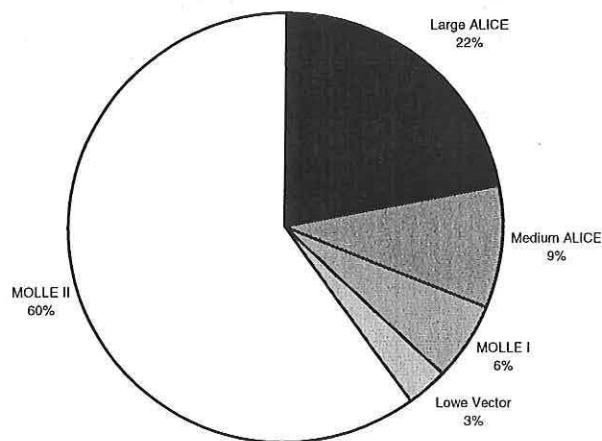


FIGURE 1. CURRENT PACK USED BY MARINE INFANTRY

METHOD

Several focus groups were initially conducted in order to design a survey that covered as many issues as possible that Marines may be encountering with their current equipment. A copy of the script used by the focus group moderator is in Appendix B. Questions included topics such as what problems do they encounter when trying to access their gear or adjusting their packs as well as what type of frame they prefer. These focus groups were conducted at Camp Lejeune, North Carolina as well as Quantico, Virginia.

Feedback from the focus groups was reviewed and used to create the framework for the survey that consisted of four sections: background and demographics, main ruck, load bearing vest, and current use. The background questions were designed to form a profile of the survey population. Questions such as Military Occupational Specialty MOS, years of military service and duty station were asked in this section. In the second part of the survey questions were asked about what features the user would want in a main ruck sack. Questions addressed issues such as frame type and adjustability, volume and weight requirements, as well as types and numbers of pockets that the user desired. The third part of the survey contained questions to help determine load bearing vest preferences. Questions such as vest design (e.g. chest harness, vest rig etc.), number and type of pockets, and what would best suit their short combat missions were posed here. The final section was designed to find out more about the participants current load bearing equipment. These questions helped to establish how the Marines' experience with current load bearing equipment provided a basis for their responses regarding future equipment. Topics such as body armor and weapon compatibility were also addressed here.

The website for the survey was dynamic, meaning that participants were prompted with certain questions based on their individual responses. For example, on the demographics portion of the survey, participants were only prompted to fill in the section requesting their MOS and duty station if they responded that they were active in the military. Screen shots of the individual web pages are available in Appendix C.

RESULTS

DESIRED FEATURES:

Frame

The participants were divided over what type of frame is best suited for a load carriage system with 59% of infantry marines selecting an external frame and 41% choosing an internal frame. Of those who recommended that the pack should have an external frame, 92% specified that they should be able to carry the pack without the frame attached as well as it having a stand-alone frame capability (86%). The infantry marines were also divided on whether the pack should have different size frames (45%) or be one size fits all (55%).

Weight Capacity

Approximately 50% percent indicated that the pack should be able to hold between 100 and 150 pounds. Forty percent responded that the main pack should be able to hold less than 100 pounds and 10% stated the pack should hold more than 150 pounds. Participants answered that a patrol pack should hold between 20 and 50 pounds with a mean of 32 pounds.

Volume

Approximately 50% of the infantry indicated that a main ruck sack should hold between 3,500 and 5,500 cubic inches. However, 22% responded it should hold 5,500 cubic inches or more and the remaining 18% indicated that a main ruck hold less than 3,500 cubic inches.

Tube Hydration System

The overwhelming majority of infantry (88%) indicated that they would like a load carriage system to have a tube hydration system and of those people, eighty-eight percent specified that it should be NBC capable. Marines were also asked how a tube hydration system should be carried, by checking all acceptable options. Figure 2 shows the percentage of respondents who selected each option.

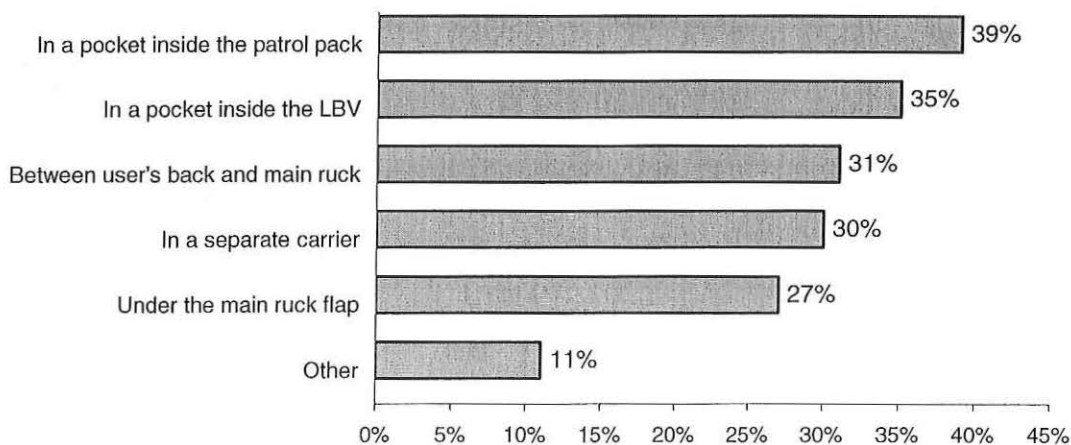


FIGURE 2. HOW SHOULD A TUBE HYDRATION SYSTEM BE CARRIED?

Pockets

The overwhelming majority of infantry Marines indicated that a main ruck sack should contain one or more sustainment (94%), small utility (90%), large utility (87%) and claymore pockets (84%). Preferences for how these types of pockets should be attached to the main pack varied. Respondents were equally divided over whether both sustainment and claymore pockets should be permanently attached to the main pack (50% and 43%, respectively) or removable from the main pack (48% and 56%, respectively). For the small and large utility pockets, respondents felt similarly on the attachment issue with 65% (small utility) and 67% (large utility) wanting the pockets to be permanent. Just over 55% indicated that a main pack should contain at least one pocket for 60mm mortars while 44% wanted one or more for 81mm mortars. For both mortar sizes approximately 23% felt that these pockets should be permanent. For the most part, respondents indicated that all of these different types of pockets should have buckle closures rather than a zipper, snap or Velcro®.

Sleep System

The majority of Marines indicated the main pack should have a sleep system (78%) with 59% indicating that it should be removable from the main pack and have a buckle closure. Seventy-six percent felt that it should be located at the bottom of the main pack.

PROBLEMS WITH EXISTING EQUIPMENT:

Pack ruck sack and frame

Figures 3-17 illustrate problems respondents had with their current load bearing system. The first two sections (lightest) of each bar represent people who either do not have an issue with their current pack at all or have concerns other than with the particular area being addressed in the chart. The last two sections (darkest) of each bar represent the people who do have concerns with the issue being addressed in the graph.

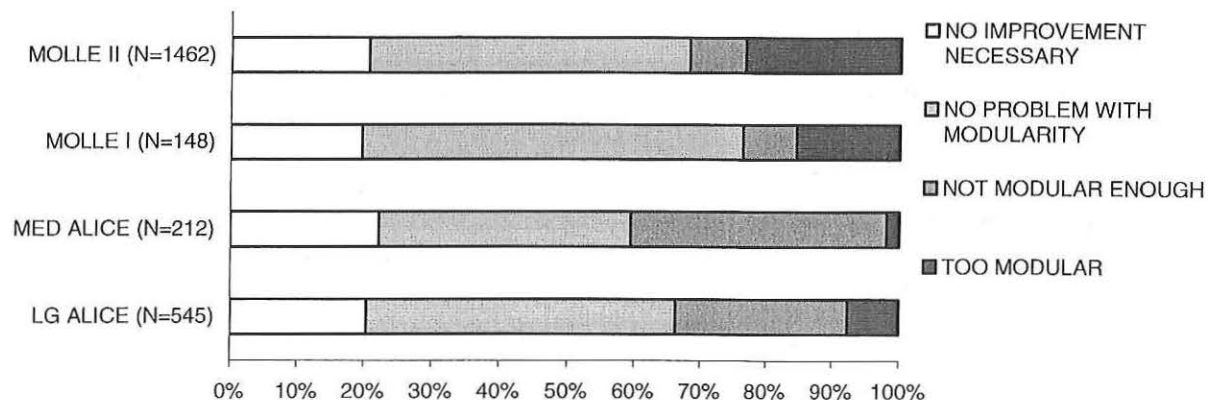


FIGURE 3. MODULARITY

The two ALICE packs were the most problematic in terms of modularity. Both the large and medium ALICE users were concerned that their packs were not modular enough (39% and 26%, respectively). Though less concerned with modularity, MOLLE users had greater issue with too much modularity (MOLLE II 23%, MOLLE I 16%).

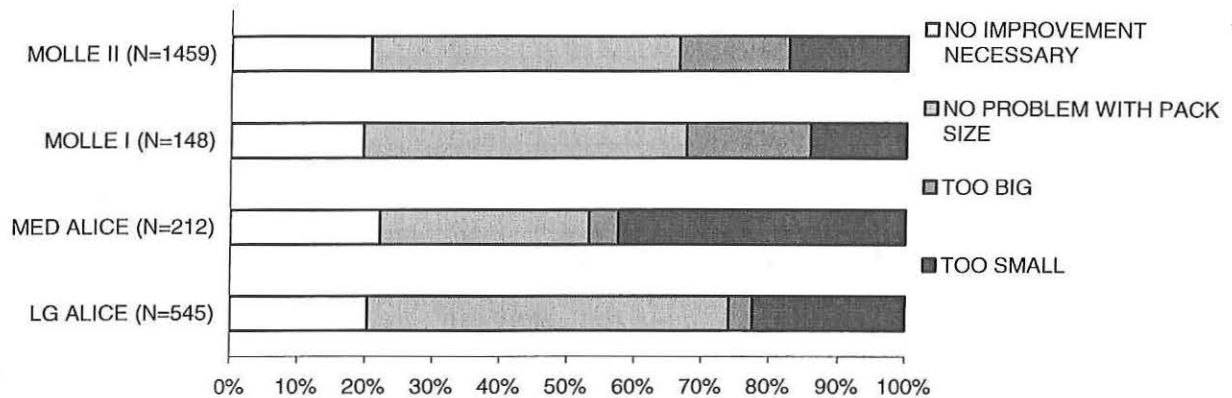


FIGURE 4. PACK SIZE

The medium ALICE users were most concerned with their pack size with 43% indicating that the pack is not large enough. Of those MOLLE users who had a problem with the size of the pack (MOLLE II 34%, MOLLE I 32%), half of them thought it was too big and half thought that it was too small. The large ALICE had the smallest percentage of users experiencing a problem with their with pack size (26%).

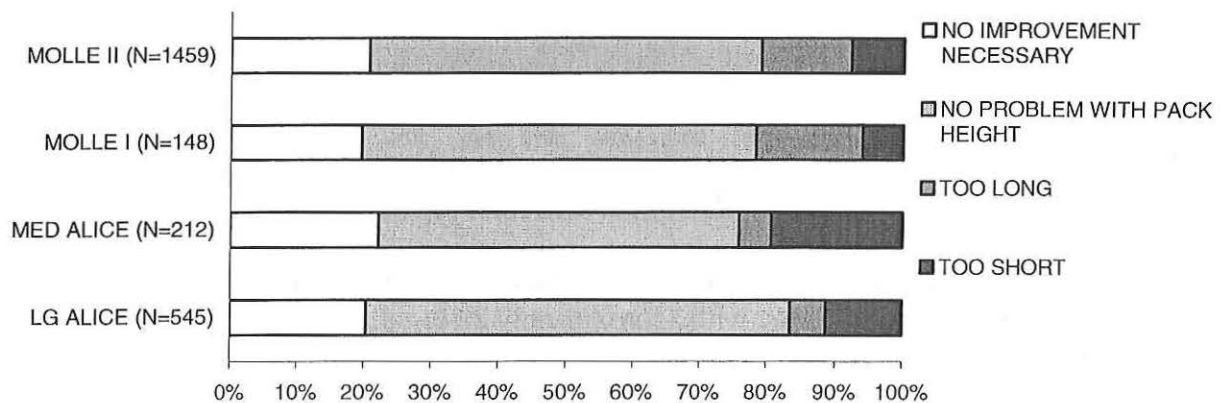


FIGURE 5. PACK HEIGHT

In general, few respondents had an issue with their pack's height. The medium ALICE was the most problematic, with approximately 19% indicating that their pack height was too short.

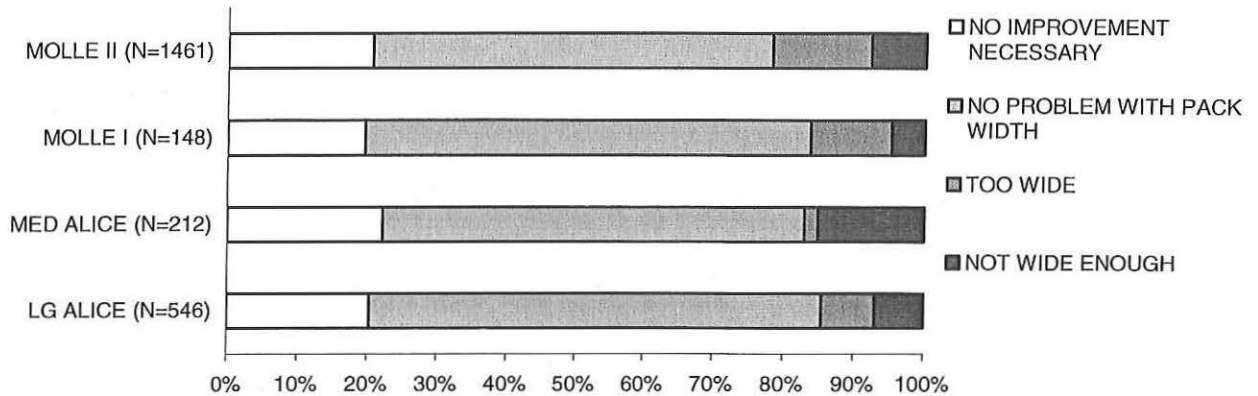


FIGURE 6. PACK WIDTH

In general, pack width was also not a problem for most respondents. The greatest problem areas noted were that the MOLLE II was too wide (14% of users) and the medium ALICE was not wide enough (15%).

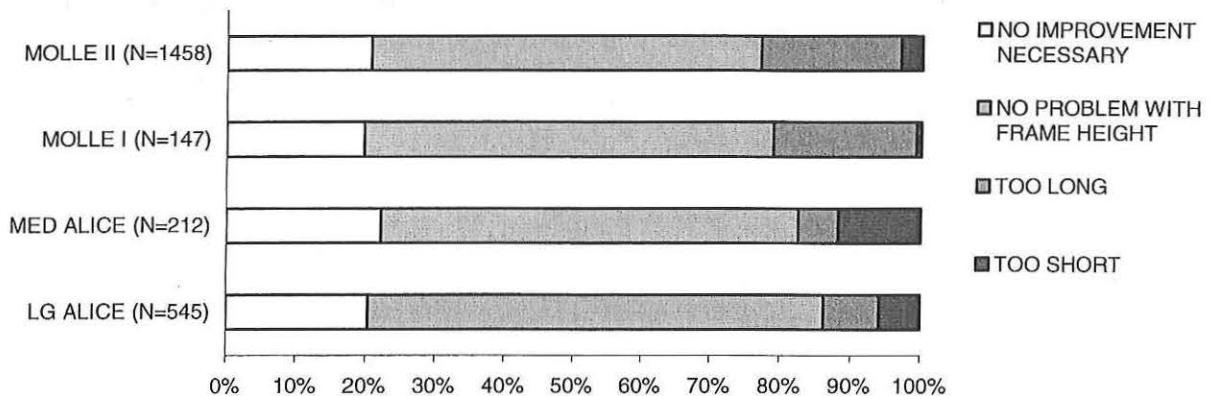


FIGURE 7. FRAME HEIGHT

Frame height was also not a problematic area. MOLLE users were the most dissatisfied with their packs, with approximately 20% stating that their pack frame was too long.

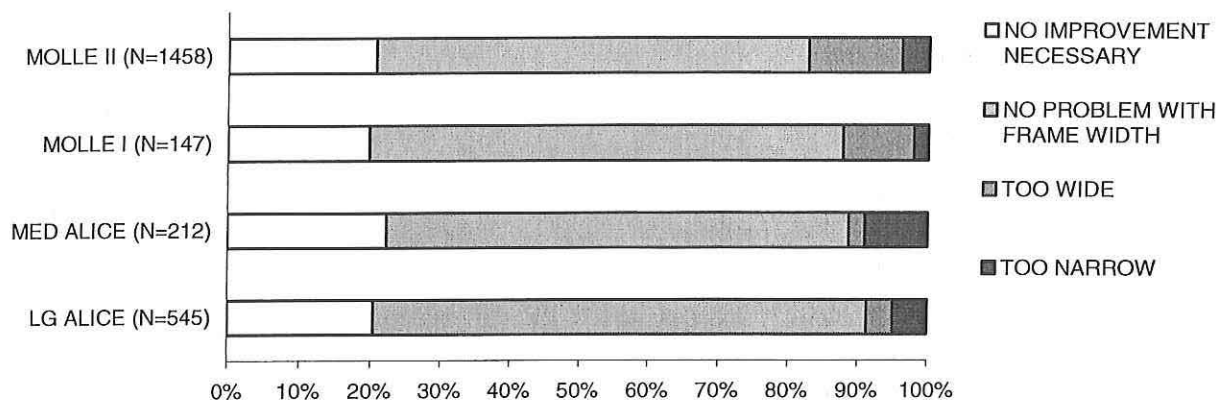


FIGURE 8. FRAME WIDTH

The MOLLE II users showed the most concern over their frame width with 13% responding that their frame was too wide. The MOLLE I users were second in frame width dissatisfaction with approximately 10% also indicating that their frame was too wide. Only a small percentage of both the large and medium ALICE users indicated any frame width concerns.

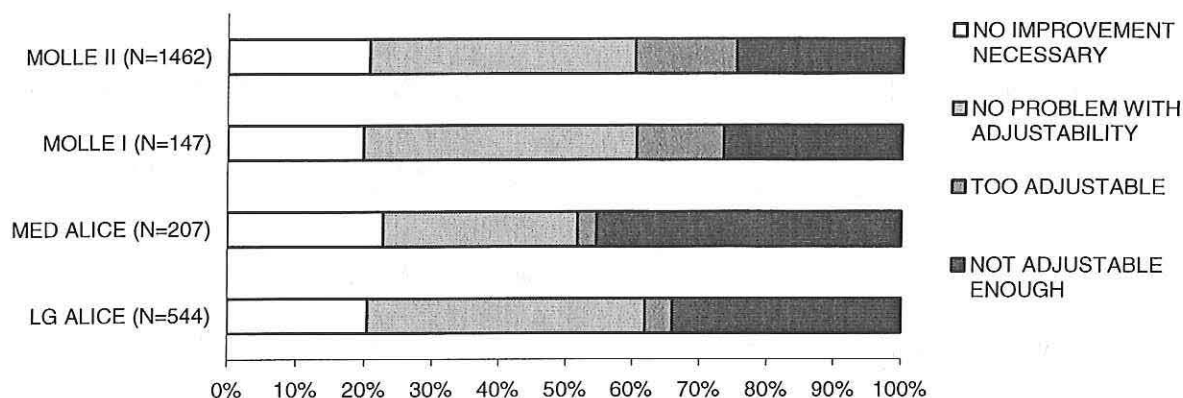


FIGURE 9. ADJUSTABILITY

Pack adjustability was an area of concern for more of the respondents. The medium ALICE users indicated the greatest level of concern, with 45% stating that the pack was not adjustable enough. Among the large ALICE users, 34% stated that the pack was not adjustable enough. Both of the MOLLE groups reported similar levels of concern with approximately 25% indicating that their packs were not adjustable enough.

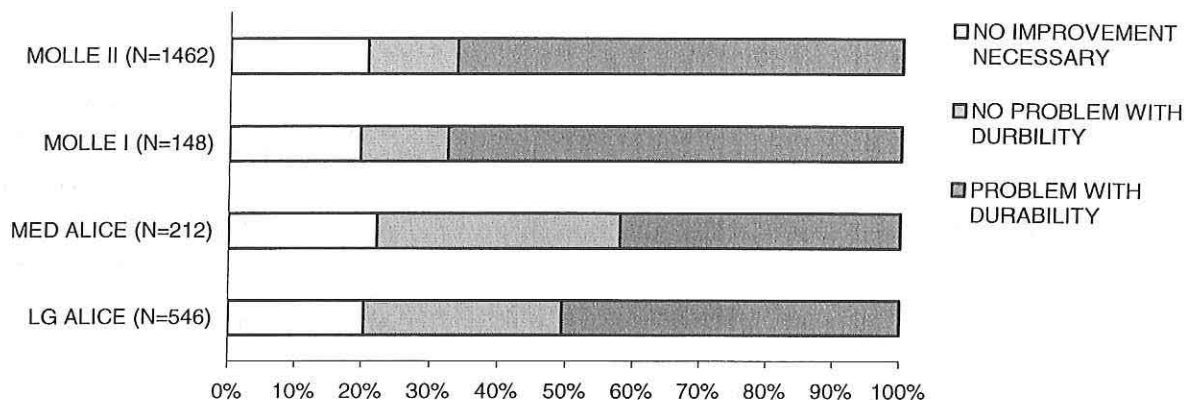


FIGURE 10. DURABILITY

Durability was also a more significant problem area for all pack groups. Approximately 67% of both the MOLLE I and II users indicated that they had a problem with durability. Both of the ALICE groups also showed a high level of concern with 50% of large ALICE users and 42% of medium ALICE users responding that their pack has a durability problem.

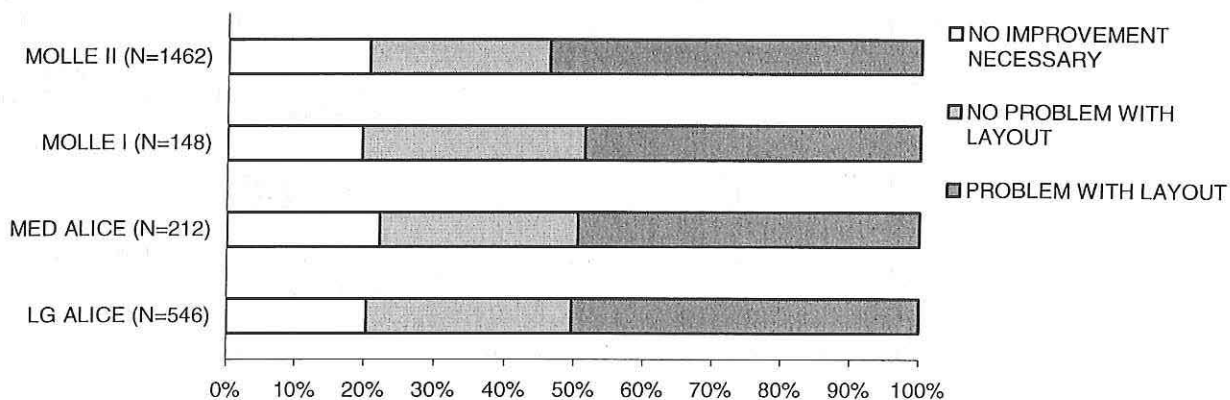


FIGURE 11. LAYOUT OF SYSTEM

System layout also proved to be a strong area of concern for all pack categories. Fifty-three percent of MOLLE II users indicated that they had a problem with the layout of their systems. All of the three remaining categories of users responded similarly, with approximately 50% showing that they had a concern with their system's layout.

Problems with weapon interference

The graphs below illustrate the different problems respondents were experiencing between their load bearing equipment and their weapons. The white portion of the bars indicates the respondents were not experiencing any problems between their weapon and equipment. The lighter gray color indicates that they are having a problem with this particular weapon, but not for the given category. The darkest gray area represents those individuals who are having a problem with their weapon and in the specific category.

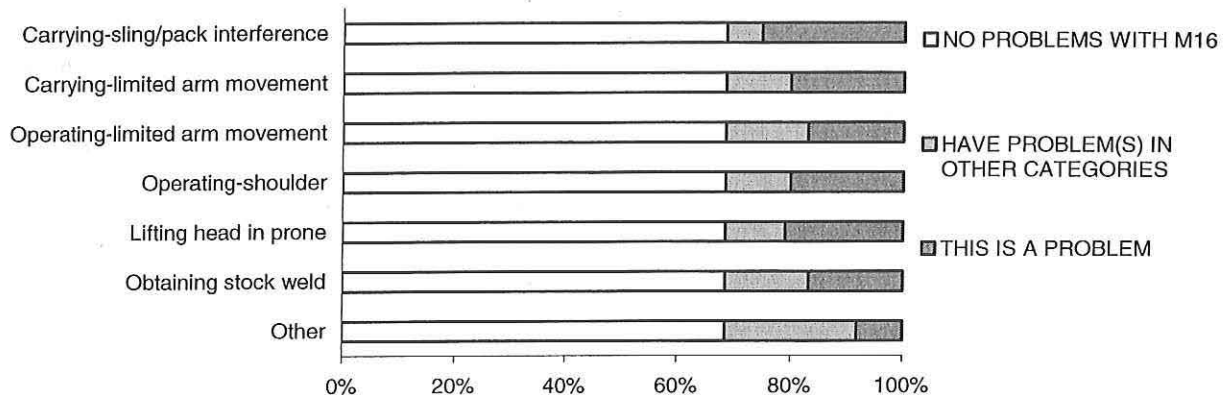


FIGURE 12. M16 (N=1314)

Overall, 64% of respondents reported no problems with weapon/pack interference. This graph shows a similar trend between level of concern and problem categories. Approximately 20% of subjects had a problem in each problem category. However, respondents indicated a slightly greater concern (25 %) over interference between the sling and pack when carrying the M16.

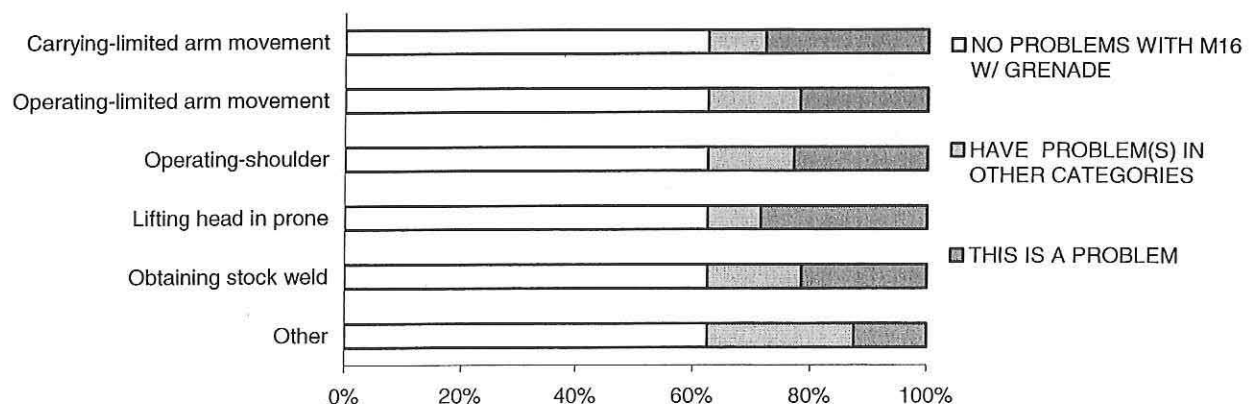


FIGURE 13. M16 WITH GRENADE (N=288)

This graph illustrates that over 60% of respondents did not have a problem with their load carrying equipment and their M16 with M203 grenade launchers. Of those

who did respond that they had a problem, 28% of them found it to be with their arm movement being limited while carrying the weapon and with not being able to lift their heads when in the prone position.

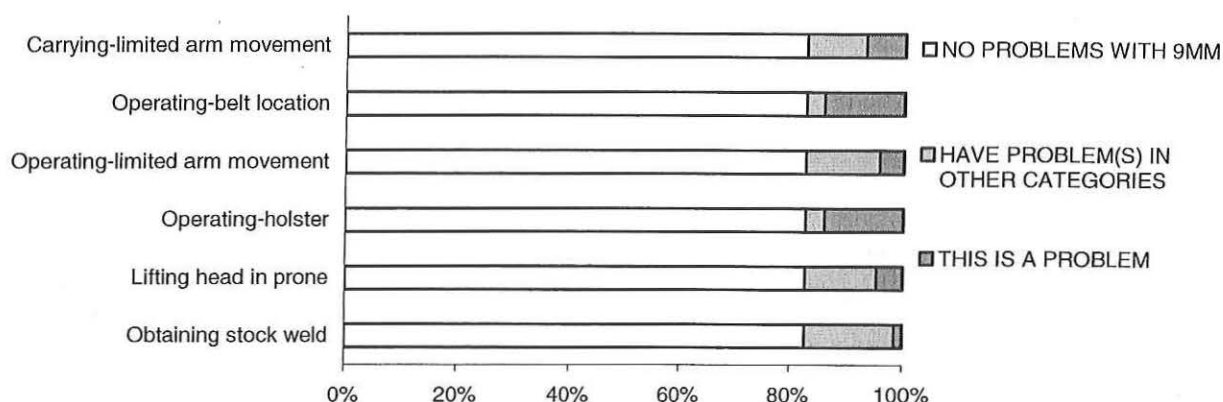


FIGURE 14. 9MM (N=996)

Over 80% of the infantry Marines answered that they did not have a problem with their current load carrying equipment and the 9mm pistol. Of those who did indicate having a problem, their biggest concerns were finding a good location on their belt for the weapon (14%) and drawing the weapon from the holster (14%).

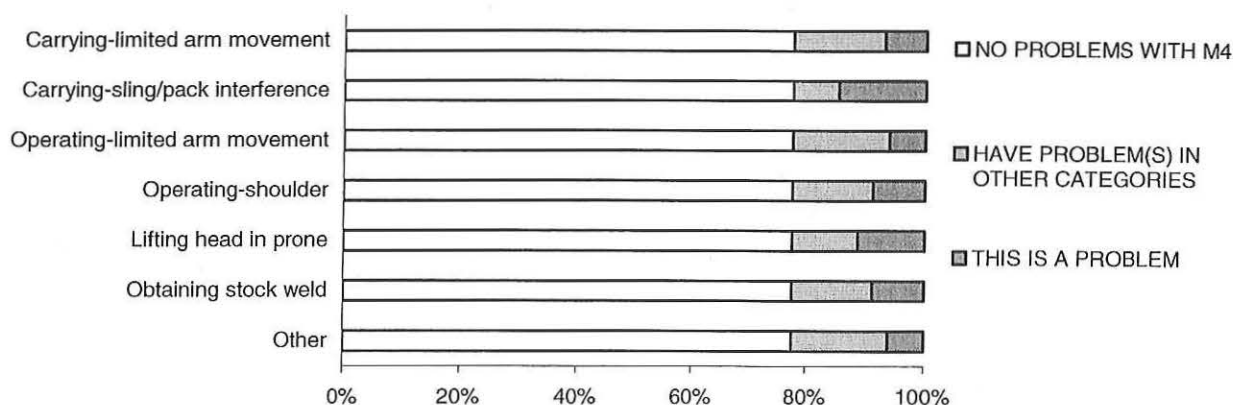


FIGURE 15. M4 (N=116)

In general, respondents did not have a lot of concern over load bearing equipment interference when using the M4 rifle. Almost 80% indicated that they did not have any problems at all. However, 15% of the Marines answered that they had problems due to interference between the sling and pack when carrying the M4.

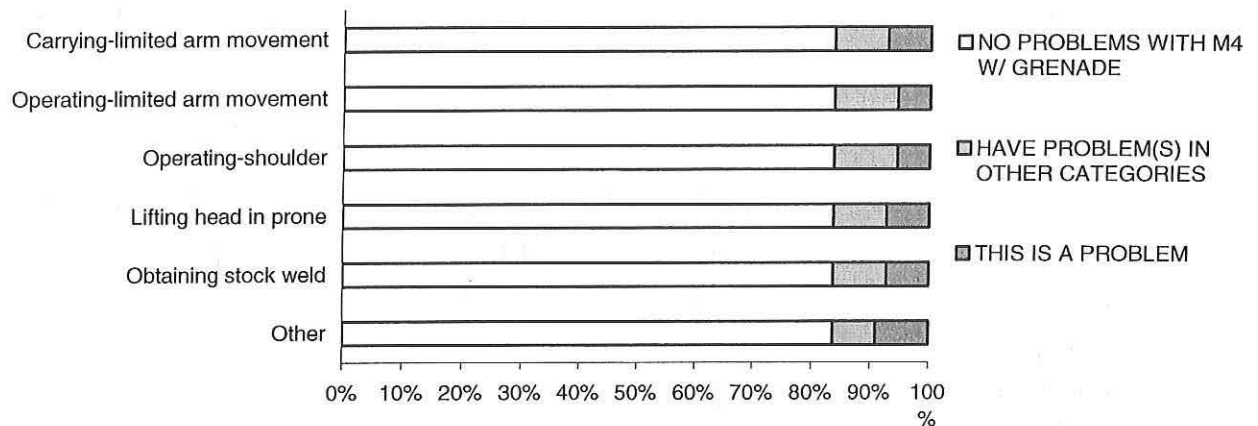


FIGURE 16. M4 WITH GRENADE (N=55)

The M4 with M203 grenade launcher did not prove to be very problematic for the respondents when they were wearing their load bearing equipment. Over 80% of the Marines indicated that they did not experience any problems at all.

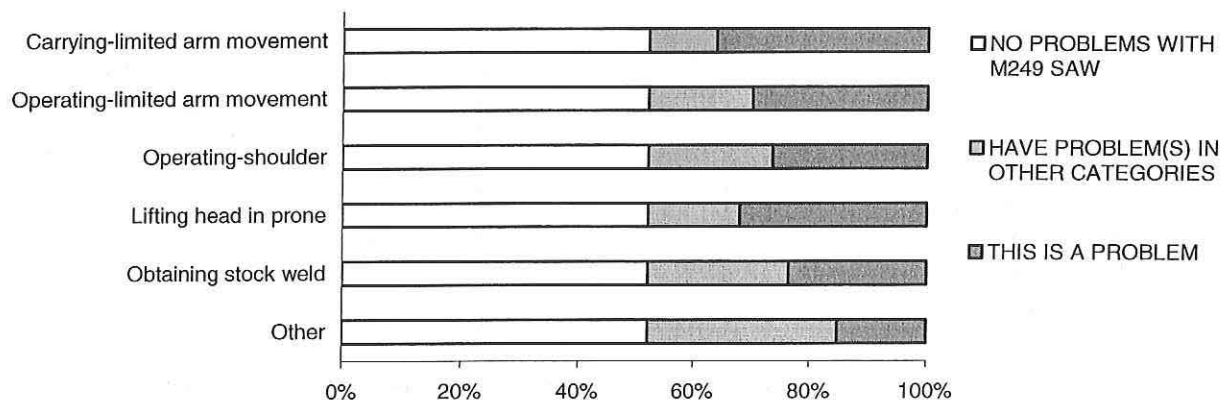


FIGURE 17. M249 SAW (N=144)

Just over 50% of the infantry Marines that carry the M249 SAW (squad automatic weapon) responded that they had a problem between their load bearing equipment and their weapon. Thirty-six percent of respondents indicated that carrying the weapon limited arm movement while 30% answered that operating the weapon limited arm movement as well. Respondents also indicated that they experienced problems when trying to lift their head when in the prone position (32%).

PROBLEMS BASED ON PACK:

Table one shows the breakdown, based on pack, of Marines who indicated that they had problems with the weapons listed in the survey. In general, a group has to have a minimum of 50 Marines in order to make a statistically significant comparison.

TABLE 1. OVERALL PROBLEMS			
	PROBLEMS WITH WEAPON	TOTAL	% WITH PROBS
TOTAL	796	2913	27
LARGE ALICE	102	703	15
MEDIUM ALICE	47	258	18
MOLLE I	42	164	26
MOLLE II	579	1701	34

Across all weapon systems, both of the MOLLE (34% and 26%) users had more problems than either of the ALICE groups (15% and 18%).

Tables 2-7 represent the Marines who indicated that they had a problem with pack weapon compatibility for the specific weapon listed.

TABLE 2. M16 PROBLEMS			
	PROBLEMS WITH M16	TOTAL	% WITH PROBS
TOTAL	413	1314	31
LARGE ALICE	34	255	13
MEDIUM ALICE	25	112	22
MOLLE I	27	75	36
MOLLE II	312	835	37

In general, both of the MOLLE users had more problems with pack weapon compatibility than either of the ALICE groups.

TABLE 3. M16 WITH GRENADE PROBLEMS			
	PROBLEMS WITH M16 W/ GRENADE	TOTAL	% WITH PROBS
TOTAL	108	288	38
LARGE ALICE	15	72	21
MEDIUM ALICE	5	19	26
MOLLE I	3	16	19
MOLLE II	82	171	48

The only notable difference for M16 with grenade users was between the MOLLE II and the large ALICE groups. Nearly half of the MOLLE II group had at least one problem with weapon pack compatibility. There are not enough subjects in the other pack categories to make a comparison.

TABLE 4. 9MM PROBLEMS			
	PROBLEMS WITH 9MM	TOTAL	% WITH PROBS
TOTAL	171	996	17
LARGE ALICE	25	226	11
MEDIUM ALICE	9	106	8
MOLLE I	7	58	12
MOLLE II	123	578	21

In general, none of the pack groups had a significant number of problems when carrying the 9mm.

TABLE 5. M249 SAW PROBLEMS			
	PROBLEMS WITH M249 SAW	TOTAL	% WITH PROBS
TOTAL	69	144	48
LARGE ALICE	10	30	33
MEDIUM ALICE	5	13	38
MOLLE I	4	12	33
MOLLE II	50	87	57

Although the sample size is on the smaller side, it should be noted that almost 60% of MOLLE II users reported that they had at least one problem with pack compatibility when carrying or using the M249 SAW.

In the following charts, there are not enough respondents in most of the categories to draw any significant conclusions.

TABLE 6. M4 PROBLEMS			
	PROBLEMS WITH M4	TOTAL	% WITH PROBS
TOTAL	26	116	22
LARGE ALICE	14	84	17
MEDIUM ALICE	3	8	38
MOLLE I	0	1	0
MOLLE II	8	18	44

TABLE 7. M4 WITH GRENADE PROBLEMS			
	PROBLEMS WITH M4 W/ GRENADE	TOTAL	% WITH PROBS
TOTAL	9	55	16
LARGE ALICE	4	36	11
MEDIUM ALICE	0	0	N/A
MOLLE I	1	2	50
MOLLE II	4	12	33

SUMMARY OF KEY FINDINGS

- 59% of infantry respondents indicated that a main pack should have an external frame.
- Approximately 50% of Marines answered that a main pack should hold between 100 and 150 pounds.
- Respondent's mean for the patrol pack weight capacity was 32 pounds.
- The majority of Marines (89%) think that a load carriage system should have a tube hydration system.
- The majority of Marines responded that a main pack should have one or more sustainment, small utility, large utility and claymore pockets.
- These types of pockets should have buckle closures.
- Marines indicated that they would like their load carriage equipment to have a sleep system (78%).
- The main areas of concern for most of the different pack users were their pack's modularity, size, adjustability and durability, layout.
- Most had a compatibility problem with the M249 SAW.
- In general, both MOLLE I and MOLLE II users had more with pack weapon compatibility.

INTENTIONALLY LEFT BLANK

APPENDICES

Appendix A.

Summary of Responses: Infantry vs. Non-Infantry

Participants:

Seven thousand and thirty-seven people completed the on-line survey of which 2,439 were infantry and 4,598 were non-infantry. The majority of these participants were active duty (79% infantry, 78% non-infantry) enlisted (81% infantry, 83% non-infantry) males in the military (99% infantry, 95% non-infantry). The subjects were evenly distributed with participants representing all three MEF's as well as other duty stations.

Key Findings: Main Ruck Sack

Current Use:

The majority of the marine infantry are currently using the MOLLE II with a significant minority using the large ALICE pack (60% and 22%, respectively). The majority of non-infantry marines however, are currently using either the medium ALICE pack (40%) or the MOLLE II (34%). Both of these groups were familiar with their currently issued system with a mean number of years of experience of 3.2 years for the infantry and 4.4 years for the non-infantry.

Features:

The participants were fairly divided over what type of frame is best suited for a load carriage system with a 59% (58% non infantry) to 41% (42% non-infantry) split over an external versus an internal frame. However, of those who recommended that the pack have an external frame, 92% infantry and 93% of the non-infantry would like to be able to carry the pack without the frame attached as well as it having a stand-alone capability (86% infantry, 90% non-infantry). Both the infantry and the non-infantry were also divided on whether the pack should have different size frames or be one size fits all with a slight majority choosing the one size fits all option (55%).

Feedback on the question of what the weight capacity of the main pack should be showed that approximately 40% of both the infantry and non-infantry participants would like the main pack to hold less than 100 pounds, 50% would like the pack to hold between 100 and 150 pounds, and 10% would like the pack to hold more than 150 pounds. Both groups would like the patrol pack to hold between 20 and 50 pounds with a mean of 32 pounds.

For volume capacity, approximately 18% of the infantry and 20% of the non-infantry indicated that a main ruck sack should hold less than 3,500 cubic inches, 50% of the infantry and 60% of the non-infantry responded it should hold between 3,500 and 5,500 cubic inches and 22% of the infantry and 30% of the non-infantry responded it should hold more than 5,500 cubic inches or more. Both groups would like the patrol pack to hold approximately 1400 cubic inches.

The overwhelming majority of subjects indicated that they would like a load carriage system with a tube hydrations system (88% infantry, 89% non-infantry). Most would like the main ruck to have removable pockets except for both the small and large utility type pockets which they would like to be permanent.

Key Findings: Load Bearing Vest

Current Use:

The majority of infantry marines use the MOLLE II FLC when in the field (60%) with a significant minority using the ALICE pistol belt and suspenders (15%). The non-infantry were divided among the MOLLE II FLC (33%), Tactical load bearing vest (26%) and the ALICE pistol belt and suspenders (24%).

Load Bearing Vest Features:

Feedback on the LBV did not indicate a clear preference on what type of equipment should be used to carry a fighting load. Twenty-nine percent of the infantry chose a modular vest rig design, 27% chose a vest rig design, and 22% chose the cartridge belt with suspenders. Of the non-infantry, only a slight majority chose the modular vest rig design with a close second being the vest rig design (26%).

In general, subjects responded that they would like the pockets on their load bearing vest to be removable.

Additional Analyses:

Additional analyses will look at the problems and or issues surrounding participants various currently issued equipment. Specifically, responses to questions based on compatibility between current load bearing equipment and weapons carried as well as body armor and tube hydration systems. Also, the participant's preferences on the pockets for a main ruck as well as a LBV will be further examined.

Background/Demographics:	Infantry	Non-Infantry	
Subjects:	2439	4598	Total: 7037
Age:			
Mean	27.6	27.4	
Median	26	26	
Gender:			
Male	99%	95%	
Female	less than 1%	5%	
Component:			
Active	81%	83%	
Reserve	19%	12%	
Veteran	less than 1%	3%	
Civilian	none	2%	
Rank:			
Enlisted	79%	78%	
Officers or Warrant Officers	21%	17%	
Missing data/NA	none	5%	
Duty Station:			
I MEF	27%	23%	
II MEF	27%	22%	
III MEF	8%	11%	
Marine Forces Reserve	20%	15%	
Other	18%	24%	
missing data/NA	none	5%	
Weapon Carried:	Infantry	Non-Infantry	
M16A2	54%	54%	
M16A2 with M203 Grenade Launcher	12%	5%	
M4	5%	1%	
M4 with M203 Grenade Launcher	2%	0%	
9 mm	41%	49%	
M249 SAW	6%	3%	

What type of frame is best suited for a load carriage system?

External	59%	58%
Internal	41%	42%

Out of those who selected "external"...

Should you be able to carry the pack without the frame attached?

	Infantry	Non-Infantry
YES	92%	93%

Should the frame have a stand-alone capability? (e.g. you can carry MRE cases, ammunition, or 5 gallon water cans on it)

	Infantry	Non-Infantry
YES	86%	90%

Should the pack have different size frames, or one size fits all (adjustable)?

	Infantry	Non-Infantry
Different frame sizes	45%	45%
One size fits all	55%	55%

The pack should be capable of carrying:

Main Ruck along with any items that you would attach to the outside of the ruck (example: machine gun or mortar base plate attached to outside)

	Infantry	Non-Infantry
Mean	110 lbs.	104 lbs.
100 pounds or less	59%	64%

Patrol Pack:

Mean	32 lbs.	32 lbs.
------	---------	---------

Total system weight carrying capability:

Mean	142 lbs.	136 lbs.
------	----------	----------

Approximately how many cubic inches should the pack hold?

Main Ruck Sack:

Mean	4479 in ³	4562 in ³
4500 cubic inches or less	63%	56%

Patrol Pack:	Infantry	Non-Infantry
Mean	1404 in ³	1377 in ³

Total system volume carrying capability:		
Mean	5883 in ³	5939 in ³

How many access points (openings) should the pack have?

Top	99%	98%
Bottom	32%	28%
Side	49%	67%

What type of pockets should the main pack have? (Fill in chart below)

	How Many			Attachment*			Type of closure			Placement		
Sustainment	I	NI		I	NI		I	NI		I	NI	
None	6%	2%	permanent removable	50%	43%	zipper Velcro snap buckle	11%	14%	bottom front side top	12%	12%	
1 or more	94%	98%		48%	55%		4%	10%		31%	35%	
mean	2.3	2.5					22%	23%		43%	33%	
							62%	53%		14%	19%	
Claymore	I	NI		I	NI		I	NI		I	NI	
None	16%	12%	permanent removable	43%	31%	zipper Velcro snap buckle	17%	15%	bottom front side top	8%	13%	
1 or more	84%	88%		56%	67%		8%	13%		35%	29%	
mean	1.2	1.6					23%	24%		25%	37%	
							52%	47%		32%	21%	
Small Utility	I	NI		I	NI		I	NI		I	NI	
None	10%	5%	permanent removable	65%	59%	zipper Velcro snap buckle	14%	17%	bottom front side top	7%	9%	
1 or more	90%	95%		33%	40%		7%	14%		46%	37%	
mean	2.1	2.1					29%	27%		31%	33%	
							50%	42%		15%	21%	
Large Utility	I	NI		I	NI		I	NI		I	NI	
None	13%	7%	permanent removable	67%	63%	zipper Velcro snap buckle	14%	18%	bottom front side top	25%	25%	
1 or more	87%	93%		32%	36%		5%	11%		32%	27%	
mean	1.7	1.8					22%	22%		22%	19%	
							59%	49%		21%	28%	
Mortar (60mm)	I	NI		I	NI		I	NI		I	NI	
None	45%	44%	permanent removable	24%	22%	zipper Velcro snap buckle	8%	10%	bottom front side top	11%	17%	
1 or more	55%	56%		74%	77%		6%	11%		16%	22%	
mean	1.0	0.9					22%	22%		40%	33%	
							64%	57%		32%	28%	
Mortar (81mm)	I	NI		I	NI		I	NI		I	NI	
None	56%	54%	permanent removable	22%	22%	zipper Velcro snap buckle	8%	10%	bottom front side top	12%	18%	
1 or more	44%	46%		77%	77%		6%	10%		18%	20%	
mean	0.7	0.7					22%	22%		36%	32%	
							64%	57%		34%	29%	
Sleep System	I	NI		I	NI		I	NI		I	NI	
None	22%	12%	permanent removable	39%	30%	zipper Velcro snap buckle	22%	20%	bottom front side top	76%	59%	
1 or more	78%	88%		59%	69%		3%	9%		2%	3%	
mean	0.8	0.9					15%	14%		1%	2%	
							59%	56%		21%	36%	

*Missing data will account for remaining percent

***I =Infantry**

NI=Non-Infantry

Should a load carriage system have a tube hydration system? (e.g. a CamelBak)

	Infantry	Non-Infantry
Yes	88%	89%

Of those who selected "yes"...

Does it need to be NBC capable?

Yes	88%	89%
-----	-----	-----

How should it be carried? (Check all that apply)

In a pocket inside the patrol pack	39%	32%
Under the main ruck flap	27%	19%
In a pocket inside the LBV	35%	34%
Between user's back and main ruck	31%	38%
In a separate carrier	30%	26%
Other	11%	8%

Of those who selected "yes" and "in a separate carrier"...

Should it be able to attach to the outside of the main ruck?

Yes	87%	89%
-----	-----	-----

Should it be able to attach to the outside of the patrol pack?

Yes	86%	90%
-----	-----	-----

Should it be able to attach to the load bearing vest (LBV)?

Yes	86%	89%
-----	-----	-----

Should a load carriage system have a detachable patrol pack?

Yes	88%	93%
-----	-----	-----

Of those who selected "yes"...

Should the patrol pack have a waist strap?

	Infantry	Non-Infantry
Yes	56%	66%

What type of equipment should Marines use to carry a fighting load?

Cartridge belt with suspender	22%	15%
Vest rig design	27%	26%
Modular vest rig design	29%	44%
Chest harness	5%	2%
Modular chest harness	17%	13%

What type of pockets should a load bearing vest have? (Fill in chart below)

		How Many		Attachment		
		I	NI		I	NI
First Aid	none	5%	3%	permanent	28%	30%
	1 or more	95%	97%	removable	70%	69%
	mean	1.1	1.2			
		I	NI		I	NI
Double 30 round	none	18%	12%	permanent	29%	37%
	1 or more	82%	88%	removable	69%	62%
	mean	2.4	2.7			
		I	NI		I	NI
Triple 30 round	none	33%	28%	permanent	23%	28%
	1 or more	67%	72%	removable	74%	71%
	mean	1.6	1.7			

Utility/Canteen

	I	NI		I	NI
none	10%	10%	permanent	19%	23%
1 or more	90%	90%	removable	80%	76%
mean	1.8	1.8			

2 quart canteen

	I	NI		I	NI
none	46%	38%	permanent	10%	13%
1 or more	54%	62%	removable	88%	85%
mean	0.7	0.9			

Fragmentation Grenade

	I	NI		I	NI
none	2%	2%	permanent	24%	31%
1 or more	98%	98%	removable	74%	67%
mean	2.8	3.0			

Smoke grenade

	I	NI		I	NI
none	19%	16%	permanent	15%	22%
1 or more	81%	84%	removable	83%	77%
mean	1.5	1.6			

40mm grenade

	I	NI		I	NI
none	23%	31%	permanent	10%	15%
1 or more	77%	69%	removable	88%	83%
mean	6.2	3.9			

Single 9mm magazine

	I	NI		I	NI
none	38%	30%	permanent	9%	17%
1 or more	62%	70%	removable	89%	81%
mean	1.5	1.8			

Double 9mm magazine	I	NI		I	NI
none	43%	29%	permanent	7%	15%
1 or more	57%	71%	removable	89%	84%
mean	1.2	1.6			

M9 service pistol holster	I	NI		I	NI
none	27%	17%	permanent	4%	8%
1 or more	73%	83%	removable	94%	90%
mean	0.7	0.8			

What kind of carrying equipment is best suited for short (e.g. less than 24 hours) combat missions?

	Infantry	Non-Infantry
Patrol Pack	35%	43%
Butt Pack	23%	18%
Both	40%	37%
Neither	2%	2%

What items would you carry in your butt pack or assault pack for a 12-24 hour mission?

	Infantry	Non-Infantry		Infantry	Non-Infantry
MRE	96%	95%	flex cuffs	55%	41%
poncho	73%	66%	sand bags	17%	7%
Gortex top	40%	40%	electrical tape	75%	62%
Gortex bottom	12%	19%	collapsible litter	14%	6%
polypro top	45%	29%	foot powder	43%	46%
polypro bottom	11%	14%	hygiene gear	27%	38%
black utility gloves	77%	70%	sewing kit	22%	17%
extra socks	78%	83%	cammie paint	91%	85%
knit cap	58%	53%	bug repellent	61%	63%
flashlight	81%	78%	extra ammo	73%	75%
signal mirror	63%	50%	weapon cleaning gear	84%	71%
550 chord	93%	84%	blank firing adapter	28%	12%

Which Load Carrying System are you using now?

Pack	Infantry	Non-Infantry
Large ALICE Pack	22%	14%
Medium ALICE Pack	9%	40%
MOLLE I	6%	4%
MOLLE II	60%	34%
Low Vector Pack	3%	3%

Which Load Carrying System are you using now?

Combat Load

ALICE Pistol Belt and Suspenders	15%	24%
Tactical Load Bearing Vest (LBV)	10%	26%
Enhanced LBV	6%	7%
MOLLE I Vest	10%	6%
MOLLE II FLC	60%	33%

Overall, how many years of experience do you have with your currently issued system?

Mean	3.2years	4.4 years
------	----------	-----------

Do you have a problem employing individual weapons with your current system?

Yes	35%	27%
-----	-----	-----

Of those who selected "yes"...

Which ones? (check all that apply)

M16A2	68%	76%
M16A2 w/M203 Grenade Launcher	43%	20%
M4	9%	5%
M4 w/M203 Grenade Launcher	9%	4%
9mm	28%	32%
M249 SAW	39%	18%

Of those who selected "yes" and "M16A2"...

What are the basic problems with the M16A2? (check all that apply)

Carrying - sling/pack	81%	82%
Carrying - arm movement	64%	57%
Operating weapon - arm movement	56%	44%
Operating weapon – shoulder	65%	64%
Unable to lift head in prone	70%	61%
Unable to attain a stock weld	56%	53%
Other	25%	13%

Of those who selected "yes" and "M16A2 w/M203 Grenade Launcher"...

What are the basic problems with the M16A2 with M203 Grenade Launcher?

Carrying - arm movement	73%	71%
Operating weapon -arm movement	63%	59%
Operating weapon – shoulder	69%	65%
Unable to lift head in prone	72%	59%
Unable to attain a stock weld	59%	54%
Other	27%	17%

Of those who selected "yes" and "M4"...

What are the basic problems with the M4?

Carrying - sling/pack	60%	50%
Carrying - arm movement	72%	75%
Operating weapon - arm movement	55%	50%
Operating weapon – shoulder	67%	57%
Unable to lift head in prone	72%	55%
Unable to attain a stock weld	65%	52%
Other	37%	14%

Of those who selected "yes" and "M4 w/M203 Grenade Launcher"...

What are the basic problems with the M4 with M203 Grenade Launcher?

Carrying - arm movement	70%	66%
Operating weapon - arm movement	68%	61%
Operating weapon – shoulder	71%	66%
Unable to lift head in prone	73%	57%
Unable to attain a stock weld	71%	61%
Other	44%	23%

Of those who selected "yes" and "9mm"...

What are the basic problems with the 9mm?

Carrying - arm movement	42%	37%
Carrying - belt	79%	78%
Operating weapon - arm movement	28%	27%
Operating weapon - holster	77%	74%
Unable to lift head in prone	32%	28%
Unable to attain a stock weld	13%	7%
Other	23%	17%

Of those who selected "yes" and "M249 SAW"...

What are the basic problems with the M249 SAW?

Carrying - arm movement	76%	66%
Operating weapon - arm movement	68%	62%
Operating weapon - shoulder	68%	66%
Unable to lift head in prone	74%	66%
Unable to attain a stock weld	60%	56%
Other	27%	20%

What kind of body armor are you currently using. Select one answer.

Interceptor	81%	46%
PASGT	19%	49%

Of those who selected "Interceptor"...

Do you ever attach pockets or pouches to the webbing on Interceptor?

Yes	53%	50%
-----	-----	-----

Of those who selected "Interceptor" and "yes"...

Which ones?

ammo pouches	94%	87%
first aid kit	41%	27%
canteen / utility	47%	38%
grenade	60%	39%
knife/bayonet	46%	57%

Do you have any compatibility problems between your body armor (flack jacket) and the load carrying system?

Yes	48%	46%
-----	-----	-----

Of those who selected "yes"...

Which ones? (Check all that apply)

Uncomfortable at the shoulder	70%	69%
Pack rides poorly	69%	68%
Vest of Suspenders do not fit well	49%	48%
SAPI plates interfere	24%	12%
Shoulder straps don't fit well	71%	70%
Other	30%	21%

Can features of your current system be improved to make it more suitable for Marines?

Yes	79%	79%
-----	-----	-----

Of those who selected "yes"...

What areas need to be addressed? (Check all that apply)

	Infantry	Non-Infantry
Modularity	41%	40%
Main pack size	42%	42%
Main pack height	26%	22%
Main pack width	24%	20%
Adjustability	51%	57%
Frame height	26%	22%
Frame width	18%	14%
Improve durability	76%	64%
Change layout of system	66%	59%

Current system is...

		I	NI		I	NI
Of those who selected "modularity"...	too modular	52%	26%	not modular enough	47%	74%
Of those who selected "main pack size"...	too big	37%	21%	too small	62%	79%
Of those who selected "main pack height"...	too long	53%	38%	too short	47%	62%
Of those who selected "main pack width"...	too wide	58%	34%	not wide enough	42%	66%
Of those who selected "adjustability"...	too adjustable	28%	11%	not adjustable enough	72%	89%
Of those who selected "frame height"...	too long	77%	61%	too short	21%	38%
Of those who selected "frame width"...	too wide	67%	44%	too narrow	31%	56%

Appendix B.

Screen Shots of Website

Welcome to the 2002 Load Bearing Survey - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News Groups

Address http://www.thewarriorsvoice.com/intro_end.asp Go Links >>

Marines 2002 Load Bearing Survey

The Few. The Proud.

Help
Finish Later

If you have any questions or problems with this survey please [Contact Us](#).

Welcome to the 2002 Load Bearing Survey

This survey has been designed to find out what Marines would like from a load carriage system. Your input today will directly impact the changes that will be made in the current load bearing equipment. Your participation is greatly appreciated.

Begin **Resume**



The survey consists of 4 sections:

- Part One: Background / Demographics
- Part Two: Main Ruck
- Part Three: Load Bearing Vest
- Part Four: Current Use

Please take a moment to fill out our brief survey.

You can either click on the "begin" button above to start a new survey or on "resume" to finish a survey already in progress.

You have the option to save the survey and complete it later. At any time during the survey just click on the navigational link "finish later" and then follow the instructions.

Done Internet

Part One: Background / Demographics - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source Help

Address http://www.thewarriorsvoice.com/background_01.asp Go Links »

Marines

The Few. The Proud.

Part One: Background / Demographics

0%
Percent Completed

Age: Gender: Height: Feet Inches Weight: Pounds

Component:

Rank:

How long have you been in the military? Years: Months:

MOS:

Duty Station:

If you have any questions or problems with this survey please Contact Us.

Done Internet

Part One: Background / Demographics - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source Help

Address http://www.thewarriorsvoice.com/background_02.asp?i=57418038 Go Links >>

Marines Part One: Background / Demographics

The Few. The Proud.

Help
Finish Later

5%
Percent Completed

Weapon Carried (check your current issued weapon(s))

- ☒ M16A2
- ☐ M16A2 with M203 Grenade Launcher
- ☐ M4
- ☐ M4 with M203 Grenade Launcher
- ☐ 9 mm
- ☐ M249 SAW

If you have any questions or problems with this survey please [Contact Us](#).

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/ruck_01.asp?l=57418038 Go Links >>

Marines Part Two: Main Ruck

The Few. The Proud.

Help
Finish Later

9%
Percent Completed

What type of frame is best suited for a load carriage system?

☒ External (the frame is located outside the main ruck and can be separated from it)

☐ Internal (the frame is located inside of the main ruck and cannot be separated from it)

Should you be able to carry the pack without the frame attached?

☐ Yes

☒ No

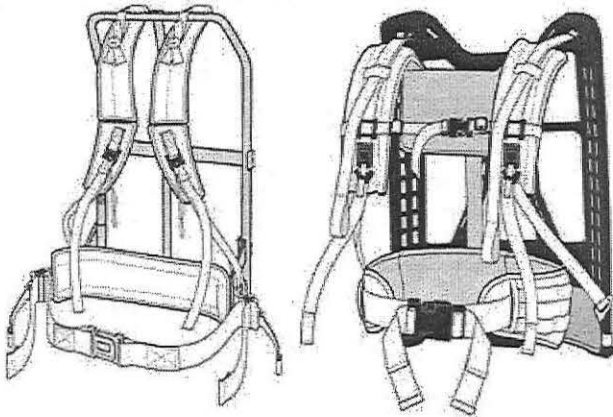
Should the frame have a stand-alone capability? (e.g. you can carry MRE cases, ammunition, or 5 gallon water cans on it)

☒ Yes

☐ No

Submit

If you have any questions or problems with this survey please [Contact Us.](#)



Examples of External Frame

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/ruck_02.asp?i=57418038 Go Links >>

Marines Part Two: Main Ruck

The Few. The Proud.

Help
Finish Later

If you have any questions or problems with this survey please [Contact Us](#).

14%

Percent Completed

Should the pack have different size frames, or one size fits all (adjustable)?

☐ Different frame sizes (small, medium, and large)

☒ One size fits all (adjustable)

Submit

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/ruck_03.asp?i=57418038 Go Links >>

Marines Part Two: Main Ruck

The Few. The Proud.

Help
Finish Later

19%
Percent Completed

The pack should be capable of carrying:

Main Ruck along with any items that you would attach to the outside of the ruck (example: machine gun or mortar base plate attached to outside)

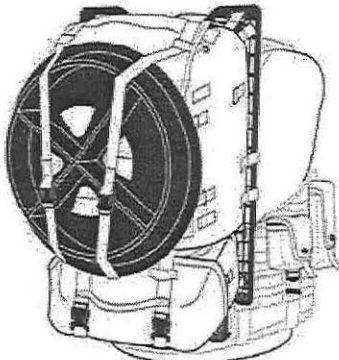
pounds

Patrol Pack:

pounds

Total system weight carrying capability: **130** pounds.

If you have any questions or problems with this survey please [Contact Us](#).



Pack with mortar base plate attached

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/ruck_04.asp?i=57418038 Go Links >>

Marines Part Two: Main Ruck

The Few. The Proud.

Help

Finish Later

If you have any questions or problems with this survey please [Contact Us](#).

23%

Percent Completed

Approximately how many cubic inches should the pack hold?

Please Note: MOLLE (includes the main pack, sustainment pouches and sleep system carrier): 5200 cubic inches

Large ALICE: 3900 cubic inches

Medium ALICE: 2250 cubic inches

MOLLE Patrol Pack: 1500 cubic inches

Main Ruck Sack: cubic inches

Patrol Pack: cubic inches

Total system volume carrying capability: **6250** cubic inches.

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/ruck_05.asp?i=57418038 Go Links

Marines Part Two: Main Ruck

The Few. The Proud.

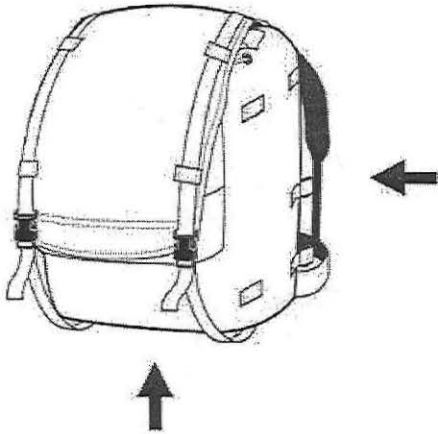
Help
Finish Later

28%
Percent Completed

How many access points (openings) should the pack have?

☐ top
☒ bottom
☒ side

Submit



If you have any questions or problems with this survey please [Contact Us](#).

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorvoice.com/ruck_06.asp?i=57418038 Go Links

Marines Part Two: Main Ruck

The Few. The Proud.

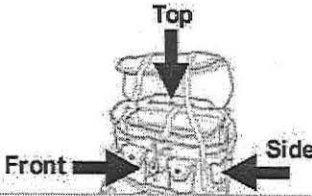
Help
Finish Later

33%
Percent Completed

What type of pockets should the main pack have? (Fill in chart below)

	How Many	Attachment	Type of closure	Placement of Pocket on Ruck	
Sustainment	2	permanent	velcro	bottom	Next
Claymore	2	removable	snap	side	Next
Small Utility	1	removable	velcro	top	Next
Large Utility	none				Next
Mortar (60mm)	1	permanent	snap	bottom	Next
Mortar (81mm)	3	removable	buckle	front	Next
Sleep System	none				Submit

If you have any questions or problems with this survey please [Contact Us](#).



Top
Front
Side

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/ruck_07.asp?i=57418038 Go Links

Marines Part Two: Main Ruck

The Few. The Proud.

Help
Finish Later

38%
Percent Completed

Should a load carriage system have a tube hydration system? (e.g. a CamelBak)

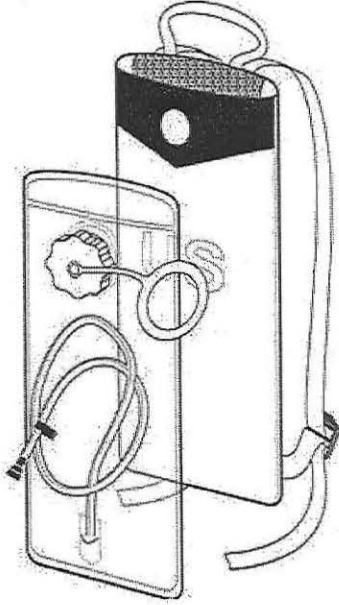
☒ Yes
☐ No

Does it need to be NBC capable?

☐ Yes
☒ No

How should it be carried? (Check all that apply)

☐ In a pocket inside the patrol pack
☐ Under the main ruck flap
☒ In a pocket inside the LBV (load bearing vest)
☐ Between user's back and main ruck
☐ In a separate carrier
☒ Other



If you have any questions or problems with this survey please [Contact Us](#).

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/ruck_07.asp?i=57418038 Go Links »

Marines Part Two: Main Ruck

The Few. The Proud.

Help
Finish Later

38%
Percent Completed

Should a load carriage system have a tube hydration system? (e.g. a CamelBak)

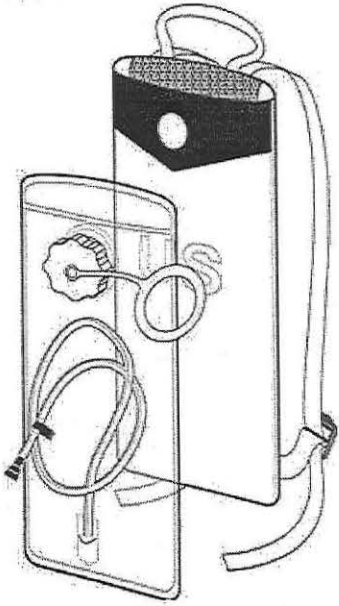
☒ Yes
☐ No

Does it need to be NBC capable?

☐ Yes
☒ No

How should it be carried? (Check all that apply)

☐ In a pocket inside the patrol pack
☐ Under the main ruck flap
☒ In a pocket inside the LBV (load bearing vest)
☐ Between user's back and main ruck
☐ In a separate carrier
☒ Other



If you have any questions or problems with this survey please [Contact Us.](#)

Submit

Done Internet

Part Two: Main Ruck - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source Help

Address http://www.thewarriorsvoice.com/ruck_08.asp?i=57418038 Go Links >>

Marines Part Two: Main Ruck

The Few. The Proud.

Help
Finish Later


43%
Percent Completed

Should a load carriage system have a detachable patrol pack?

☒ Yes
☐ No

Should the patrol pack have a waist strap?

☒ Yes
☐ No



Waist Strap

If you have any questions or problems with this survey please [Contact Us](#).

Done Internet



Marines
The Few. The Proud.

Part Three: Load Bearing Vest

Help

Finish Later

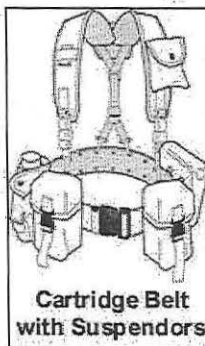
18%

Percent Completed

What type of equipment should Marines use to carry a fighting load?

- ☒ Cartridge belt with suspender
- ☐ Vest rig design
- ☐ Modular vest rig design
- ☐ Chest harness
- ☐ Modular chest harness

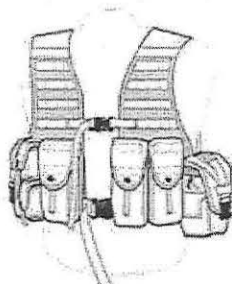
Submit



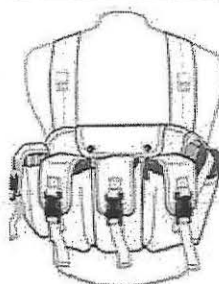
Cartridge Belt
with Suspenders



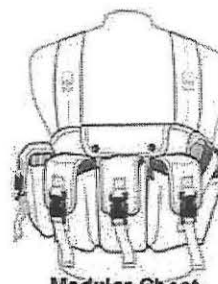
Vest Rig Design



Modular Vest
Rig Design



Chest
Harness



Modular Chest
Harness
(Removable Pockets)

If you have any
questions or problems
with this survey please
[Contact Us.](#)

Part Three: Load Bearing Vest - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/lbv_02.asp?i=57418038 Go Links

Marines Part Three: Load Bearing Vest

The Few. The Proud.

Help
Finish Later

53%
Percent Completed

What type of pockets should a load bearing vest have? (Fill in chart below)

	How Many	Attachment	
First Aid	1	permanent	Next
Double 30 round	4	permanent	Next
Triple 30 round	2	removable	Next
Utility/Canteen	1	permanent	Next
2 quart canteen	2	removable	Next
Fragmentation Grenade	2	removable	Next
Smoke grenade	2	removable	Next
40mm grenade	10	permanent	Next
Single 9mm magazine	1	permanent	Next
Double 9mm magazine	1	removable	Next
M9 service pistol holster	1	removable	Submit

If you have any questions or problems with this survey please Contact Us.


Done Internet

Part Three: Load Bearing Vest - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/lbv_03.asp?i=57418038 Go Links >>

 **Marines** Part Three: Load Bearing Vest
The Few. The Proud.

Help
Finish Later

57%
Percent Completed

What kind of carrying equipment is best suited for short (e.g. less than 24 hours) combat missions?

☒ Patrol Pack
☐ Butt Pack
☐ Both
☐ Neither

If you have any questions or problems with this survey please [Contact Us](#).


Done Internet

Part Three: Load Bearing Vest - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/lbv_04.asp?i=57418038 Go Links >>



Marines

The Few. The Proud.

Part Three: Load Bearing Vest

Help

Finish Later

62%

Percent Completed

What items would you carry in your butt pack or assault pack for a 12-24 hour mission?

<input type="checkbox"/> MRE	<input type="checkbox"/> flex cuffs	
<input type="checkbox"/> poncho	<input checked="" type="checkbox"/> sand bags	
<input checked="" type="checkbox"/> Gortex top	<input type="checkbox"/> electrical tape	
<input type="checkbox"/> Gortex bottom	<input type="checkbox"/> collapsible litter	
<input type="checkbox"/> polypro top	<input checked="" type="checkbox"/> foot powder	
<input type="checkbox"/> polypro bottom	<input type="checkbox"/> hygiene gear	
<input type="checkbox"/> black utility gloves	<input type="checkbox"/> sewing kit	other: <input type="text" value="sample"/>
<input type="checkbox"/> extra socks	<input type="checkbox"/> cammie paint	other: <input type="text"/>
<input checked="" type="checkbox"/> knit cap	<input type="checkbox"/> bug repellent	other: <input type="text"/>
<input type="checkbox"/> flashlight	<input type="checkbox"/> extra ammo	other: <input type="text"/>
<input type="checkbox"/> signal mirror	<input checked="" type="checkbox"/> weapon cleaning gear	other: <input type="text"/>
<input type="checkbox"/> 550 chord	<input type="checkbox"/> blank firing adapter	other: <input type="text"/>

If you have any questions or problems with this survey please [Contact Us](#).

Submit

Done Internet

Part Four: Current Issue - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/current_01.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help
Finish Later

67%
Percent Completed

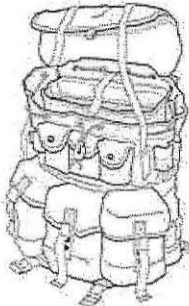
Which Load Carrying System are you using now?

Pack:

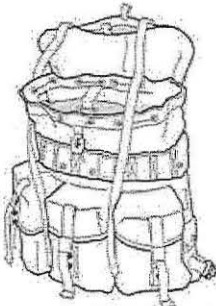
- ☐ Large ALICE Pack
- ☐ Medium ALICE Pack
- ☐ MOLLE I
- ☐ MOLLE II
- ☐ Lowe Vector Pack

Submit

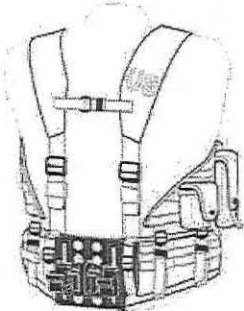
If you have any questions or problems with this survey please [Contact Us](#).



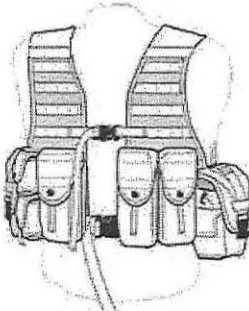
Large ALICE Pack



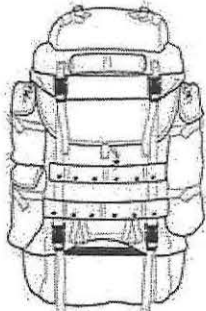
Medium ALICE Pack



Molle I Vest



Molle II



Lowe Vector Pack

Done Internet

Part Four: Current Issue - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/current_01a.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help
Finish Later

71%
Percent Completed

Which Load Carrying System are you using now?

Combat Load:

- ☐ ALICE Pistol Belt and Suspenders
- ☒ Tactical Load Bearing Vest (LBV)
- ☐ Enhanced LBV
- ☐ MOLLE I Vest
- ☐ MOLLE II FLC

Submit

If you have any questions or problems with this survey please [Contact Us](#).

ALICE Pistol Belt & Suspenders

Tactical LBV

Enhanced LBV

Molle I

MOLLE II FLC

Done Internet

Current Issue - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source Help

Address http://www.thewarriorsvoice.com/current_02.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help
Finish Later

76%
Percent Completed

Overall, how many years of experience do you have with your currently issued system?

years months

If you have any questions or problems with this survey please [Contact Us](#).

Done Internet

http://www.thewarriorsvoice.com/current_03.asp?i=57418038 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/current_03.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help

Finish Later

If you have any questions or problems with this survey please [Contact Us](#).

81%
Percent Completed

Do you have a problem employing individual weapons with your current system?

☒ Yes
☐ No

Reset

Click 'reset' to start this question over.

Which ones? (check all that apply)

☒ M16A2
☐ M16A2 w/M203 Grenade Launcher
☐ M4
☐ M4 w/M203 Grenade Launcher
☐ 9mm
☐ M249 SAW

What are the basic problems with the **M16A2**? (check all that apply)

☐ Carrying - sling/pack interfere with each other
☐ Carrying - system limits arm movement
☒ Operating weapon - system limits arm movement
☐ Operating weapon - difficult to place weapon in shoulder
☐ Unable to lift head in prone
☐ Unable to attain a stock weld with equipment on

Done Internet

Part Four: Current Issue - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print View Source

Address http://www.thewarriorsvoice.com/current_04.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help
Finish Later

86%
Percent Completed

What kind of body armor are you currently using. Select one answer.

☒ Interceptor
☐ PASGT

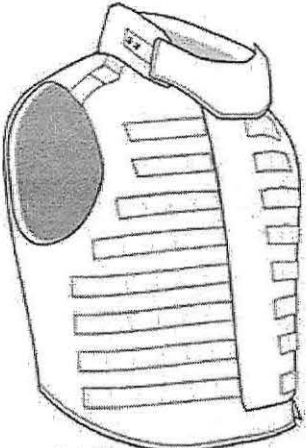
Do you ever attach pockets or pouches to the webbing on Interceptor?

☒ Yes
☐ No


Which ones?

☐ ammo pouches
☒ first aid kit
☐ canteen / utility
☒ grenade
☐ knife/bayonet

If you have any questions or problems with this survey please [Contact Us.](#)



Interceptor



PASGT

Done Internet

Part Four: Current Issue - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/current_05.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help

Finish Later

If you have any questions or problems with this survey please [Contact Us](#).

90%
Percent Completed

Do you have any compatibility problems between your body armor (flack jacket) and the load carrying system?

☒ Yes
☐ No

Which ones? (Check all that apply)

☐ Uncomforable at the shoulder
☒ Pack rides poorly
☐ Vest of Suspendors do not fit well over body armor
☒ SAPI plates interfere with pack frame
☐ Shoulder straps don't fit well over body armor
☒ Other

Submit

Done Internet

Part Four: Current Issue - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address http://www.thewarriorsvoice.com/current_06.asp?i=57418038 Go Links >>

Marines Part Four: Current Issue

The Few. The Proud.

Help
Finish Later

95%
Percent Completed

Can features of your current system be improved to make it more suitable for Marines?

☒ Yes
☐ No

What areas need to be addressed?
(Check all that apply)

☐ Modularity
☒ Main pack size
☐ Main pack height
☒ Main pack width
☐ Adjustability
☒ Frame height
☐ Frame width
☒ Improve durability
☐ Change layout of system

Current system is...

☒ too big
☐ too small
☐ too wide
☒ not wide enough
☒ too long
☐ too short

Submit

If you have any questions or problems with this survey please [Contact Us](#).

Done Internet



Marines
The Few. The Proud.

Part Four: Current Issue

Help

Finish Later

99%

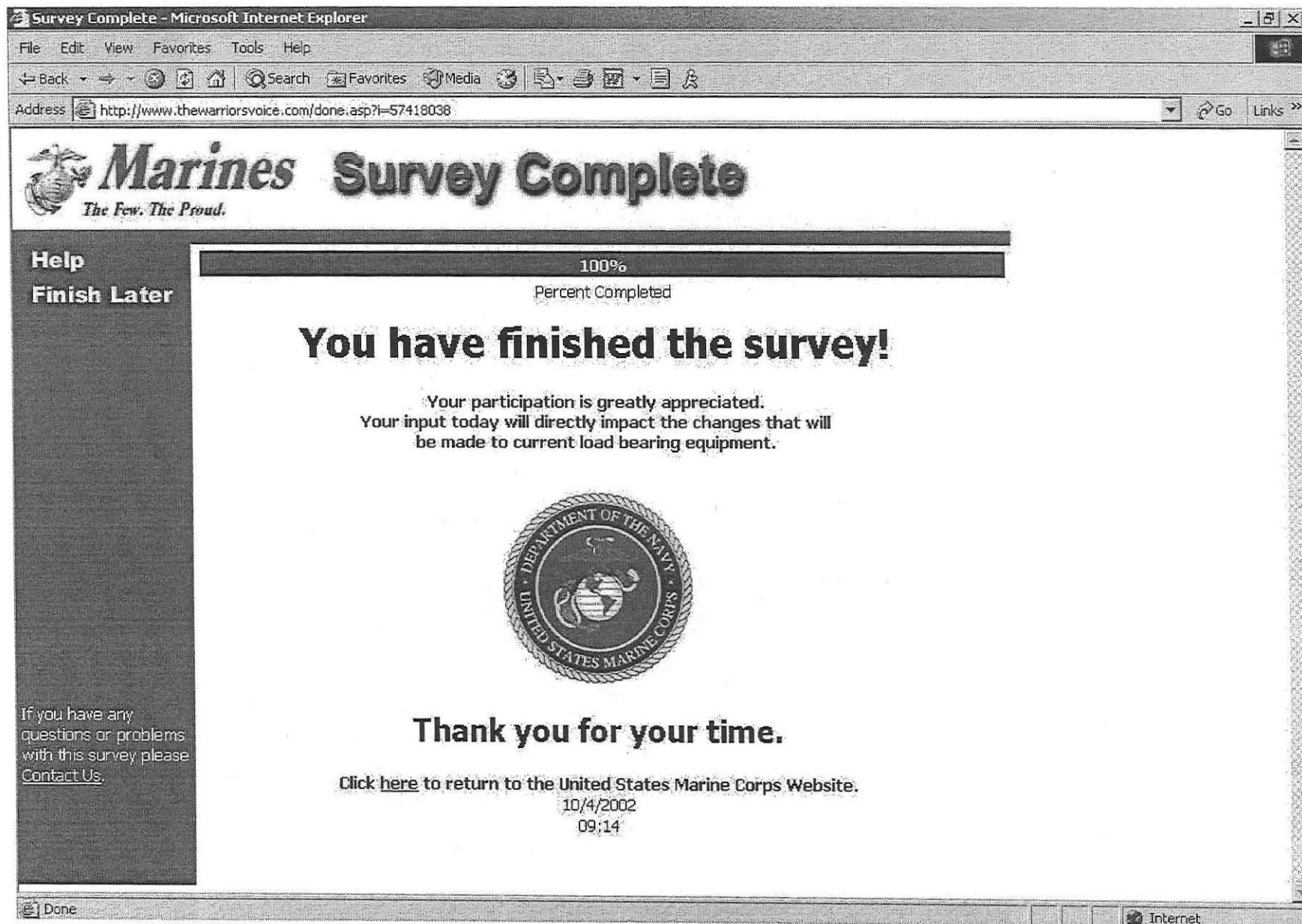
Percent Completed

Additional Comments:

sample comments

Submit

If you have any
questions or problems
with this survey please
[Contact Us.](#)



Welcome to the 2002 Load Bearing Survey - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address <http://www.thewarriorsvoice.com/intro.asp> Go Links >>

Marines 2002 Load Bearing Survey

The Few. The Proud.

Help Finish Later

Marines Finish Later

The Few. The Proud.

Thank you for your time in taking this survey. You may return at any time to complete the rest of this questionnaire. Just return to [thewarriorsvoice.com](http://www.thewarriorsvoice.com), and click on the 'Resume' button.

Please make sure you remember your username and password. Without these, you will be unable to continue the survey.

When you return, you will immediately be brought to the last page you visited. You may continue the survey from that point.

Thanks again, and for now, please take a moment to visit the [USMC website](#).

Close Window

Please take a moment to fill out our brief survey.

You can either click on the "begin" button above to start a new survey or on "resume" to finish a survey already in progress.

You have the option to save the survey and complete it later. At any time during the survey just click on the navigational link "finish later" and then follow the instructions.

If you have any questions or problems with this survey please [Contact Us](#).

our input
Your

PORT SYSTEMS
PENSAC


Done Internet

Finish Later - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source Help

Address http://www.thewarriorsvoice.com/finish_later.asp?url=ruck_05.asp&i=57418038 Go Links >>



Marines Finish Later

The Few. The Proud.

Help

Finish Later

If you have any questions or problems with this survey please [Contact Us](#).

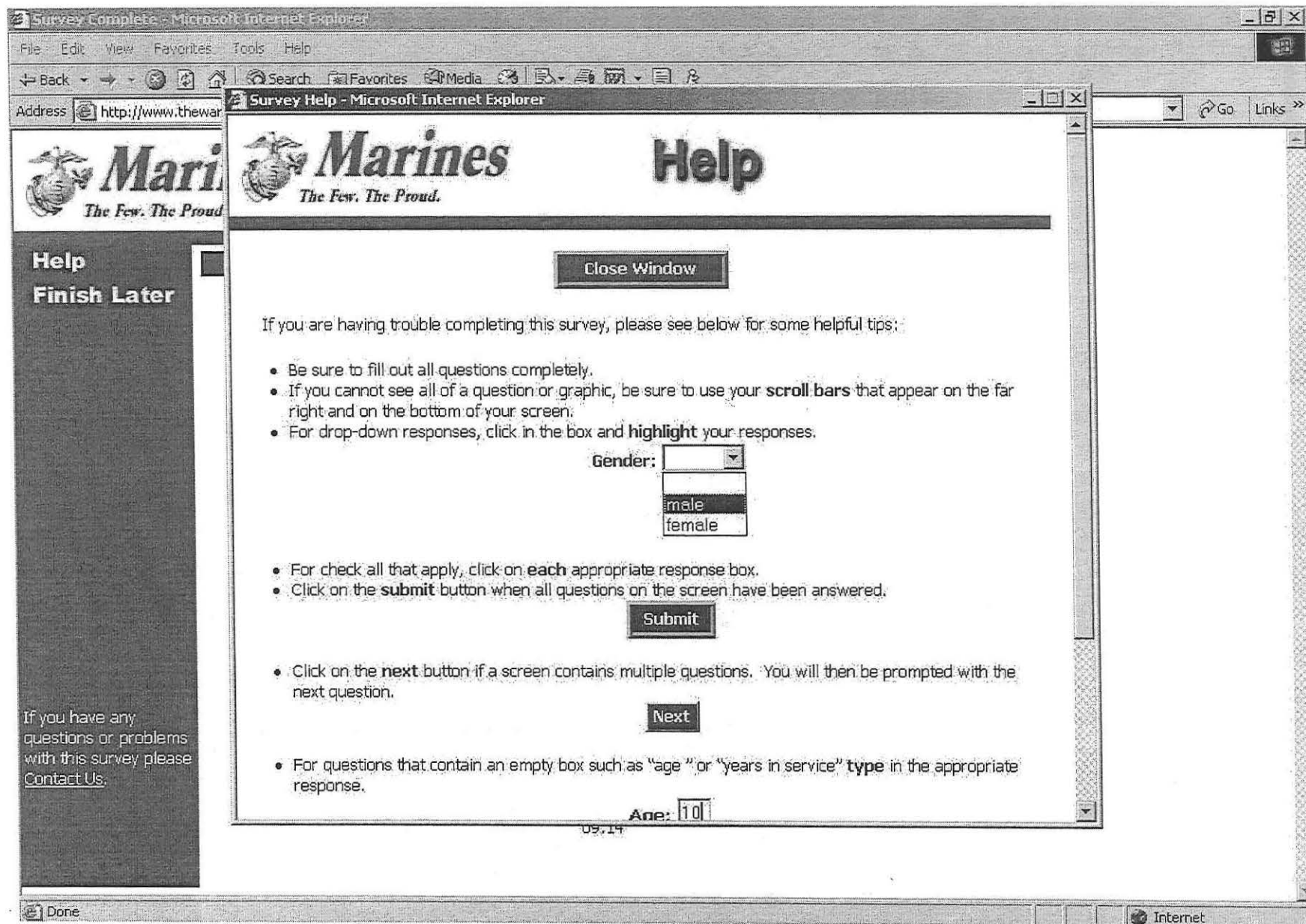
Please select a username and password to login in at a later time:

Username:

Password:

Confirm Password:

Done Internet



Login - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source Help

Address <http://www.thewarriorsvoice.com/login.asp> Go Links

Marines Login

The Few. The Proud.

Help
Finish Later

Please enter your username and password to continue the survey where you last left off

Username:

Password:

If you have any questions or problems with this survey please [Contact Us](#).

Done Internet

Appendix C.

Script for Focus Groups

Script for Load Carriage Focus Groups – May 20, 2002 -- Quantico

Introduction: Introduce myself--from Natick Soldier Center. We are looking at ways to create the best load carrying equipment possible.

Sign up sheet: including rank, age, gender, time in service, MOS, current load carriage system that they are using (including both pack and fighting load carrier).

Bring diagram of MOLLE to help facilitate discussion.

We would like to know if they are experiencing any problems or having any issues with their current load carriage system and what suggestions they can make to us about designing a future load carriage system.

I will leave the floor open to them so as not to bias them in any specific direction. However, if they need prompting these are topics/issues that would be good to cover:

Accessibility:

- ❖ Do you have trouble/ problems accessing gear outside of the pack?
- ❖ Do you have trouble accessing gear inside your pack?

Adjustability:

- ❖ Is your pack difficult to adjust (why or why not)?
- ❖ Does your pack have modular components? Do they work well for you (why or why not)?
- ❖ Do you prefer having one large compartment?

Weight/ Items carried:

- ❖ How many pounds of gear do you normally carry?
- ❖ Do you think that your current load carriage system carries your load comfortably? If not do you have suggestions for improvements?
- ❖ What do you find is the most difficult weapon to carry?
- ❖ What do you find is the most difficult item to carry?

Patrol Pack:

- ❖ When do you use your patrol pack?
- ❖ Why do you use your patrol pack?

Internal vs. External Frame:

- ❖ Have you used packs with internal frames? If so, did they work well for you (why or why not)?
- ❖ Have you used packs with external frames? If so, did they work well for you (why or why not)?
- ❖ Do you have a preference for frame type for your pack?

Drinking System:

- ❖ What system do you currently use?
- ❖ Have you had problems with it? If so what were they?

Fighting Load Carrier:

- ❖ Which one do they use and what do they like and dislike about it?

Compatibility with Body Armor:

- ❖ Is your current carrying system compatible with your body armor?

Durability:

- ❖ Have you had problems with parts of your pack breaking, tearing etc?

Attach to vehicles:

- ❖ Does your pack attach easily to vehicles and if not how could we improve this? (aircraft, land vehicles and ships etc.)

Perceptions about commercial load carrying systems:

- ❖ Do they have experience with them?
- ❖ If yes, do they prefer a specific one and why?

