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TM-03-2000

NYLON DUTY BELT FIELD TRIALS

Questionnaire Results

By: Royal Canadian Mounted Police
Materiel Development & Specifications Unit
Material & Services Management Branch

TECHNICAL MEMORANDUM

Submitted by
Canadian Police Research Centre

March, 2000

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HER MAJESTY THE QUEEN IN RIGHT OF CANADA (2000)
as represented by the Solicitor General of Canada.



SA MAJESTÉ LA REINE DU CHEF DU CANADA (2000)
représentée par le Solliciteur général du Canada.

EXECUTIVE SUMMARY

In response to queries by different police agencies, an evaluation of several duty belt systems was undertaken by the Canadian Police Research Centre in cooperation with the Materiel and Services Management Branch of the Royal Canadian Mounted Police.

The following report documents the results of that evaluation and is provided for the information of law enforcement personnel.

The Canadian Police Research Centre would like to thank the Materiel and Services Management Branch of the RCMP for their very considerable assistance in this evaluation.

SOMMAIRE

En réponse aux demandes formulées par divers services de police, une évaluation de plusieurs modèles de ceinturon de service a été réalisée par le Centre canadien de recherches policières avec la collaboration de la Sous-direction de la gestion du matériel et des services de la Gendarmerie royale du Canada.

Le rapport suivant, qui présente les résultats de l'évaluation, est offert aux policiers à des fins de renseignement.

Le Centre canadien de recherches policières désire remercier la Sous-direction de la gestion du matériel et des services de la GRC pour toute l'aide qu'elle a apportée dans cette évaluation.



Nylon Duty Belt Field Trials Questionnaire Results

Prepared By:

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March 22, 2000

Nylon Duty Belt Field Trials

Questionnaire Results

2000-03-22

Introduction

Matériel Development & Specifications Unit has conducted a field trial of nylon duty belts with accessories to determine whether or not nylon gear would be a suitable replacement for the current leather design. The adoption of the new service pistol along with other equipment means that members are carrying more weight on their duty belt than ever before and the concern is that this new weight is causing discomfort and, in some cases, physical disability to members. Furthermore, there are concerns that leather accoutrements may not be as cleanable as nylon in today's real world encounters where members face an increasing risk of infection from diseases such as HIV, hepatitis, etc.

To this end, with the financing of the Canadian Police Research Council, and with the involvement of Matériel & Services Management Branch's standing 'Future Directions Committee', MDSU arranged for the field testing of three different off-the-shelf nylon duty belt designs. The products each had their own unique characteristics, either in materials or design, so that a wide variety of styles were tested. The choice of off-the-shelf products for the tests in no way predicated an 'off-the-shelf' procurement policy for this item if it is decided to adopt a nylon system. As these items are not patentable, any procurement will have to be made using generic specifications in the same manner as for the current issue leather duty belt.

The three brands/products were standard issue nylon duty belts with accessories including holsters from the following companies:

1. Bianchi
2. Gould & Goodrich
3. Michael's of Oregon (Uncle Mike's)

which were tested in this order.

Number of evaluators

At the start, 25 testers were involved, but the numbers dwindled as members dropped out of the testing program due to being transferred to other duties. Replacements were not sought as it was important to stay with the members initially chosen in order to get a progressive comparison between the three sets. Three quarters of the evaluators were on general duty; the others were on various other duties, such as doghandler detail, EDPS, firearms training, etc.

At completion of each phase of the field test, members were to send back to MDSU the used nylon duty belts at which point they would be sent the next set. In this way, the same member would try all three sets.

Length of test: approx. 2 months per set.

Results of Field Trial

For each set of duty belts, members filled out a questionnaire (see Appenbdix 'A'). Not all the questions were answered, reflected in 'N/A' responses. Comments were grouped together under 4 main headings for easy reference - Holster, Belt, Accessories, Overall Comfort, Comfort/Performance Compared To Leather, although overlap necessarily occurs. The summary of questions is as follows for each product:

1. Bianchi

Question	Excellent	Very Good	Good	Fair	Poor	Not Applicable
1. Effectiveness of equipment		45%	25%	15%	5%	10%
2. Ease of use/Manoeuvrability	20%	20%	20%	25%	15%	
3. Compatibility with other equipment	20%	15%	30%	20%		15%
4. Appearance	25%	25%	40%	5%	5%	
5. Colour	35%	25%	35%	5%		
6. Weight/Size	30%	25%	40%		5%	
7. Comfort	25%	25%	25%	20%	5%	
8. Durability	10%	20%	30%	25%		15%
9. Maintenance	20%	15%	30%	20%		15%
10. Accessories	15%	10%	15%	20%	5%	35%
11. Overall rated performance	5%	30%	35%	15%	15%	
12. Test Conditions	Gen Duty - 75% Dog Handler - 15% EDPS - 5% Unknown - 5%					

13. Additional Comments	
Total Number of comments: 86	
<p><u>Holster</u></p> <ul style="list-style-type: none"> - system good but holster so bad, member didn't want to wear it, etc-4 - holster poor (or good but -), lacks security-12 - holster snug at first-1 - holster sticks out too far-1 - as doghandler, needs flap to keep weapon dry, etc.-1 	
<p><u>Belt</u></p> <ul style="list-style-type: none"> - buckle presents safety issue as too easy to undo by assailant, easily defeated-3 - buckle too big, bulky to make belt fit right on waist-3 - inner/outer belt system good keeps belts from moving around-4 - inner belt hard to use, did not line up (member used regular leather waistbelt with keepers-1)-2 - hard to adjust initially -1 - belt shaped to body well-2 - belt, outer had too much belt material to fit right - doubling over of belt at buckle lost too much space on belt-4 - velcro of inner/outer system frayed pants, other items (e.g. furniture)-2 - sizing a problem, with small waists, even for appropriately sized items -1 	
<p><u>Accessories</u></p> <ul style="list-style-type: none"> - baton holder good but needs flap for retention or simply better retention -2 - baton holder hard to get baton out of-1 - baton holder needs hole for extended baton to fit through-3 - baton holder needs side break ability as ASP holder-1 - baton holder keeps baton quietly, more secure-1 - mag holder good-1 - flashlight holder fraying-1 - extremely comfortable-3 - accessories need snaps, better than noisy/loose velcro-2 - accessories good/very good-3 - accessories formed shape good-1 - need double handcuff pouch-1 - OC spray holder stiff, bad-1 - key holder a good idea-2 - key holder bad design, needs clasp/snaps-1 	
<p><u>Overall Comfort</u></p> <ul style="list-style-type: none"> - system inflexible at first-2 - system hard to put together, adjust-2 - system took long time to put on and off-2 - matt black colour good for stealth-1 - system had good appearance-1 - design saves stripe from getting damaged-1 - good for gen.duty-1 	
<p><u>Comfort/Performance Compared to Leather</u></p> <ul style="list-style-type: none"> - system no better than current leather issue-1 - system worked well, better than leather for extended shifts, etc.-1 - lightweight, lighter than leather (good)-3 	

- system overall good but not as durable as leather issue-1
 - belt relieved hip/back pain caused by issue leather equip.-3
 - belt system quieter than leather-2

2. Gould & Goodrich

Question	Excellent	Very Good	Good	Fair	Poor	Not Applicable
1. Effectiveness of equipment	--	32%	26%	10.5%	21%	10.5%
2. Ease of use/Manoeuvrability	10.5%	21%	26%	16%	21%	5%
3. Compatibility with other equipment	5%	26%	37%	5%	21%	5%
4. Appearance		31%	26%	16%	21%	5%
5. Colour	21%	21%	37%	10.5%	5%	5%
6. Weight/Size	16%	31.5%	21%	16%	10.5%	5%
7. Comfort	21%	31.5%	10.5%	16%	16%	5%
8. Durability	10.5%	16%	16%	16%	21%	21%
9. Maintenance	10.5%	16%	16%	10.5%	16%	31.5%
10. Accessories		16%	10.5%	16%	16%	42%
11. Overall rated performance		26%	10.5%	31.5%	26%	5%
12. Test Conditions	Gen Duty - 75% Dog Handler - 15% EDPS - 5% Unknown - 5%					
13. Additional Comments Total Number of comments: 69						
<u>Holster</u> -holster - very poor-16 -holster good, comfortable, easy to use-1						
<u>Belt</u> -easy to take on/off-1 -belt too flexible-2 -belt too thick & bulky-2 -belt caused extreme discomfort/numbness (medical problem here with gunbelts in general-23" waist)-1 -buckle hard to fasten-1 -inner belt too large for trouser belt loops-2 -inner belt hard to tighten without buckle-1 -inner belt does not work (hard to match up velcro with duty belt-1)-1						

-inner belt bad as it destroys office furniture-1 -idea of inner/outer belts very good-1
<u>Accessories</u> - silent key holder good-1 -velcro flaps noisy-1 -accessory pouches needed to be rigid 'formed' material as in Bianchi-1 -access to accessories good once broken in-1 -mag pouch-mags fell out-3 -accessories did not work well in high-risk takedown-1 -flaps, etc. snagged, opened on branches, etc-need snaps-4 -keyholder bad,kept opening-2 -handcuff pouch kept opening,bad-2 -accessories fair to middling-2 -accessories bad-2 -velcro bad, needs snaps-1
<u>Overall Comfort</u> -good durability-1 -nylon good material-1 -not as pro looking as Bianchi-1 -gear quiet-1 -not as good as bianchi-2 -concern about durability-1 -excellent product-1 -good durable construction, but not first choice-1
<u>Comfort Compared to Leather</u> - good durability-1 -nylon good material-1 -not as pro looking/as good as the Bianchi-3 -gear quiet-1 -concern about durability-1 -excellent product-1 -good durable construction, but not first choice-1

3. Michael's of Oregon (Uncle Mike's)

Question	Excellent	Very Good	Good	Fair	Poor	Not Applicable
1. Effectiveness of equipment	22%	44%	33%			
2. Ease of use/Manoeuvrability	22%	55%	22%	33%		
3. Compatibility with other equipment	11%	55%	22	11%		
4. Appearance	33%	44%	11%	11%		
5. Colour	44%	44%	11%			

6. Weight/Size	44%	33%	22%			
7. Comfort	33%	33%	11%	11%	11%	
8. Durability	11%	44%	33%		11%	
9. Maintenance	22%	33%	22%	11%		11%
10. Accessorieis	11%	22%	22%			44%
11. Overall rated performance	22%	33%	22%	11%	11%	
12. Test Conditions	Gen Duty - 75% Dog Handler - 15% EDPS - 5% Unknown - 5%					
13. Additional Comments Total number of comments: 29						
<u>Holster</u> - holster good but wants level 3 retention-1 - holster good/excellent-3 - holster lower than current - good -1 - holster stuck out too far from body, caught on things-3 - holster bulky -1 - holster interfered with seatbelt-1 - holster loosens up after use-1 - retention onf holster not too good-1						
<u>Belt System</u> - belt didn't offer much support-1 - items slide on belt-1 - belt met needs-1 - buckle bad, easy to undo-1						
<u>Accessories</u> - key holder falls open easily -1 - accessories easy to use-2 - baton holder a problem-1 - mag holder too long-1						
<u>Overall Comfort</u> - easier on back after shift-1 - system as a whole good-1 - better than G&G-1						
<u>Comfort compared to leather</u> - more comfortable than leather-3 - belt more comfortable-2						

Summary of Comments

Holster

The three sets came with the manufacturers' standard nylon duty holsters. Members were instructed not to wear the holsters if they had a concern with the holster security level as this field test was designed to test the comfort and suitability of the duty belts and accessories, not the holsters. However, some members wore the holsters and reported comments. The Bianchi and Gould & Goodrich holsters were universally rejected because they lacked the security and quality of the current issue Safariland SSIII 070; the Michael's of Oregon Pro III received both favourable and negative comments, with some members liking it but wanting a higher level of security. It should be noted that the Pro III has received approval for use by members who find the Safariland SSIII 070 too uncomfortable to wear.

Belts

The inner and outer belt concept was common to all designs and ambivalent feelings were recorded here. Some members liked the system as it provided greater support and control to the duty belt - the outer belt did not shift around on the members' waists when the members drew weapons, equipment, etc., from their accessories. Some comfort was found in this concept compared to the issue leather duty belt. Negative comments include the following: hard to line up, hard to adjust, buckles are not secure enough or come undone on their own (especially when members sit down), inner belt damaged office/vehicle chairs, system extremely thick and bulky especially when doubled over near the buckle (making it impossible to wear accessories), not accommodating to smaller waisted members (numbness and extreme discomfort were experienced by the member making this complaint). The dual belt system clearly has good points (it secures accessories and the outer belt well) and bad points (bulky, hard to line up/adjust/tighten) which will have to be addressed when considering replacing the current leather style.

Accessories

The greatest number of negative comments about the nylon duty belts tested were made about the accessories. They can be broken down into two major complaints: the velcro fastened flaps on accessories did not fasten securely enough and snagged on all manners of things, thus opening and allowing the items to fall out or be unsecured; and the flimsiness of the accessories in general, as most were soft-sided. The Bianchi accessories were made with a stiffer shell than the other two products and received positive comments (approval of this feature is also shown by the negative comments made about the other two products' flimsiness). The greatest number of negative comments were made about the Gould & Goodrich product.

Positive comments include a liking for keyholders as members currently do not have this item on the

issue leather duty belt, overall look and performance.

Comparison to Current Leather Duty Belt & Accessories

Few comments were made comparing the nylon to the leather. Of the 184 comments recorded, only 16 comments mentioned the leather system specifically, with 15 being extremely positive about the nylon, and 1 stating that the nylon system (Bianchi) was no better than the leather. 4 positive comments were made about the Michael's of Oregon product over the leather and 3 about the Bianchi over the leather. However, in terms of overall comfort *and* comparison to the leather, the Michael's of Oregon received only positive comments, Bianchi received 13 positive and 8 negative or neutral, and Gould & Goodrich received 4 positive and 5 negative or neutral comments. In direct stated comparison between the sets, there were only 5 comments, but they all indicated preference for Bianchi or Michael's of Oregon over the Gould & Goodrich.

Overall Performance

Overall the three systems performed fairly well with the exception of the holsters which, as noted above, members were not required to wear. Members noted quite clearly that they preferred a high level of security for the holster.

Members found the Michael's of Oregon product the most comfortable, with a combined 66% 'Excellent' or 'Very Good' rating compared to Gould & Goodrich with 52.5% and Bianchi with 50%. While none of the duty belts systems rated exceptionally high in terms of overall performance, the Gould & Goodrich had the worst percentage of 'Poor' overall performance rating - 26% - compared to the others. The Bianchi had the next highest at 15% and Michael's of Oregon had the lowest at 11%.

In terms of 'Overall Performance' the Michael's of Oregon duty belt had the highest combined 'Excellent/Very Good' rating of 55%, Bianchi, the next highest at 35%, and Gould & Goodrich, the lowest at 26%. It should be noted that Gould & Goodrich also had 0% as 'Excellent', and the highest % of 'Fair' at 31.5%, compared to 11% for the Michael's of Oregon and 15% for the Bianchi for the 'Fair' rating.

Overall, the rating of the systems would be:

First (best): Michael's of Oregon;

Second: Bianchi;

Third: Gould & Goodrich.

Conclusion

Quite clearly, the Bianchi and Michael's of Oregon products were felt to be superior to the Gould & Goodrich duty belt. Whether or not the nylon equipment was felt to be better than leather is less certain. Anecdotal comments received in conversation with members involved in the field test, however, show strong approval for nylon over the leather, especially when members returned to the leather system while they waited for the next set to be sent to them.

It is a well-established fact that the wearing of the duty belt and accessories is a major factor in members' health and safety. It carries the essential equipment a member on operational duty needs. Members need a way to carry this equipment on their persons or they may be inadequately equipped. It is also well-established that the weight of the equipment has increased significantly over the years with the adoption of the steel semi-automatic pistol, steel extendable baton, OC spray, larger flashlights and so on. It is unlikely to weigh less unless substantive advances are made in material sciences or less equipment is carried on the duty belt. As much of the physical problems

The field test establishes that, for some members, the nylon duty belts can relieve some of the discomfort caused by wearing the current issue duty belt but it is also evident that nylon systems will not reduce the weight substantially and are not without problems. Adopting a nylon duty belt system will therefore not by itself be sufficient to relieve members' discomfort. It will likely be a combination of factors - lighter materials for the duty belt and equipment carried in it, different positioning of equipment on and off the belt (e.g. on to the external carrier or pant cargo pockets), and adoption of other techniques such as a load-carrying system integrated into the external carrier or suspenders worn over or under the external soft body armour carrier.

APPENDIX 'A'

Questionnaire Sample

GENERAL EVALUATION CRITERIA

EQUIPMENT ITEM	Excellent	Very Good	Good	Fair	Poor	Not Applicable
1) Effectiveness of equipment (for intended purpose)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Ease of Use / Manoeuvrability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Compatibility with other equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Colour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Weight/Size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Comfort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Durability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Accessories (list each piece)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Overall rated performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12) Test conditions _____

13) Additional comments (including any precautions, warnings/cautions)

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 Material & Services Management Branch
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Nylon Duty Equipment Evaluation Member's Name: _____
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