

**HANDICAP
INTERNATIONAL**

Vivre debout



**REPORT ON MINEBURNER SYSTEM USED
AND TRIALLED BY HANDICAP
INTERNATIONAL IN BOSNIA AND
HERZEGOVINA IN 2008**

BY PAUL McCULLOUGH, MOSTAR, NOVEMBER 2008

INTRODUCTION

Handicap International, along with many other organisations in BiH, is not accredited to store, transport, or use explosives. This presents a major problem when having to deal with explosive items that are found in BiH. HI was previously obliged to subcontract the destruction of mines and UXO to other, suitably accredited, operators. This proved to be a pricey exercise, typically costing from 300-600KM (roughly 150-300€) per demolition. Since the successful demonstration and trial of MineBurner in BiH between 3rd and 4th October 2007, the decision by HI to buy a MineBurner system was taken. In order for HI staff to be competent in the normal operating procedures and for suitable technicians to be able to trained to become MineBurner Maintenance Engineers, initial planning was for the RT from Handicap International HQ and the Demining Project Manager (DPM) BiH to attended the MineBurner Train the Trainer course in Hermanus, South Africa. A MineBurner course was run from 3rd to 7th December 2007 but due to Headquarters commitments the RT was unable to attend the course. The DPM successfully completed the training course, thereby enabling training of demining staff to take place. After the successful demonstration of MineBurner in 2007 (see previous report) the BHMAC issued HI with temporary accreditation for MineBurner to be used for the destruction of mines and UXO found during HI mine clearance operations, with the proviso that HI submits a report documenting their use of MineBurner. If technical experts from BHMAC agree, MineBurner will then be accredited (for those wish to purchase a MineBurner system) for use throughout BiH.

AIM

The aim of this report is to:

- Report on MineBurner training for HI staff.
- Show cost comparison between MineBurner and sub contracted demolitions
- Document all operational uses of MineBurner during the reporting period.
- List observations and make recommendations.

TRAINING

Once MineBurner was ordered and delivered, a MineBurner operative training course was conducted by the DPM between 21st and 25th April 2008. The MineBurner course consisted of the following:

- MineBurner Components
- Normal MineBurner Operations
- MineBurner Abnormal Operations and Troubleshooting (including fault-finding)

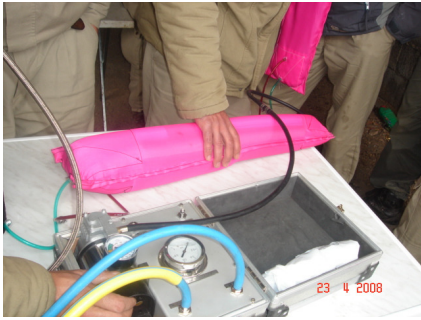
A total of 15 HI personnel from the demining teams attended the course.



Student practices wrapping bladder



Students carry out test burns



Bladder filling



Burning test piece

COST COMPARISON

In the past, HI has used the services of ¹Civil Protection, Livno and ¹ProVita, Mostar for explosive demolitions. Costs ranged from between 300KM to 500KM (roughly 150-250€) per demolition. As well as these charges, Civil Protection charged a monthly fee of 500KM regardless if HI used their services or not. During this reporting period (May-December 2008) a total of 28 operational burns were carried out by HI demining staff using MineBurner. Civil Protection charged 500KM per demolition with a 500KM “donation” each month for the duration of the contract period. ²ProVita charged 300KM per demolition, with an additional 50KM per charge if carried out on same call-out. Based on these charges, cost comparisons for mines/UXO destroyed by MineBurner are listed:

Serial	Date	Items	Cost Provita	Cost Civil protection	MineBurner Costs	Remarks
01	21/06/08	1xTMM-1	300KM	500KM	Consumables: Teuros (gas and oxygen) Approximately 50 burns Initial outlay: US\$12000	
02	03/07/08	1xPMR-2A	300KM	500KM		
01	12/07/08	1 x TMA-5	300KM	500KM		Civil Protection 500KM “Donation” for July
02	15/07/08	1xUTMAH-4 1xUNMAH-2	300KM+50KM	500KM+100KM		
03	17/07/08	1xUTMAH-4 1xPMA-2 1xPMR-2A	300KM+50KM+50KM	500KM+200KM		
04	28/07/08	1xPMA-2 1xUTMAH-4 2xUPMAH-2	300Km+50KM+50KM	500KM+200KM		
05	10/08/08	1xPMA-2	300KM	500KM		

¹ Based on contract signed between HI and Civil Protection 2007

² Based on contract signed between HI and ProVita September 2008

						August
06	13/08/08	1xPMR-2A 1xUPMAH-2	300KM+50KM	500KM+100KM		
07	22/08/08	2xPMA-2	300KM +50KM	500KM+100KM		
08	26/08/08	1x82mmMortar	300KM	500KM		
09	11/09/08	2xPMR-2A 1x82mmMortar	300KM+50KM	500Km+200KM		Civil Protection 500KM "Donation" for September
10	17/10/08	1xTMA-5	300KM	500KM		Civil Protection 500KM "Donation" for October
11	22/10/08	6xPMA-2	300KM+250KM	500KM+500KM		
12	Total Items 28		Total costs Provita: 4550KM (2275€)	Total CP Costs: 8400KM(4200€)	Total MineBurner costs: US\$12007	

If we look at the projected costs over a four-month period for sub-contracting of explosive demolitions, we see that ProVita would have cost 4550KM or approximately 2275€. Civil Protection would have cost 8400KM or 4200€. MineBurner cost US\$ 12000 to buy outright and the only other costs are for consumables-oxygen and LPG (negligible). Based on the costs of the four-month period, MineBurner would pay for itself in roughly 1 year at ProVita costs, or in six months based on Civil Protection costs.

MINEBURNER OPERATIONS 2008

The following table highlights burns conducted in BiH:

Serial	Date	Items	Remarks
01	21/06/08	1xTMM-1	Team Leader Record required
02	03/07/08	1xPMR-2A	Team Leader Record required
03	12/07/08	1 x TMA-5	Report Attached
04	15/07/08	1xUTMAH-4 1xUNMAH-2	Report Attached
05	17/07/08	1xUTMAH-4 1xPMA-2 1xPMR-2A	Report Attached
06	28/07/08	1xPMA-2 1xUTMAH-4 2xUPMAH-2	Report Attached

07	10/08/08	1xPMA-2	Report Attached
08	13/08/08	1xPMR-2A 1xUPMAH-2	Report Attached
09	22/08/08	2xPMA-2	Report Attached
10	26/08/08	1x82mmMortar	Report Attached
11	11/09/08	2xPMR-2A 1x82mmMortar	Report Attached
12	17/10/08	1xTMA-5	Report Attached
13	22/10/08	6xPMA-2	Report Attached
14	28 Items		



TMM-1 21/06/08



TMM-1 after MineBurner



PMKR-2A set up for burn



TMA-5 set up for burn



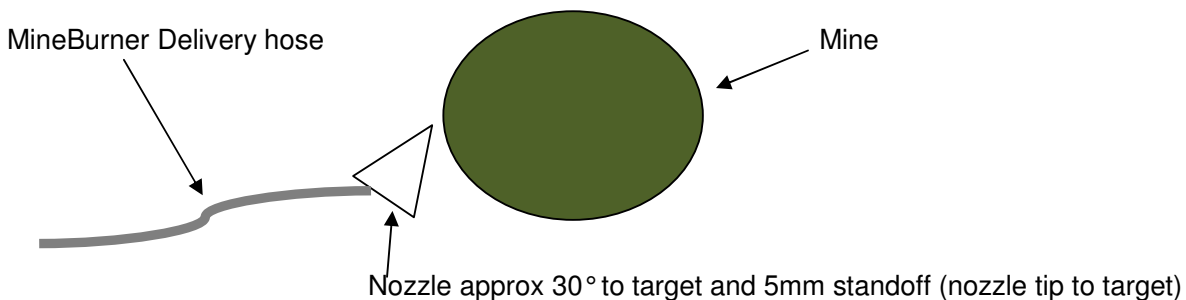
MineBurner being set up for burn



MineBurner set up showing repeater station

OBSERVATIONS AND RECOMMENDATIONS

- MineBurner had no problems when burning ex-Yugoslavia Anti-Tank and Anti-personnel mines. When attempting to burn an 82mm Mortar it became apparent that user inexperience resulted in several attempts to burn before a successful burn was achieved. The mortar was unfused and the MineBurner nozzle was placed too far away from the explosive fill of the mortar. Remedial training was given and a subsequent burn on a second mortar was successful.
- Several delivery hoses (5) were damaged during operations as well as 5 bladder assemblies. This was put down to operator error. If the bladders (LPG, Oxygen and Compressed Air) are not filled to the correct pressures, then “blowback” will. Pressures should never deviate from the following: Oxygen-0.4 bar pressure. Compressed Air-6.5 bar pressure.
- Incorrect storage of bladders when finished with could have contributed to incorrect filling of bladders and the resultant damage. Wrapping material and bladders should be purged of gasses and stored flat. This was not the case and in many instances bladders were left packed after a burn and then placed in the vehicles and not unrolled until just prior to the next burn. Operators were constantly reminded of the care that should be taken when dealing with MineBurner equipment.
- When a mine is burned with MineBurner, the nozzle should be placed off-centre from the fuse to allow a large vent to be burnt (metal-cased mines especially). The following drawing shows an ideal placement of disposable nozzle:



- PROM bounding-fragmentation mines were not encountered during the trial period and as such this report cannot comment on the effectiveness of MineBurner against PROMs.

RECOMMENDATIONS

- HI Demining teams attend MineBurner refresher training.
- An extension of the MineBurner trial period is requested from BHMAL in order to include the trial of MineBurner against PROM bounding-fragmentation mines. It should be noted that the next two upcoming HI tasks are reported to have a PROM mine threat.

SUMMARY

MineBurner has proved to be an efficient and cost-effective alternative to conventional explosives when carrying out RSP of mines and UXO. Operator skills need to be brushed up on to avoid any

further damage to the equipment. BHMAC should be approached for an extension of the trial in order for the system to be fully trialled against PROM bounding-fragmentation mines.

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