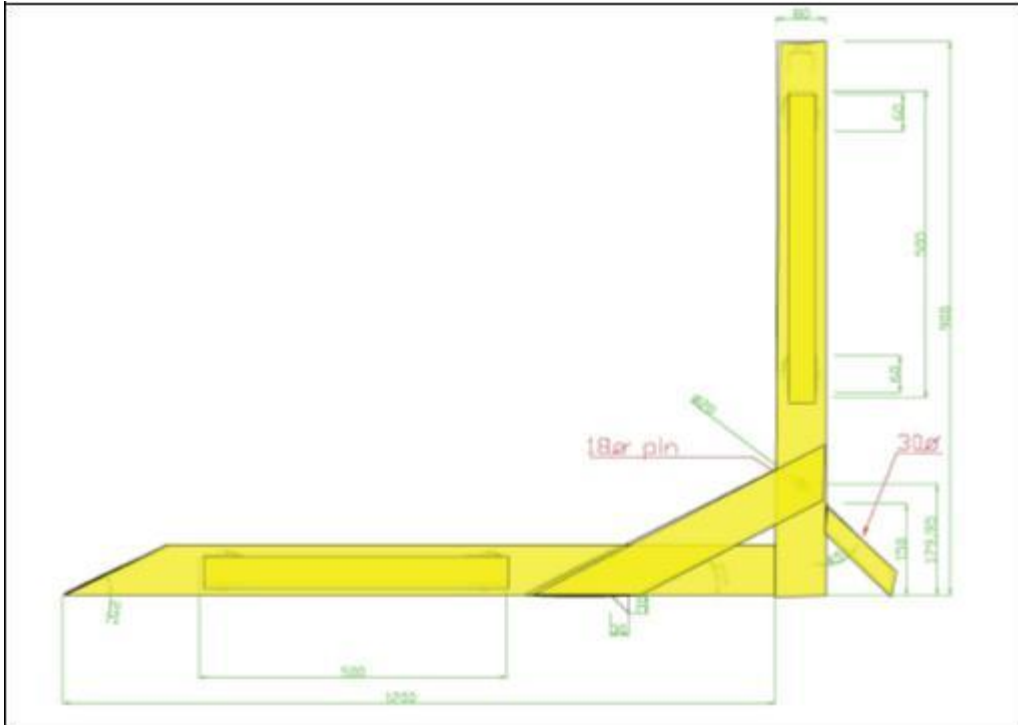


Portable Vehicle Barrier (PVB)

Patent Pending

Manufactured in the U.S.A.



1 Introduction

- 1.1 The innovation in the PVB is the unique ability to be used as a temporary road blockage which would completely prevent a vehicle from forcing its way into a protected area.
- 1.2 The principal action of the PVB is to use the Kinetic Energy of the ramming vehicle itself, which would in turn anchor the PVB. The anchoring of the PVB into the ground with the force of the ramming vehicle will cause the entire motion to come to a halt.
- 1.3 The product is intended to be used by security forces and private individuals in all aspects of vehicle access control and the temporary blocking of roads and open areas, including yards and fields.
- 1.4 The uniqueness of this product is the ease of use. The PVB is a user-friendly anti-ramming device which is lightweight, detachable, and portable. It can be stored in a car or in a small room, erected in seconds and yet still has a very high stopping capability.
- 1.5 The PVB provides the solution to the lack and scarcity of rapid deployment portable and mobile barriers which are capable of completely stopping all vehicles, small and large, in every road condition or open terrain.
- 1.6 The PVB has easy-to-use non-complex elements, is simple to transport and store and within minutes, two (2) adults can deploy a formidable anti-ramming security barrier without the use of tools.
- 1.7 Wheels can be easily attached to the PVB, making it simple to open a closed road/terrain to allow authorized car to enter.
- 1.8 Anchoring cable can be easily added to increase the stopping capabilities and limit the stopping distance on hard ground (icy or concrete road).
- 1.9 Safety fixtures can be added to meet safety standards, regulations and needs.
- 1.10 The PVB is reusable and can last for many years and thousands of separate deployments without any need for maintenance or repair.
- 1.11 The dismantling of the PVB is quick and simple and can be done by one (1) person.
- 1.12 Road experiments to test the PVB were very successful.

2 Description of the device

- 2.1 The PVB consists of single elements that when connected to each other, raise the performance level, as you add more elements the stopping power increases.
- 2.2 There are two different designs, namely the collapsible (folding) PVB and the non-collapsible.
- 2.3 The main section of the non-collapsible PVB is the BODY which consists of a 90 degree welded steel profile.
- 2.4 There is a tube which runs through the steel plate for a cable or rod for the option of further anchoring the PVB.
- 2.5 The collapsible PVB is connected to the above mentioned steel plates via a steel movable arm allowing it to simply fold in order to pack away and store (A) in Figure 2 below.

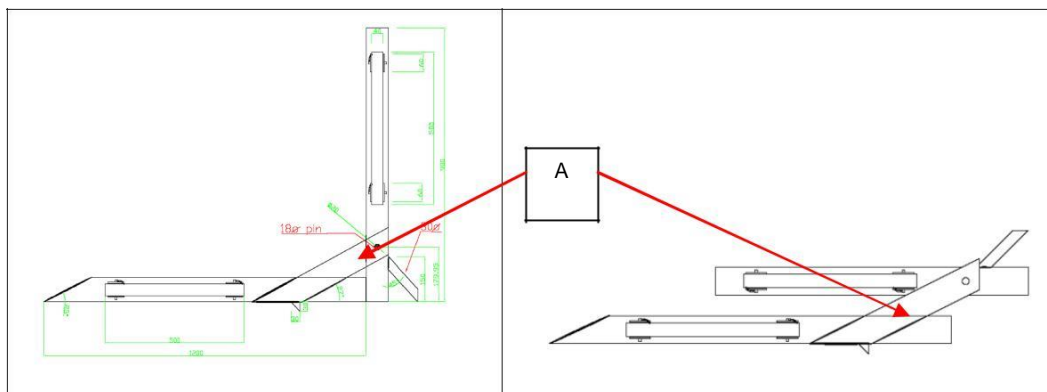


Figure 2: Folding mechanism

2.6 The PVB has two folding bars (A and B) in Figure 3 on each side for a solid and secure connection between the elements, one to another. One arm is installed on the upper side of the barrier perpendicular to a second arm installed on the exterior (far angle) of the horizontal section of the body of the PVB (A) in Figure 3. The other arm is on the lower side of the barrier connecting the lower sections of the PVB together (B) in Figure 3.

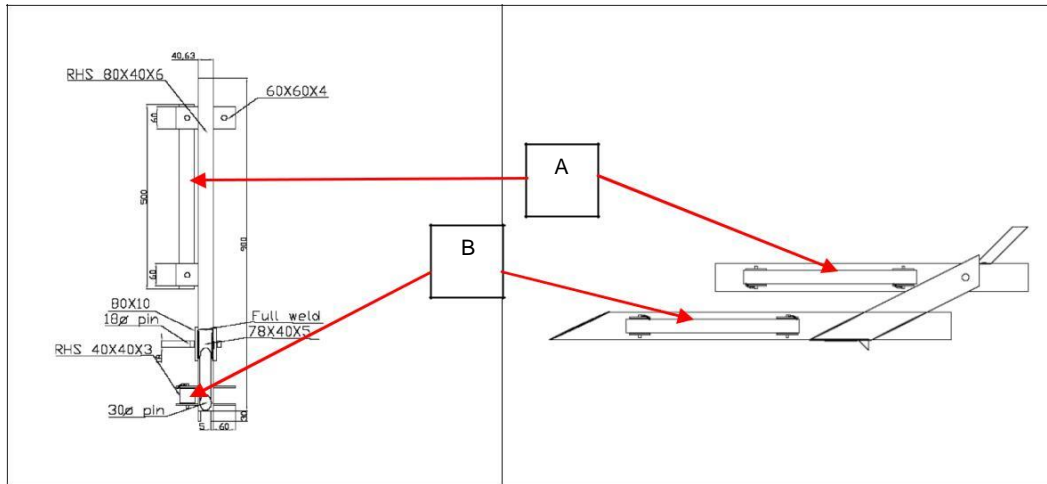


Figure 3: Folding connection bars

- 2.7 The “biting heel” and center “sting” as per Figure 4 of the PVB performs the task of burying itself into the road/ground and is the main concept of the PVB. The center “sting” on the heel digs into the ground as the body of the PVB moves forward and is perpendicular to the ground. The 2 “stings” on either side of the main one also dig into the ground once the main sting has started the process. It remains in this position, biting harder into the ground as it moves further forward until it comes to a complete stop.
- 2.8 As an option, a steel cable can be threaded into the tube, connecting the entire PVB line to the ground or a tree, parked vehicle or specially design pyrotechnic anchor.
- 2.9 As an option, a special anti-skidding surface can be connected to the PVB biting heel to prevent it from skidding on icy or concrete surfaces.

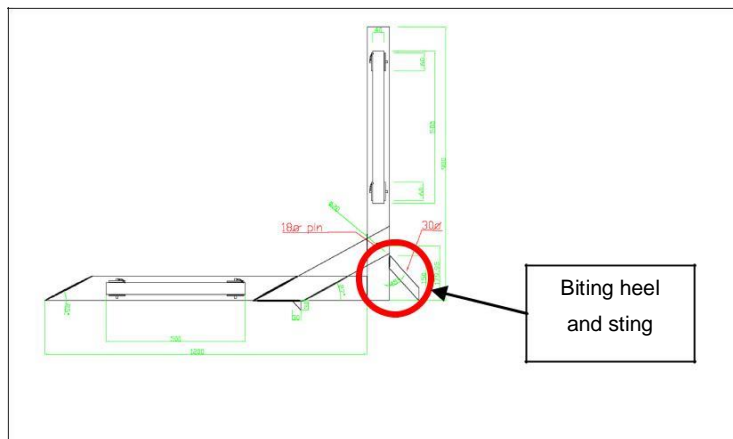
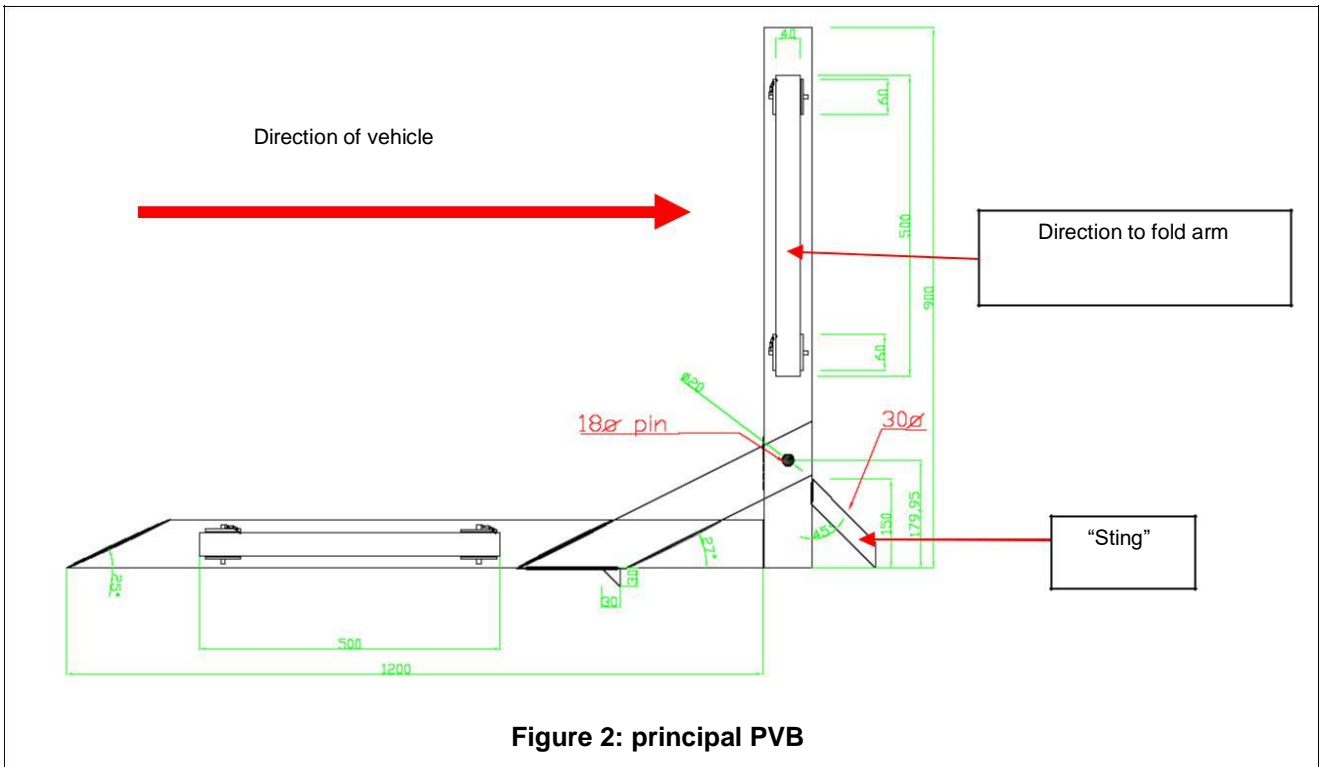


Figure 1: Biting heel and sting

3 Principle of Operation

- 3.1 The vehicle bursts through the PVB and the forward motion cause the "sting" of the PVB to dig into the ground.
- 3.2 The sting digs deeper into the ground as the PVB moves further forward, increasing its strength and resistance.
- 3.3 The PVB rotates around its "sting" point, rotating its horizontal arm into the car's body and then becomes trapped between the vehicle chassis and the ground, stopping any further frontward movement of the main body of the vehicle.
- 3.4 The PVB while lifts the vehicle and stops it from moving further forward.



4 Claims

- 4.1 A unique geometric design made of steel produces a barrier which is able to stop a possible ramming Vehicle or VBIED (Vehicle Borne Explosive Device) from breaching a controlled area.

- 4.2 And/or anti ramming car barrier capable of operating on every terrain – not only road, and stopping 4X4 cars as well as any other type of vehicle.
- 4.3 And/or the connecting of individual elements of the PVB that will create a unified and strong barrier, the more elements that are connected, the stronger the barrier will be and wider opening (road) it will close.
- 4.4 And/or options to anchor the units to the ground using existing anchors or pyrotechnic anchoring or cable anchoring for reducing penetration distance.
- 4.5 And/or options to add anti skidding surface to increases the stopping capabilities on icy or concrete surface.
- 4.6 Very fast and easy to erect by a single person.
- 4.7 And/or can be used to block entire lanes, yard or perimeter line utilized for the passage of vehicles of any size and weight including motorcycles.
- 4.8 And/or all parts are exactly the same and can therefore be replaced, switched or added.
- 4.9 And/or can be operated with no need for special vehicle, equipment, tools, electricity or any other type of power supply, using One or two unskilled workers only.
- 4.10 And/or can add on devices such as signs and safety lighting
- 4.11 And/or can add on other anchoring devices to further enhance vehicle stoppage
- 4.12 And/or can be added to existing or new road blocks to improve its functioning.

Assembly Instructions

Create a Single Row:



Figure 6: Oncoming threat

Place one fixed PVB on the ground, as shown in the drawing above.

Place the required amount of PVBs in a row until the road / lane is blocked, each PVB unit is closing 50 cm of road, so 11 units connected to each other will close 5 meter's road

Raise the upper section of the folded PVB into a vertical position and secure the pin in that position

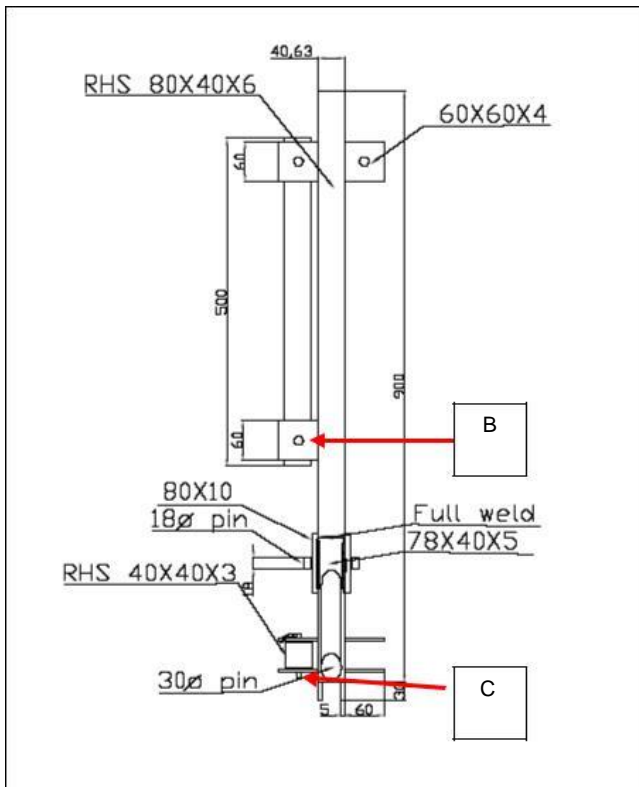


Figure 7: Assembly

Take out the pin marked as B in figure 7.

Open the horizontal connecting section into the next barrier "hosing" and secure the pin in that position.

Take out pin marked C in figure 7.

Open the horizontal connecting section into the next barrier "hosing" unit and secure the pin in that position.

In this situation two units are completely assembled.

Continue to assemble the barrier units.

Create an integrated Double Row

Assemble single row barrier as done in 5.

Place PVB units between and behind each – two assembled units in the single row.

Take out the central pin marked as A as per figure 7.

Raise the upper section into a vertical position and secure the pin in that position.

Insert the PVB unit between and behind each two assembled units in the single row.

Take out the pin marked as B as per figure 7.

Open the horizontal connecting section into the next barrier unit and secure the pin in that position.

Take out the pin marked as C as per figure 7.

Open the vertical connecting section into the next barrier unit and secure the pin in that position.

Continue to assemble the barrier units.

General Recommendations

5 Locating the proper location for the PVB barrier

- 5.1 It is advised that the blocking areas are where vehicles are forced to slow down (road curves etc).
- 5.2 Both sides of the barrier must be blocked to ensure that a vehicle cannot drive past it on the curb or open ground.

5.3 Locate the barrier and the “stop” signs where the driver can view it clearly and stop in time.

6 Preparing the Barrier

6.1 Prepare the PVB units – distribute the PVB (one unit per 60cm opening at least).

6.2 Assemble the PVBs using all the required pins.

6.3 Make sure PVB units are placed perpendicular to the road.

6.4 Make sure the PVB units are placed with the diagonal edge facing the direction from which the vehicle will be coming.

6.5 Lay warning signal suitable for both day and night at least 100m in advance.