

Modelling Extra Armour
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A GUIDE TO MODELLING EXTRA ARMOUR



In the modern world it is not uncommon for military vehicles to be fitted with additional armour protection. This document provides a guide for modelling various types of this extra protection. Because this armour is external to the vehicle it can be modelled in an almost unlimited number of ways but some example templates are provided for various vehicles.

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Spaced Armour Plates

Parts List

Plasticard. 1mm thickness for plates, 2mm thickness for mountings and super heavy plates.

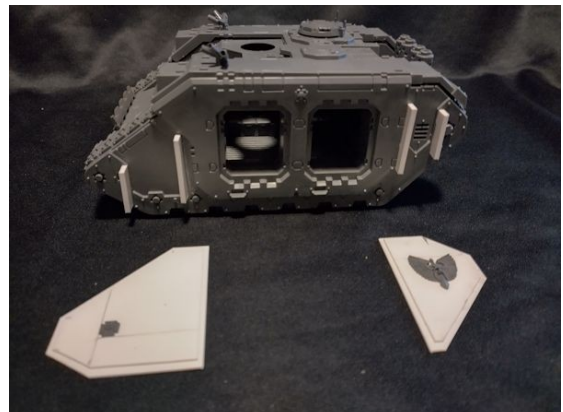
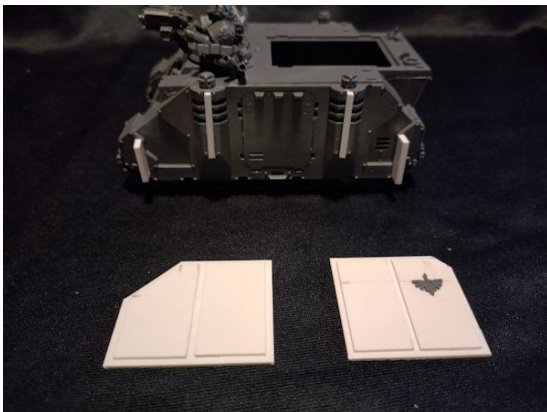
These consist of simple external armour plates that are mounted a short distance away from the hull, intended to provide an extra layer of protection and also to trigger shaped charge attacks early.

These armour plates are easily made from plasticard, with 1mm thick plasticard being suitable for regular vehicles such as Rhinos, Chimeras, Land Raiders and Lemman Russes and 2mm thick being better for super heavy vehicles.

The plates are mounted to the hull of a vehicle using strips of 2mm thick plasticard, with the width being determined by how much spacing is required. Depending on the vehicle it may be necessary to vary the width of the mountings to compensate for variations in the hull.

Although the armour plates can be left flat they look better if detailed. The basic method of this should be the addition of extra plates to make the surface less regular. In addition there are many parts in Games Workshop vehicle kits or accessory sprues that can be used to provide further details.

Some vehicles require only a single plate to cover the entire side. However, if there are sponson mounted weapons or side access points then multiple plates may be required to cover the other areas of the hull without obstructing these features.



Figures 1.1 (left) and 1.2 (right): Spaced armour plates to be mounted on Rhino and Land Raider vehicles. Hulls already have mountings fitted. Note that these vehicles require multiple plates to avoid obstructing doorways or sponsons.

Sample designs and dimensions for spaced armour plates can be found at the end of this document.

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Figure 1.3: Painted spaced armour plates attached to Rhino and Land Raider.



Figure 1.4: Spaced armour plating added to a super heavy tank.

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Reactive Armour

Parts list

Self adhesive PCB feet or 2mm thickness plasticard.
Plasticard for spaced armour plates if needed (see above).

Reactive armour panels are shaped charge explosive panels designed to produce a blast wave away from a vehicle to deflect an attack, especially useful against other shaped charge warheads. They are generally placed in clusters at particularly important or vulnerable points on a vehicle.

The panels can be modelled using small squares of plasticard (2mm thickness) but another alternative is to use self adhesive printed circuit board feet. These are available in sheets in a variety of shapes and sizes, the most suitable being 12.7mm (0.5") square, 3mm thick feet. This is perhaps a little larger than the panels ought to be but they are not overly large.

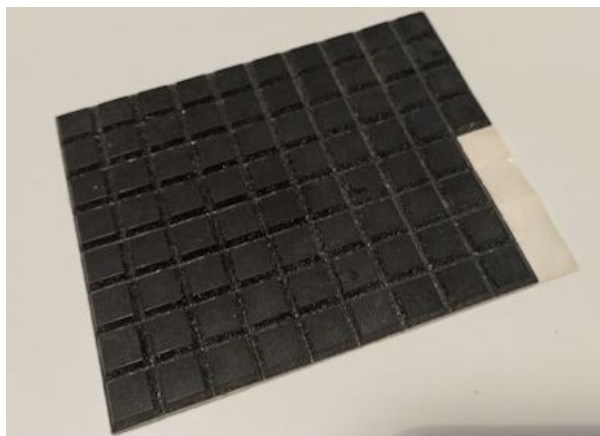


Figure 2.1: A sheet of self adhesive PCB feet.

The method of mounting the panels on a model depends greatly on the surface detail. If the model has an irregular surface then the panels will have to be mounted on additional spaced armour plates. The templates at the end of this document are NOT intended for this, they will need to be measured to match the specific dimensions of the reactive armour panels. However, if there is a sufficiently large flat surface then the panels can be stuck directly to the model's hull.



Figure 2.2: A Salamander vehicle with reactive armour panels added.

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Figure 2.3: A Lemman Russ battle tank fitted with reactive armour panels.



Figure 2.4: Close up of the spaced plates required to mount the panels on the side of the tank.

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Cage Armour

Parts list

2.5mm diameter plastic tube (cotton bud tube).
Plasticard, 2mm and 0.5mm thickness.

Cage armour, also called slatted armour is similar to the spaced armour already covered but instead of solid armour plates they use a cage structure that is lighter in weight while still being able to trigger shape charges away from the hull.

Cage armour is constructed using plastic tubing for the horizontal bars, spaced and held in place using plasticard.

The plastic tubing should be approximately 2.5mm (0.1") in diameter. The tubing used for cotton buds is suitable for this.

The frames are made using 2.5mm square pieces of 2mm thick plasticard as spacers and 2mm wide strips of 0.5mm thick plasticard to hold the assembly together.

To assemble the parts first glue one end of a length of tubing to the end of one of the 2mm wide strips so they are at right angles, then glue one of the plasticard squares next to this, aligned so that the 2mm thickness of the square matches the edges of the strip while the 2.5mm sides match the height of the tubing and will also create a gap between adjacent tubes equal to their diameter. The end of the next tube is then glued to the strip next to the spacer and the process of alternating tubes and spacers is alternated until all the tubes are in place.

A second strip of 0.5mm thick plasticard is then glued along the length of the alternating tubes and spacers to seal the frame.

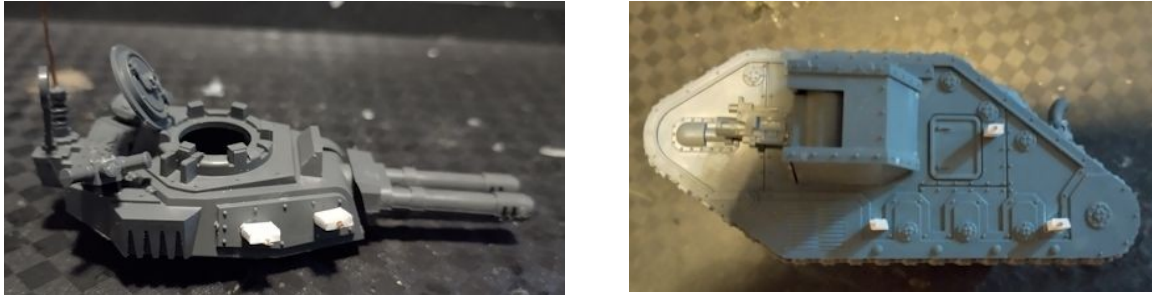
Another set of spacers should be added to the far end of the tubes and more can be added at intervals for further reinforcement.



Figures 3.1 (left) and 3.2 (right): Cage armour plates for a Lemman Russ turret and hull with sponsons. 3.1 shows a completed cage (top) and just the horizontal bars glued to plasticard spacers and bottom strip. 3.2 shows the bars and spacers (lacking the top strip of the frame).

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The completed cage assembly should be mounted on the vehicle in the same way as spaced armour, using short lengths of 2mm thick plasticard. If these mountings are to be glued to the horizontal tubes instead of the flat spacing assembly then wire pins may be needed to ensure a strong join.



Figures 3.3 (left) and 3.4 (right): Plasticard mountings for cage armour on the turret and hull of a Lemman Russ. Note the use of wire pins for a stronger join to the cage assembly.



Figure 3.5: Cage armour applied to a Lemman Russ (note that is easier to paint the model before the cages are attached).



Figure 3.6: Painted Lemman Russ tanks with caged armour.

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If you are using plastic tubing from cotton buds then it may be necessary to extend some of the tubing. This can be accomplished easily by cutting a 1mm wide strip of 1mm thick plasticard (a length of about 15mm is sufficient). About half of this should be inserted into one of the pieces of tubing to be joined and the other piece of tubing slid over the exposed half. This will strengthen the join once it is glued.

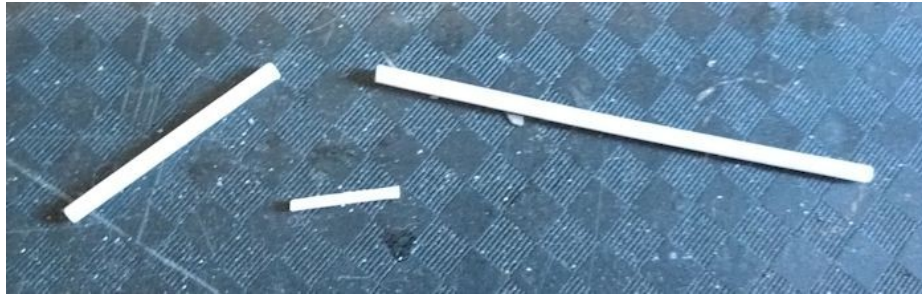


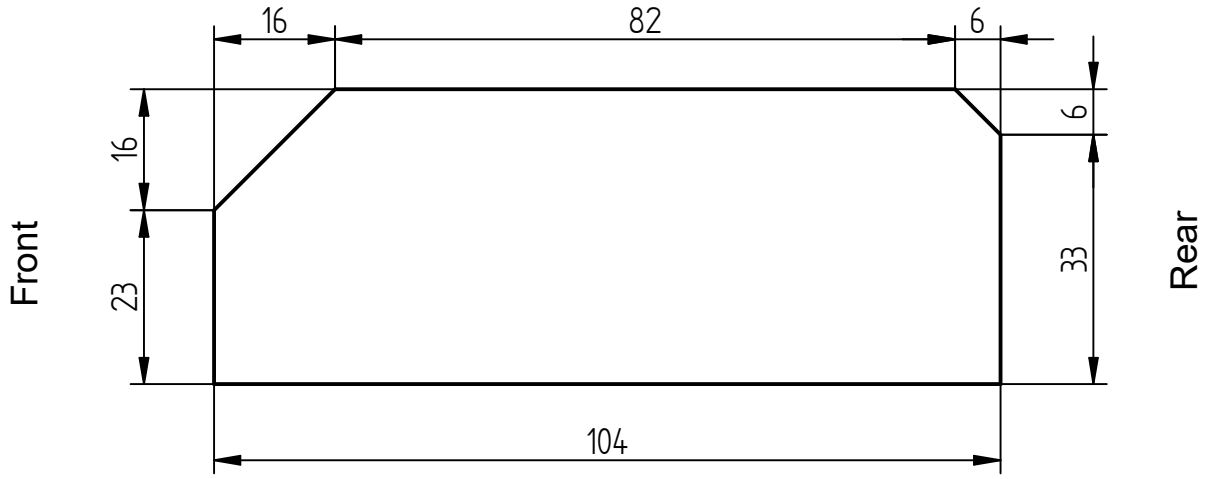
Figure 3.7: Parts used for extending cotton bud tube.



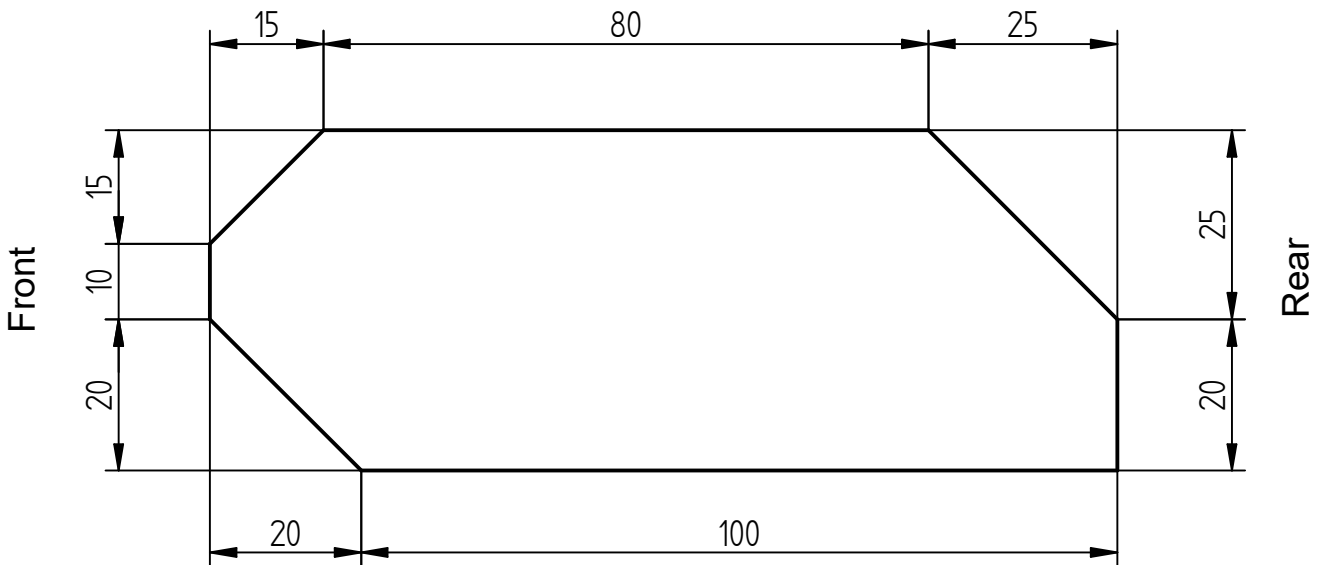
Figure 3.8: Plasticard strut inserted into one piece of tube.



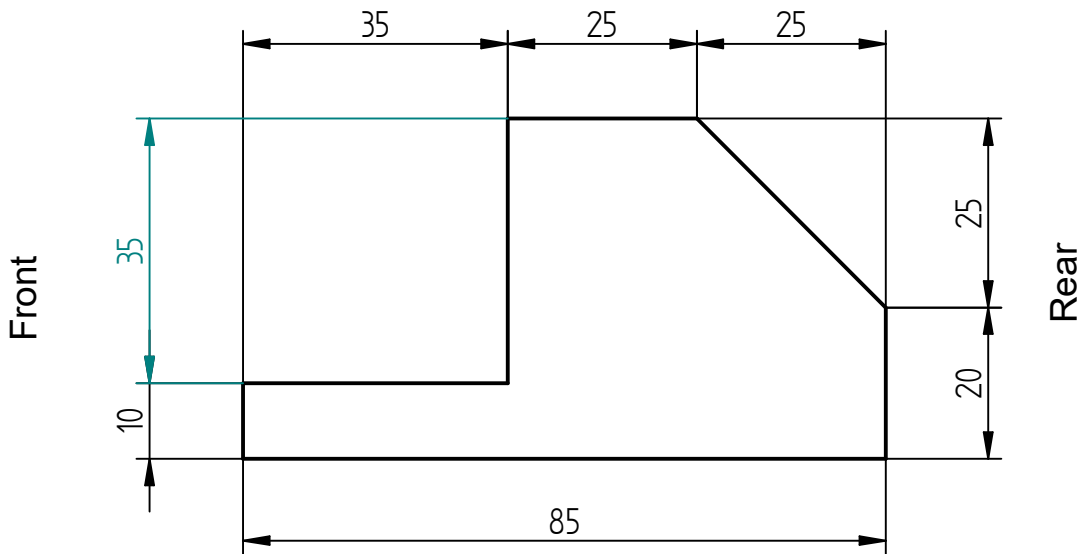
Figure 3.9: Strut inserted into both pieces of tube before glue is applied and they can be pushed together.



Sample Chimera spaced armour plate

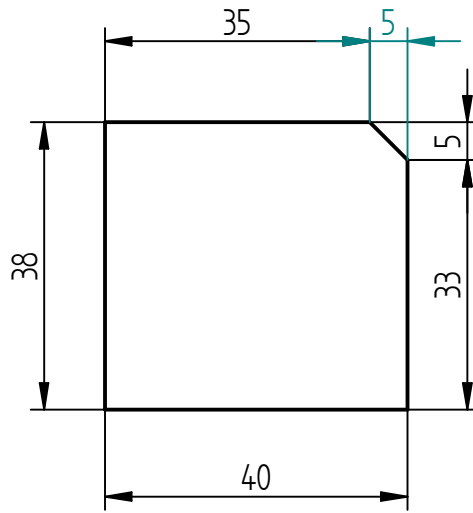
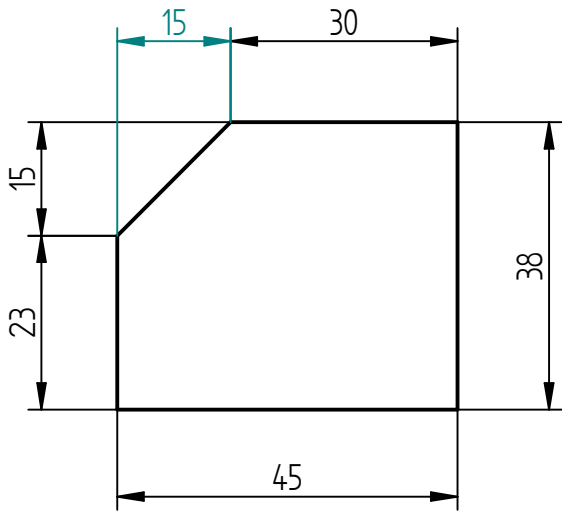


Sample Lemman Russ (without sponsons) spaced armour plate

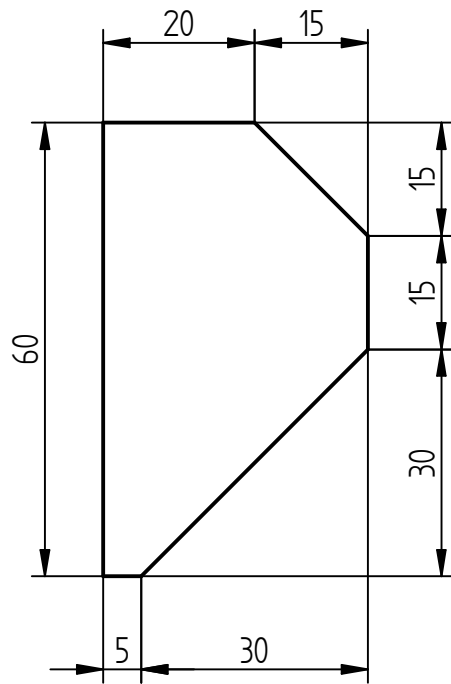
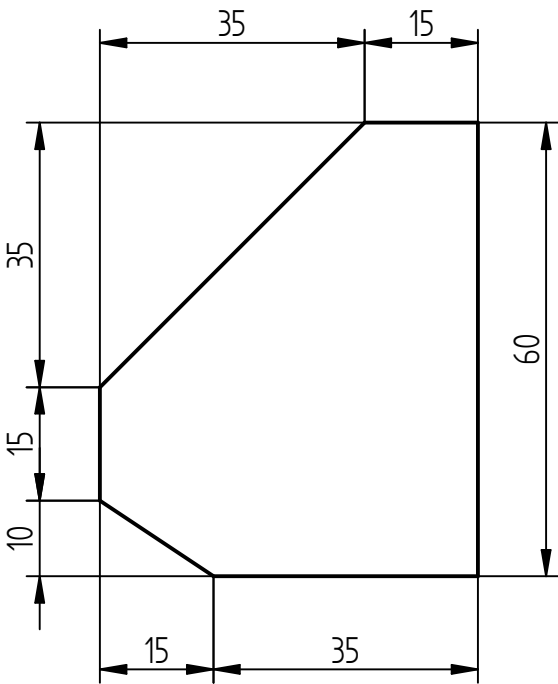


Sample Lemman Russ (with sponsons) spaced armour plate

All dimensions are in millimetres.

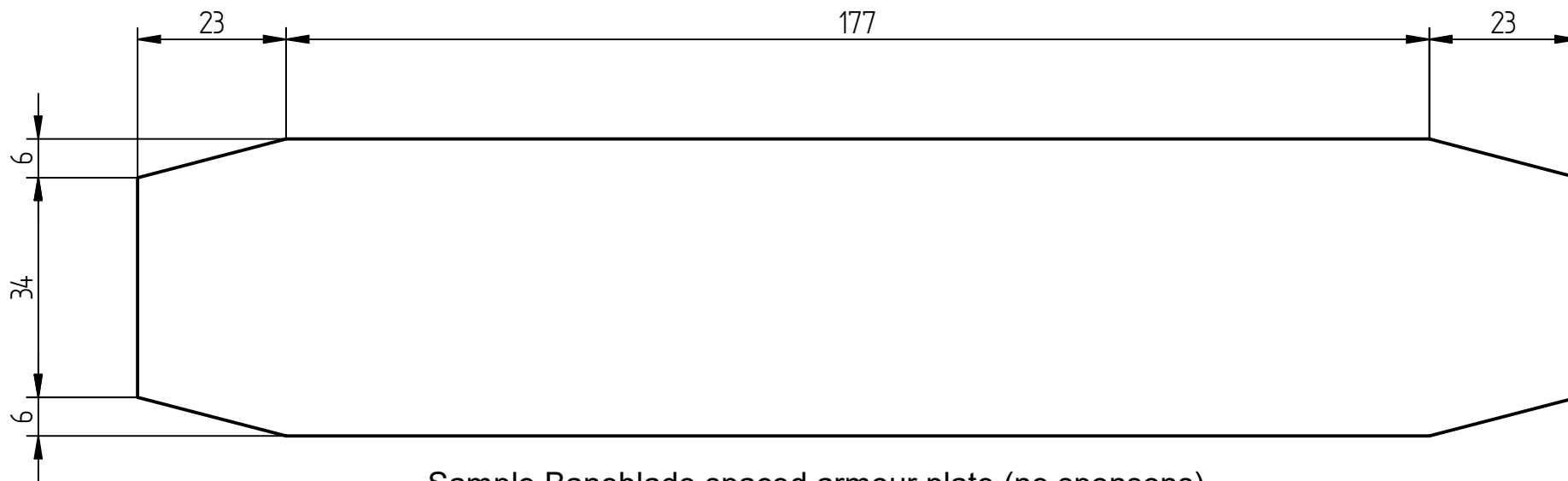


Sample Rhino spaced armour plates

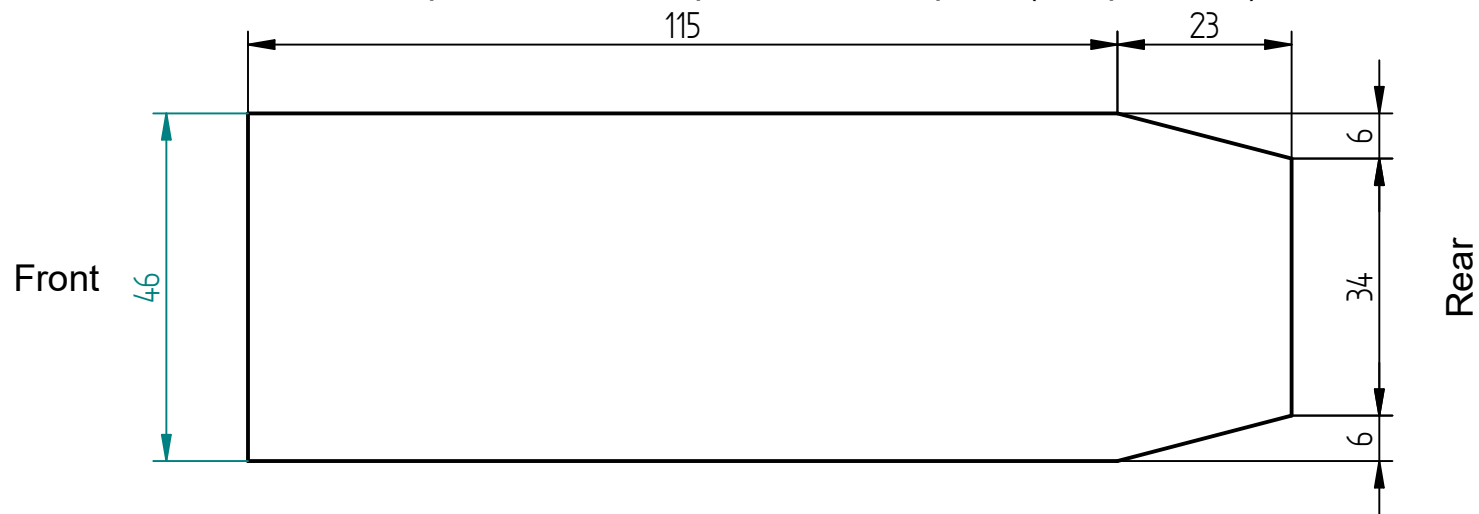


Sample Land Raider spaced armour plates

Dimensions are in millimetres



Sample Baneblade spaced armour plate (no sponsons)



Sample Baneblade spaced armour plate (sponson at forward position)

Dimensions are in millimetres