

Alternative Customizations

MODIFYING A DIFFERENT WALKER MODEL

Although the design of the J-Walk was based around the Triumph Escape, these same modifications can actually be translated to similarly designed walkers with just a little bit of work. The requirements for another walker to be used for modification is that 1) it must use the same adjustment bar components as the Triumph Escape, 2) it must use the same frame tubing as the Triumph Escape, 3) as well as have the wheels come straight outwards from the frame, as they do on the Triumph Escape.

A walker that uses the same frame tubing is required due to the extension being based off of the frame tubing from the “Standard” model of the Triumph Escape. The team looked for other alternatives for frame extension initially, but this method was determined to work the best. Other options considered were fitting tubing of different shapes within the existing frame, but the issues arise from the fact that aluminum oval tubing close to these specific dimensions is hard to find, only sold in extremely large lengths (20+ feet), made out of less than ideal alloys for fabrication, and usually too thin for the structural purposes it is required for in this case, due to usually being used for marine craft and aesthetic purposes. Aluminum tubing specifically is also required due to other metals causing contact corrosion for the intended use case.

The wheels of the walker must come straight outwards from the frame, as this means that the frame itself terminates in a forward-pointing end. This is to facilitate the extension itself. A walker cannot be used if the frame tubing terminates upwards, although a slight downwards angle could also be used, provided that the wheels used account for this angle.

The same adjustment bar component must be utilized in the design of the walker as well, as this is the component that was used for analysis. If any other type of tubing is used to fabricate the new handlebar system, the team cannot ensure that it will endure the same stresses and loads that the J-Walk can.

If all of these requirements are fulfilled by a walker, then it can be used for modification, provided that the instructions are altered to accommodate the differences in design. An example of a walker that satisfies these requirements is the Lifestyle 950 Commando, as seen in Figure 1. It utilizes the same frame tubing as the Triumph Escape and the frame tubing terminates at the wheels pointing straight outwards from the frame, thus the same method of frame extension as outlined for the J-Walk can be used.

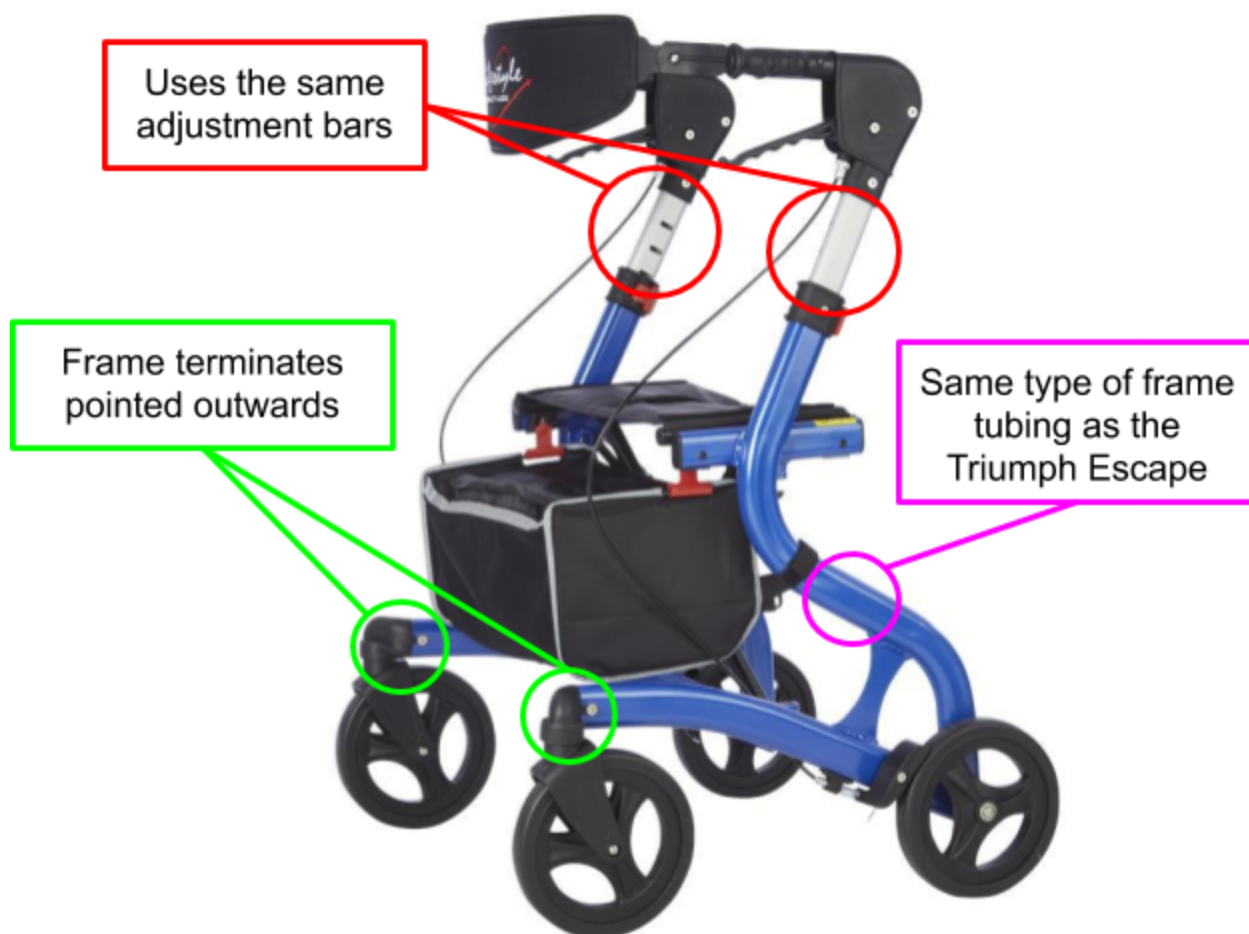


Figure 1. The Lifestyle 950 Commando, a suitable replacement as a base of modifications for the J-Walk.

One key difference is that while the adjustment bar component utilized is the same as those in the Triumph Escape, the Lifestyle 950 Commando's adjustment bars are set at a 30° angle, rather than pointing straight upwards like on the Triumph Escape. This is where the work in translating the provided instructions for modifications comes in. Using this walker as the base of modifications for your own J-Walk could work, but changes to the plans such as accounting for the angle on the adjustment bars during handlebar fabrication will be necessary.

The hardest part about determining if a model is a suitable replacement as a base for modifications is determining if the frame tubing used in the walker is the same as that of the Triumph Escape. The team was only able to determine this as they had the ability to inspect both a Lifestyle 950 Commando and a Triumph Escape in person. The team can only recommend this route if you are able to inspect a Triumph Escape

and your prospective replacement model in person in order to determine if the components in question meet the requirements for this design.

Nonetheless, creation of a J-Walk using a different model, such as the Lifestyle 950 Commando, is completely possible, provided it meets all the given criteria. However, more work will be necessary to translate the provided instructions to the new model, and the team cannot confirm that it will meet the same usage specifications as those outlined for the original J-Walk gait trainer.

ADDING EXTRA SUPPORTS

The J-Walk design also has the ability to add more support to the handlebar system if necessary. One way this could be done is to fabricate the handlebars as seen in Figure 2, which has a metal support welded at one end to the front of the handlebar tubing and the other end welded to the frame. This would require further modification of the rubber handlebar grips to fit over the front support, but this would provide more vertical support to the handlebar system and distribute more of the load away from the original joint, thus increasing the load the handlebar system is capable of. Due to the design of the folding mechanism of the Triumph Escape, this type of modification will not hinder its folding ability.

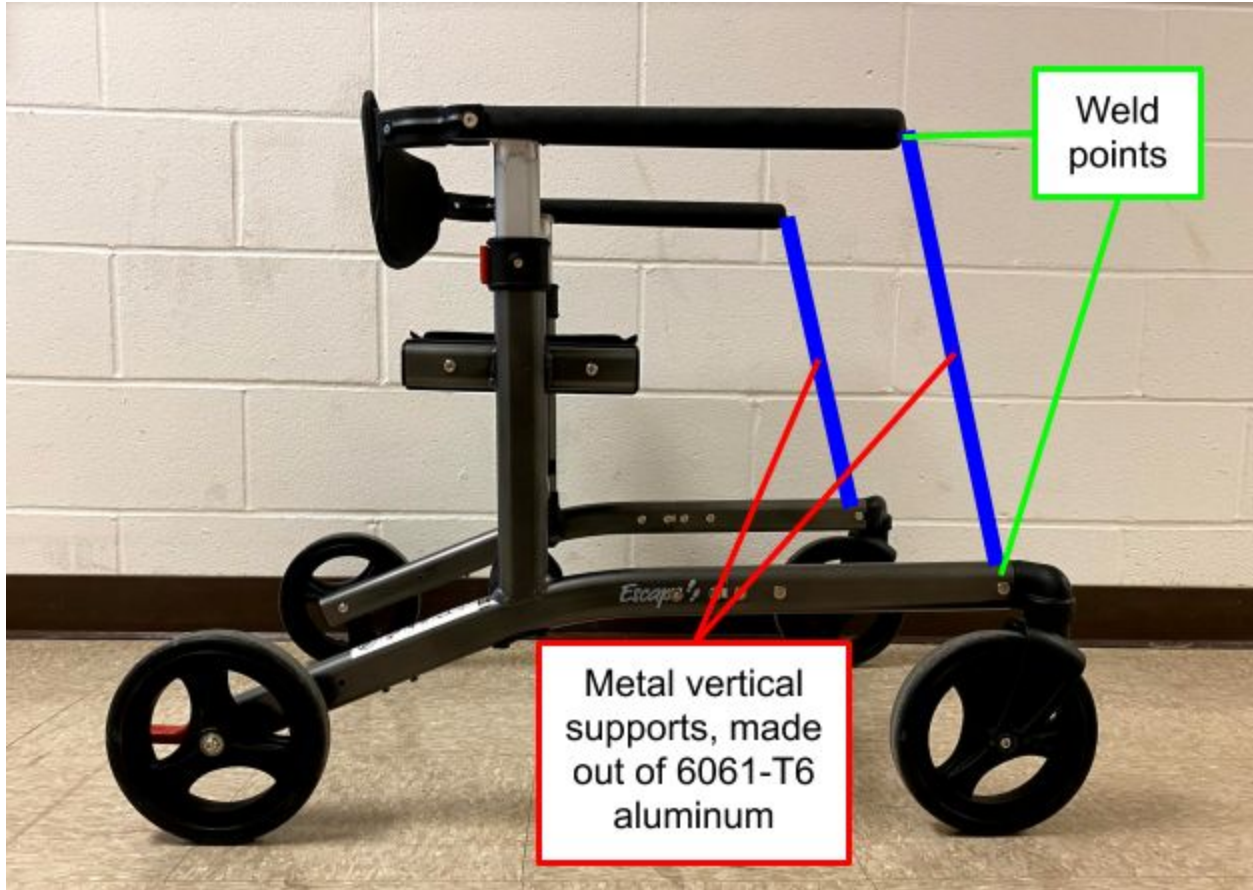


Figure 2. A possible configuration for further vertical supports on the handlebars, if necessary.

This does remove the J-Walk's ability to change handlebar height, as the vertical end support will be based on a static height measurement and will not provide that same support on a higher handlebar setting. Additionally, the height that the handlebars are fabricated at with the vertical supports will be the lowest height that can be attained with the new handlebar system.

This can pose an issue for adolescent users who are still growing, as their wrist crease height from the ground will change as they grow. However, due to the J-Walk being designed around a 170 pound adult, the original design should be capable of withstanding the loads of an adolescent user of an average weight for their age without the vertical supports. If you feel that your use case differs from this, please email the J-Walk design team.

The loss of the on-the-fly height adjustment should not be a major issue for adults, as the J-Walk is intended to be used at only one height during actual usage. Adult users are not expected to ever need to change the height of the handlebar system once fabricated, as the height of their wrist crease from the ground will not change.