



## Variable Range of Motion (Hemi/Brachial Plexus) Kit

#30-23-2002

Tools Included:

6mm Allen Wrench, 14mm socket wrench, Crank Arm Puller, 14-15mm AM Wrench, 5-6mm Allen Wrench

Tools *Needed*

Adjustable wrench or 17mm wrench for use with crank puller

The parts in this kit have two possible functions.

- 1) One is to strengthen the affected extremities of riders with brachial plexus or hemi paresis. It is designed to isolate the strong or unaffected side and stimulate use of the affected extremity.
- 2) The second is to work with riders with spasticity or high tone, who can benefit from very limited range of motion.

Using the parts, one can minimize or maximize the circle of rotation of the hand or foot cranks.

The concept is to reduce range of motion on the strong side and increase range of motion on the affected side. One does this by installing a second set of crank arms on the bike. This allows the caregiver to reposition the handles or foot pedals within a 360-degree circle. By bringing the second crank arm set in towards the axle of the bike one minimizes the range of motion or can eliminate movement altogether. By moving the second crank arm set outward one can increase the range of motion greatly. Thus – decrease range of motion for the unaffected side and increase motion and the work load on the affected side.

For riders with high tone one should rotate the second set of cranks into the center of the axle. This can result in no rotation – or in a very small range of motion. One can start with minimal range of motion and gradually increase the size of the turning circle as the tone hopefully releases.

All of this can of course take place on the Amtryke tricycle platform, providing an age appropriate and fun activity for the rider.

- 1) Determine the desired size of the second crank arm to be installed on the AmTryke. Measure or compare the crank arm size with the four sizes included in the kit:
  - a. 2 ½ inch black crank arms (30-23-0009 for use on older AM-9 style Amtryke.)
  - b. 4 inch black crank arms (80-20-0004 for use on older AM-9 style Amtryke.)
  - c. 4 inch aluminum crank arms (80-20-0003 for use on AM-12/16 style Amtrykes.)
  - d. 5 ½ inch aluminum crank arms (80-20-0005 for use on AM-12/16 style Amtrykes.)

- 2) Remove the handles or foot pedals off the AmTryke if already installed, using the flat 15mm wrench (80-05-0021) provided.
- 3) Stay alert to the fact that bicycle cranks and rotating AmTryke handles come in RIGHTS and LEFTS. Be sure you install the crank arms and the handles on the proper side of the bike. Left and right are determined by imagining that you are sitting on the bike in riding position.
- 4) Use the BP Crank Adapter #80-60-0044 (with color coded red bolts) to install the BLACK 2 ½ inch or 4 inch second crank arms onto the existing crank arms. Do not tighten yet.
- 5) If using the ALUMINUM crank arms (either 4 inch or 5 ½ inch) you must use the BP Crank Adaptor Part 80-60-0045. This part is solid black in color.
- 6) Install the handles or foot pedals into the second set of crank arms. REMEMBER, INSTALL THE LEFT HAND onto the Left crank arm and the RIGHT Hand onto the right crank arm. Look for the L or R stamped into the end of the handles or on the side of the crank arms. NOTE: left side handles and pedals are threaded counter clockwise!!! A handy tip to remember is that the handles and pedals on a bike always tighten towards the front of the bike.
- 7) Rotate the handles to the desired position – for the range of motion you desire - on each side and tighten with the included 14mm wrench.
- 8) The crank arm puller, part number 30-23-0103 is included in the kit. This puller allows you to freely interchange different crank arm lengths onto different AmTryke models. NOTE: The black crank arms will only fit onto AM-9 models and the aluminum crank arms will only fit onto the AM-12/16 models.





The pictures show the order on installation.

It works the same for either hand or foot cranks.

Use the 14mm wrench to change the size of your 360-degree circle.

Remember: in towards the center to minimize rotation – outward to expand it.

