



Heavy Duty

Lever Release Kit

FABRICATION INSTRUCTIONS FOR

Bail Lock Knee Joints (1003, 1004, 1007)

Modular Lever Lock Knee Joints (1017, 1018)

FullStride® Knee Joint in Bail Lock Configuration (9006)

 **BECKER**



635 Executive Dr. | Troy, MI 48083
P 800-521-2192 | 248-588-7480
BeckerOrthopedic.com | f t in

EC REP

Acorn Regulatory Consultancy Services Limited
Knockmorris Cahir Co. Tipperary Ireland,
Postcode: E21 R766
P 012 4626 8456
F 012 4626 8648



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FullStride® Knee Joint in Bail Lock Configuration (9006)

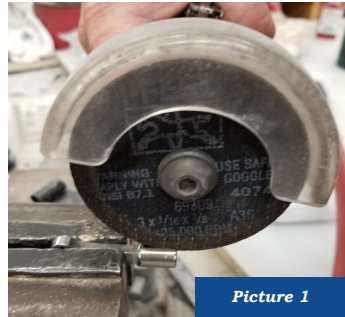
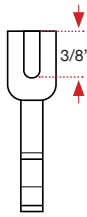
The knee joints listed above are fully compatible with our Heavy Duty Lever Release Kit. To assist you, we have created step-by-step fabrication instructions which illustrate the proper installation of the kit onto KAFO's with these joints. As always, if you have any questions during your fabrication process, we are happy to help you in any way that we can.

Fabrication Instructions

1 Skip this step for model 9006.

Use a small cut off wheel to slit the locking tip from the end of the barrel to the 3/32" hole (Picture 1).

For models **1017** and **1018**, drill a hole through to locking lever using a #40 drill bit (Picture 1A).

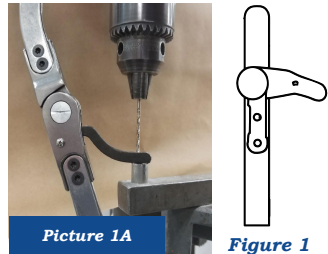


Picture 1

2 Lay KAFO on a flat surface posterior side up.

3 Position the Lever Assembly on the lateral upright in a suitable position.

4 Center mark the (2) attachment holes (see Figure 1) using the lever mount on the lateral upright with a transfer punch or a #19 drill bit.



Picture 1A

Figure 1

5 Drill the (2) attachment holes with a #28 drill bit and tap using a #8-32 tap.

6 Attach cable to the Lever Assembly to the lateral upright using the upper attachment hole only. The lower attachment screw will be attached later with the cables.

7 Attach the cable loop to the Lever Assembly using the shoulder screw (Item #15) provided (see Figure 2).

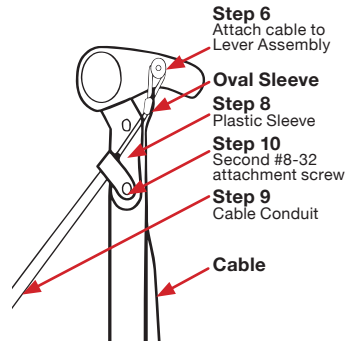


Figure 2

8 Slide the (2) clear outer sheaths (Item #3) onto each end of the cable until they stop on the Oval Sleeve near the loop end of the cable (see Figure 2).

9 Slide the medial (longer) side of the cable through the cable conduit until the cap of the leading end contacts the clear outer sheath (see Figure 2).

10 Locate and attach the cable conduit to the lever using the plastic cable clamps and the second #8-32 screw as shown. Rotate the cable clamp so that the cable slides free in the cable conduit and does not rub against the conduit end caps. (see Figure 2)

11 Trace out the path of the medial cable along the thigh shell to the medial joint trigger. All radii formed by the cable should be larger than 2 1/2" to ensure the cable slides freely within the cable conduit. Any restriction in the free movement of the cable will inhibit the locking mechanism of the joint and could cause premature wear, incomplete locking and/or joint lock failure.

12 Locate and mark the positions of up to (4) plastic cable clamps along path of the medial cable traced in step 11 (see Figure 3).

13 Where the cable attaches to the trigger, ensure the cable is square to the joint in the sagittal and frontal planes.

14 Drill through the KAFO at each of the marked positions using a #7 drill bit.

15 Place a brass insert into each of the #7 drilled holes from the inside of the thigh cu. Insert one of the #8-32 screws into the brass insert from the outside of the plastic. Tighten the #8-32 screw until the brass insert has been pulled completely into the plastic.

16 Remove screw and attach the cable conduit to thigh cu using the plastic cable clamps and #8-32 screws.

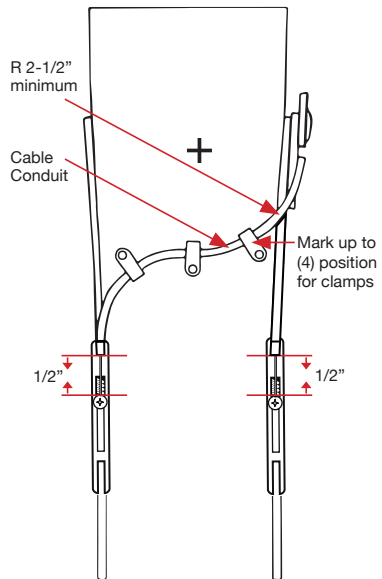


Figure 3

17 Once the cable conduit is in place, place a mark on the conduit approximately 1/2" above the end of the joint trigger ball. This will allow for full motion of the unlocking mechanism.

18 Cut the cable conduit (not the cable) at the mark made in the previous step.

19 Remove the cable conduit from the KAFO and attach the end cap using Becker Orthopedic's cable-crimping tool.

20 Re-attach the cable conduit to the KAFO.

21 *Skip this step for models 1017 and 1018.*

Mark the cable where it lays at the top of the slot in the locking tip using a fine tip marker as shown (see Picture 2).

22 Repeat steps 11 through 21 for the lateral side cable.

23 Remove the cable assembly from the KAFO.

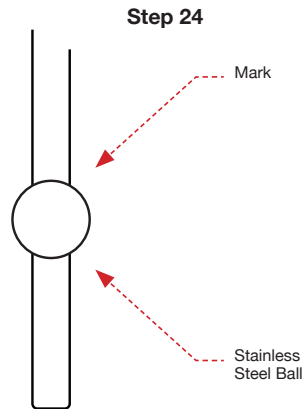
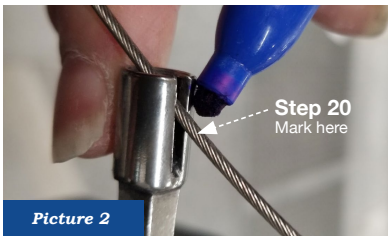


Figure 4

24 For models **1003**, **1004**, **1007** and **9006**, slide the stainless steel balls onto the ends of the cables up to the marks made earlier as shown (see Figure 4) and crimp each of the balls to the cables using Becker Orthopedic's cable crimping tool.

For models **1017** and **1018**, slide the cables through holes in the locking levers and slide the stainless steel balls onto the ends of the cables and crimp using Becker Orthopedic's cable crimping tool (see Picture 2A).

25 Trim any excess cable sticking out past the end of the stainless steel balls and grind the cable ends until they are flush with the bottom of the steel balls. Please note that the balls will deform when crimped.

26 Grind the steel ball to shape so that it fits into the trigger / locking tip. (see Picture 3 and 3A).

27 Re-attach the cable assembly to the KAFO and triggers / locking tip.

28 Insert the steel balls into the trigger and capture them using the brass plugs provided (see Picture 4).

Note: The brass plugs should go into the locking tip threaded side out for future removal.



Picture 3



Picture 3A



Picture 4

- 29 Install phillips head screws into brass plugs and tighten (see picture 5).
- 30 Check assembly and test for proper function.
- 31 Installation of your Heavy Duty Lever Release Kit is now complete.

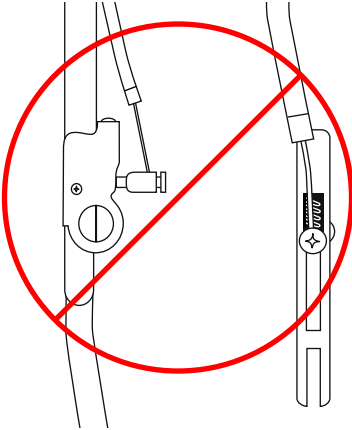


Note: Be sure to leave space for the steel ball to move freely inside of the locking tip.

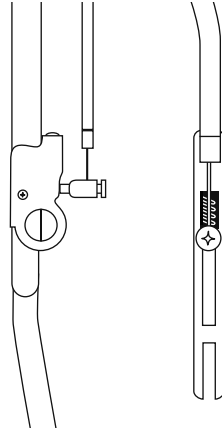
Key Points Cable Alignment

Frontal plane misalignment of the cable can cause the unlocking mechanism to engage thereby putting the joint into free motion.

Please take special care when aligning the cable to ensure the joint does not become unlocked when it is not intended to.



Incorrect Alignment



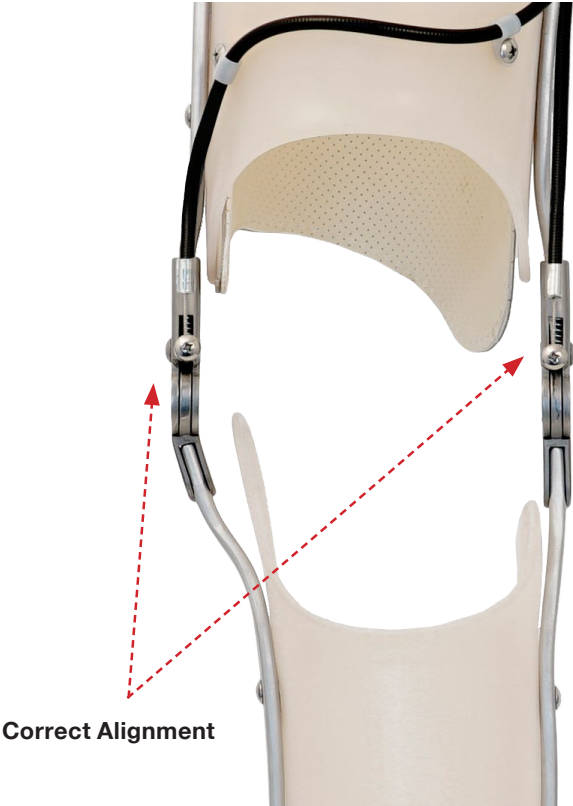
Correct Alignment



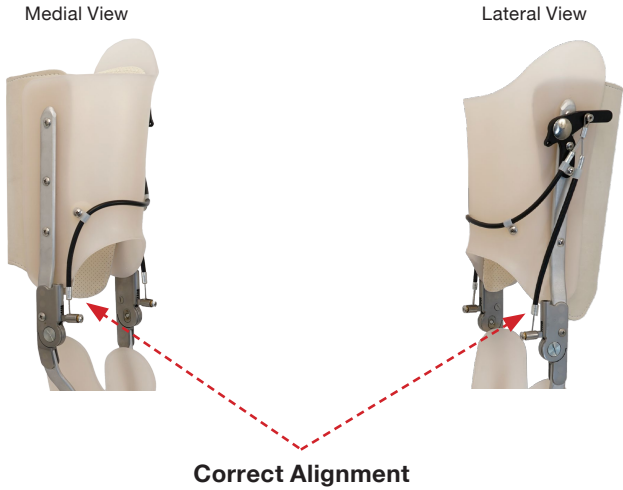
Joint and Cable Alignment in the Coronal Plane

In order to ensure that the joints function properly, please take extra time to carefully square and parallel the joints to one another.

Posterior View



Joint and Cable Alignment in the Sagittal Plane



Joint and Cable Alignment in the Coronal Plane

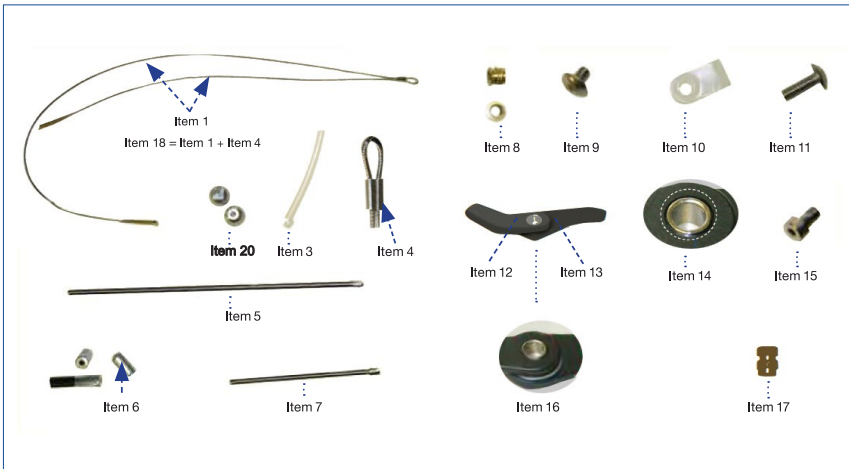
Note: As with any of our locking knee joints, the joints will NOT unlock with a knee flexion moment. To disengage the locking mechanisms, please ensure that all knee flexion forces are absent.



Product Ordering Information

Heavy Duty Release Kit

Item	Part	Part Name	Qty.*
1	MX-003-HD#1	1/16" X 40" S.S. Cable	1
3	MX-003-HD#3	Clear Outer Sheath	2
4	MX-003-HD#4	Oval Sleeve 1	1
5	MX-003-HD#5	0.23" x 16" Black Conduit for Medial Side	1
6	MX-003-HD#6	Conduit End Caps	4
7	MX-003-HD#7	0.23" x 8" Black Conduit for Lateral Side	1
8	MX-003-HD#8	#8-32" x 3/16" Threaded Inserts for Attaching Cable Guides to Plastic	7
9	MX-003-HD#9	#8-32" x 1/4" Large Truss Head Phillips Screw for Threaded Insert	5
10	MX-003-HD#10	Cable Ties/Guides, 0.188" diameter	8
11	MX-003-HD#11	Lever to Upright Attachment Screw for #8-32" x 1/2" Lg. Truss Head Screw	1
12	MX-003-HD#12	Lever Mount	1
13	MX-003-HD#13	Release Lever	1
14	MX-003-HD#14	Lever Pivot Rivet	1
15	MX-003-HD#15	Cable to Lever Attachment Shoulder Screw	1
16	MX-003-HD#16	Nylatron Washer	2
17	MX-003-HD#17	Cable to Bail #8-32 Threaded Brass Retaining Insert	2
18	MX-003-HD#18	1/16" x 40" S.S. Cable w/ Oval Sleeve crimped on	1
20	MX-003-HD#20	.190 Steel Cable Ball Fittings	2



If you have any questions or would like any additional information, please contact our customer service department. Thank you for taking the time to review these instructions.



F 800-521-2192 | 248-588-7480

P 800-923-2537 | 248-588-2960

BeckerOrthopedic.com | **f** **t** **in**
