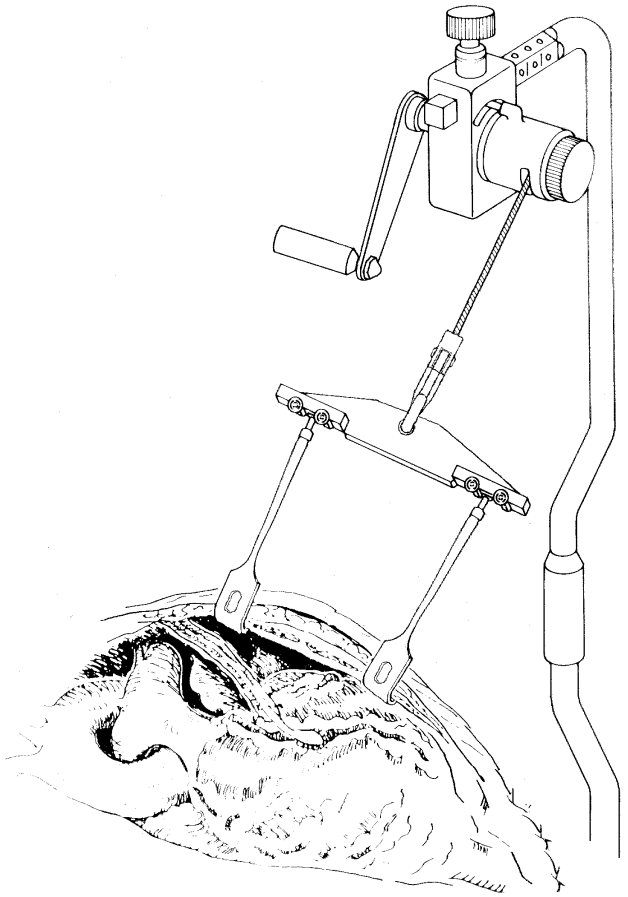
Rultract® SKYHOOK



INSERVICE PRESENTATION
CLEANING AND STERILIZATION
RULTRACT RETRACTOR SYSTEM

Rultract / Pemco *has established a medical industry standard for surgical retraction. The systems provide gentle, uniform lift with maximum exposure. For further information contact Rultract® directly at rultract@aol.com or visit our website, www.rultract.net.*

INSERVICE PRESENTATION
CLEANING AND STERILIZATION
RULTRACT RETRACTOR SYSTEM

THIS PRESENTATION DISPLAYS BOTH SQUARE AND SPLINE SETS

Please identify your system and follow appropriate instructions.

SQUARE TIP

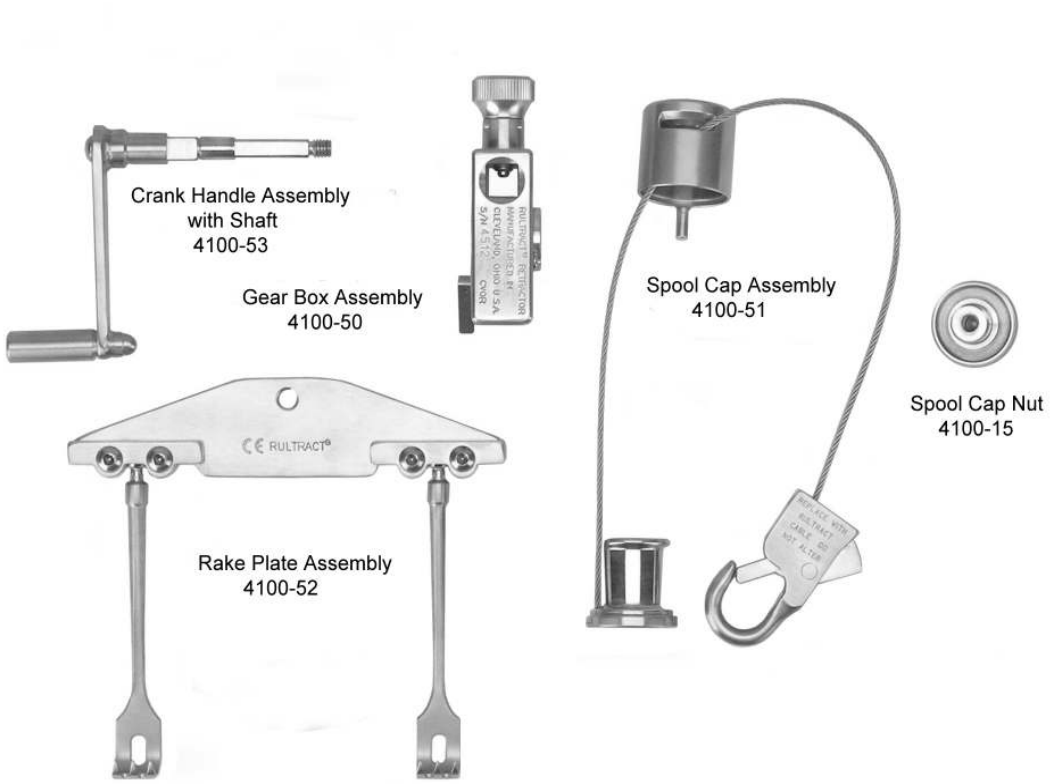
INDEX **page**

Introduction	-02
Identify Components	03-08
Cleaning / Sterilization	09-21
Cable Replacement	22-31
Accessories/Replacements	32-39
Weights (Kg & Lbs)	40-41
Contact Information Repairs and Loaners	-42

SPLINE TIP

RULTRACT SKYHOOK RATCHET/RAKE ASSEMBLY, 4100-IMR-6
DISASSEMBLE AS SHOWN, NO FURTHER DISASSEMBLY REQUIRED

4100-IMR-6



		Weight Kg	Weight Lbs
4100-IMR-6	Ratchet / Rake Assembly with Snap Clip	1.426	3.140

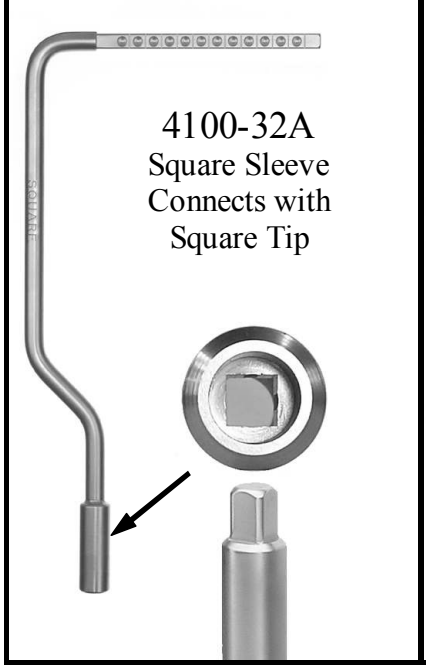
TOP POSTS

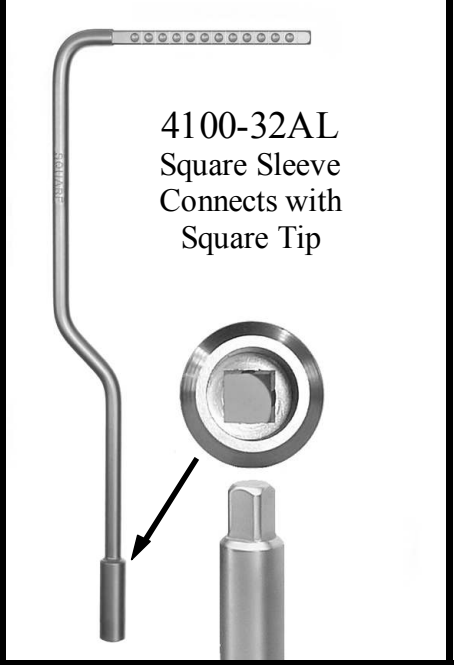
***TOP POSTS*: Square and Spline inserts**

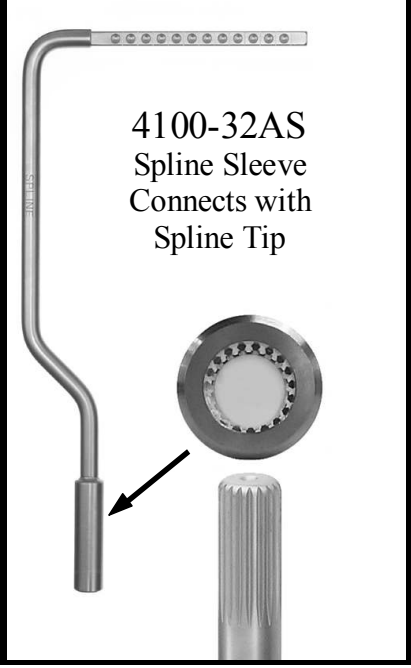
4100-32A	Square Top Post - standard length -	9 ½" x 18" long (square insert)
4100-32AL	Square Top Post - extended length -	9 ½" x 22" long (square insert)
4100-32AS	Spline Top Post - standard length -	9 ½" x 19" long (spline insert)
4100-32ALS	Spline Top Post - extended length -	9 ½" x 23" long (spline insert)

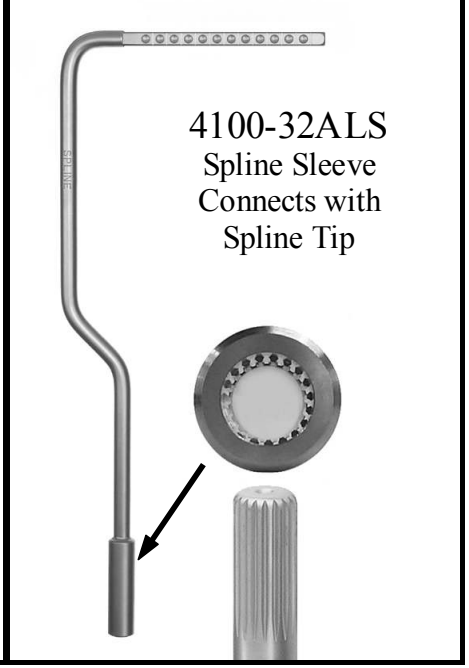
Cleaning: Top Posts

- No disassembly required.









POSTS

ONE PIECE POST:Round Base

4100-08 One piece post - 9 ½" x 30" long

Cleaning: Top Post

- No disassembly required.

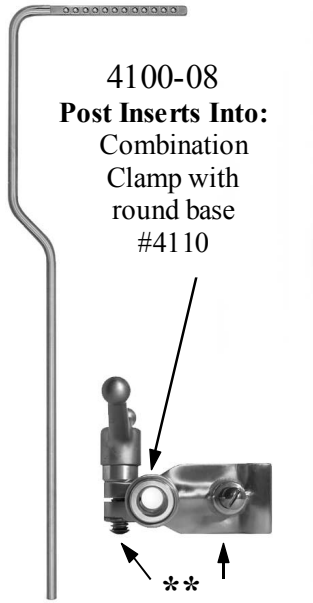
TILTING TOP POSTS: Square and Spline inserts

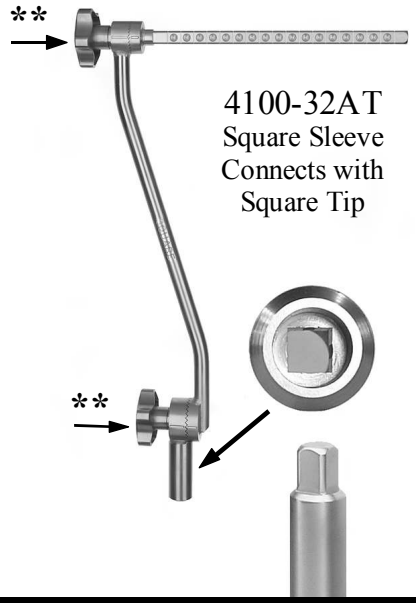
4100-32AT Square Tilting Top Post - 12 ½" x 20" long

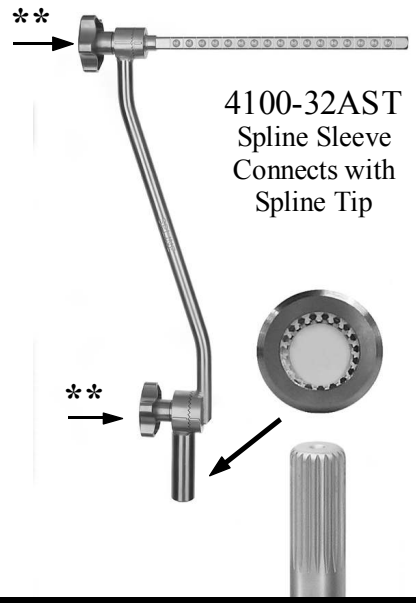
4100-32AST Spline Tilting Top Post - 12 ½" x 21" long

Cleaning: Tilting Post

- Do not disassemble Tilting Post for cleaning.
- Do not remove retaining screws.**
- Do not open or close handles completely.
- Loosen knobs for partial separation.
- Sections and knobs should have free movement.







WARNING: Removal of retaining screw(s) (4110P-12) will cause device to come apart. This will result in failure during use.**

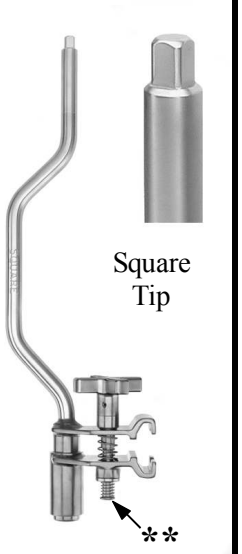
CLAMPS: DOUBLE BEND POST/CLAMP

***CLAMPS*: Square and Spline Tip**

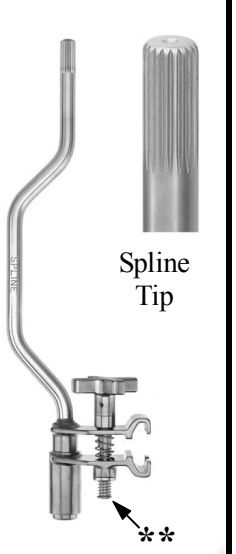
4150 Square Tip, Double Bend Post/Clamp, Scrub Applied - 19" long
4150S Spline Tip, Double Bend Post/Clamp Scrub Applied - 19" long
4160 Square Tip, Double Bend Post/Clamp, Circulator Applied - 20" long
4160S Spline Tip, Double Bend Post/Clamp, Circulator Applied - 20" long

SQUARE TIP 90° Angle

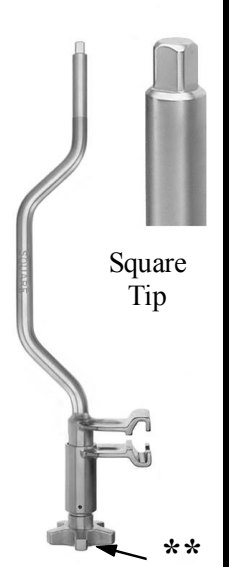
SPLINE TIP 18° Increments



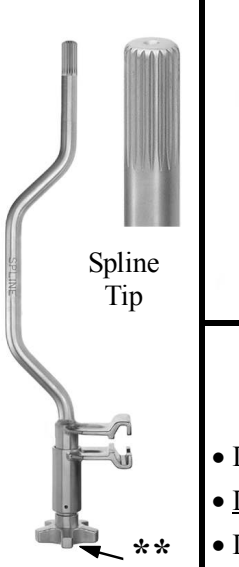
4150 Scrub Applied



4150S Scrub Applied



4160 Circulator Applied



4160S Circulator Applied

Cleaning: Clamp

- Do not disassemble for cleaning.
- Do not remove retaining screw.**
- Do not open or close handles completely.
- Jaws should be partially opened.
- Jaws and handles should have free movement.

WARNING: Removal of retaining screw(s) (4110P-12) will cause device to come apart. This will result in failure during use.**

BOTTOM POSTS AND COMBINATIONS CLAMPS

***BOTTOM POSTS:* Square and Spline Tip**

4100-32C	Square Tip Bottom Post w/ collar, 5/8" Dia. x 20" long
4100-32CS	Spline Tip Bottom Post w/ collar, 5/8" Dia. x 20" long
4100-28C	Square Tip Double Bend Bottom Post - 5/8" Dia. x 18" long
4100-28CS	Spline Tip Double Bend Bottom Post - 5/8" Dia. x 18" long

Cleaning: Bottom Posts

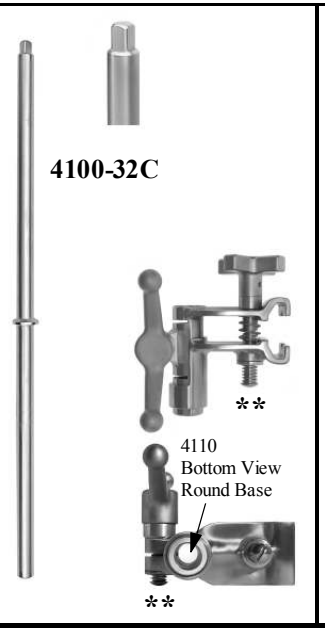
- No disassembly required.

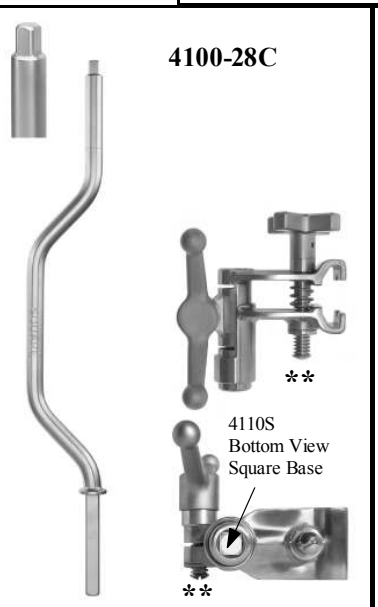
COMBINATION CLAMPS:

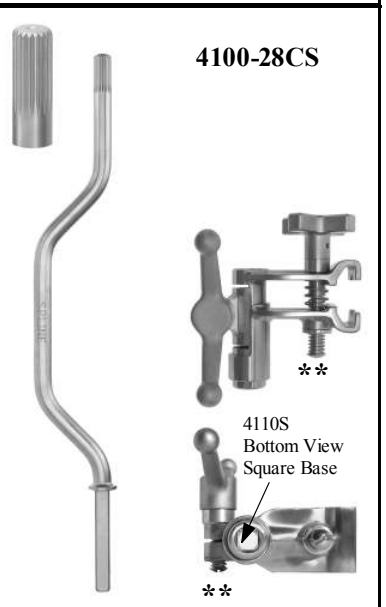
4110	Round Base Combination Clamp
4110S	Square Base Combination Clamp

Cleaning: Clamp

- Do not disassemble for cleaning.
- Do not remove retaining screw.**
- Do not open or close handles completely.
- Jaws should be partially opened.
- Jaws and handles should have free movement





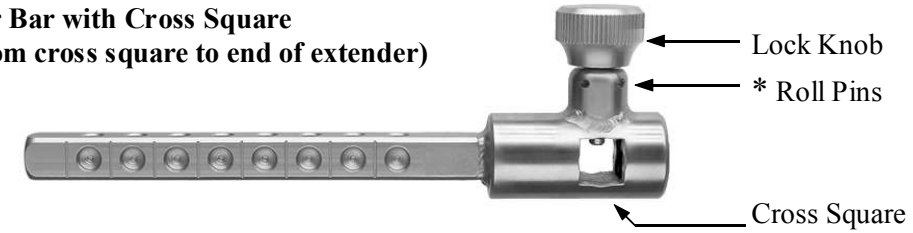


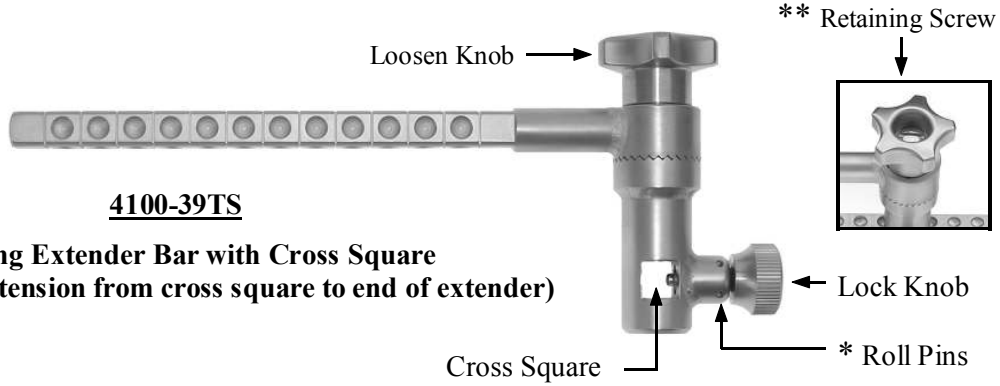
WARNING: Removal of retaining screw(s) (4110P-12) will cause device to come apart. This will result in failure during use.**

EXTENDER BARS

4100-39S

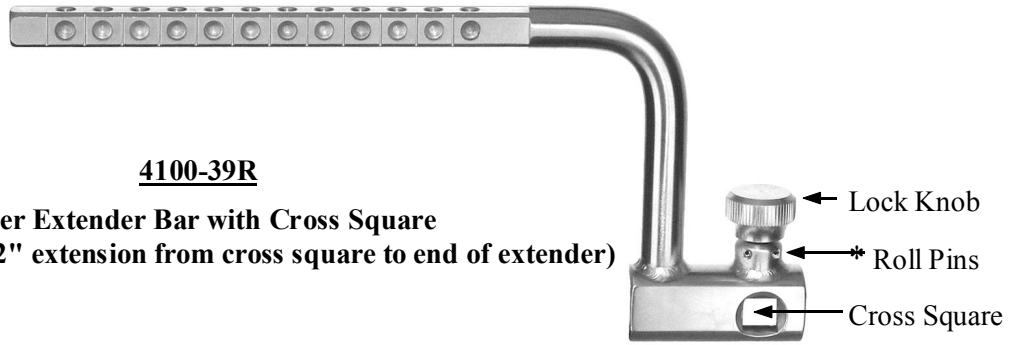
Extender Bar with Cross Square
(6 1/2" extension from cross square to end of extender)





4100-39TS

Rotating Extender Bar with Cross Square
(2" rise w/ 9" extension from cross square to end of extender)



4100-39R

Riser Extender Bar with Cross Square
(4" rise and 10 1/2" extension from cross square to end of extender)

Cleaning: Extender Bars

- Do not disassemble extenders for cleaning.
- Do not remove retaining roll pins* or screw**.
- Back out (open) the non-removable Lock Knob.
- Loosen knob for partial separation.

Cleaning: Rultract® System

Repeated processing has minimal effect on this instrument. End of life is normally determined by wear and damage due to use.

1. Remove excess soil on instrument as soon as is reasonably practical following use.
2. Disassemble Ratchet/Rake per instructions. No disassembly of other products required for cleaning.
3. It is expected that commercially available products for the use of cleaning are used.
4. If using an automated cleaning system (such as a sonicator) use a commercially available detergent approved for automatic use that is ph-neutral or alkaline. Set appropriate wash and rinse cycles according to the manufacturer of the automatic cleaning system's instructions.
5. If cleaning manually, thoroughly clean surface contamination. Soak in a neutral or alkaline pH disinfecting solution or enzymatic cleaner. Do not soak for longer than what is recommended by solution manufacturer.
6. Instrument should be thoroughly rinsed with distilled water after cleaning to remove any residual debris or cleaning agent.
7. Instruments may be lubricated using a small amount of surgical grade lubrication. Let instrument drip dry a few moments before wrapping for sterilization.
8. Visually inspect instrument for any damage prior to use.

Biocompatibility of Rultract's Medical Devices

Rultract uses 420 and 304 Stainless Steel in its medical products that would contact the patient directly.

DISASSEMBLE RATCHET FOR CLEANING
(reference p. 3)

STEP 1 UNWIND CABLE: While holding the Ratchet by the Spool Cap Assembly, shift Ratchet Lever to reverse direction (Fig. 01). Pull down on Snap Clip or Rake Plate Assembly **to completely unwind the cable, approximately 16" (Fig. 02).** If cable is jammed or will not unwind freely, proceed to the next step and remove the Spool Cap Assembly.
Note: Worn or Damaged cable must be replaced at this time with a new Rultract® Cable.

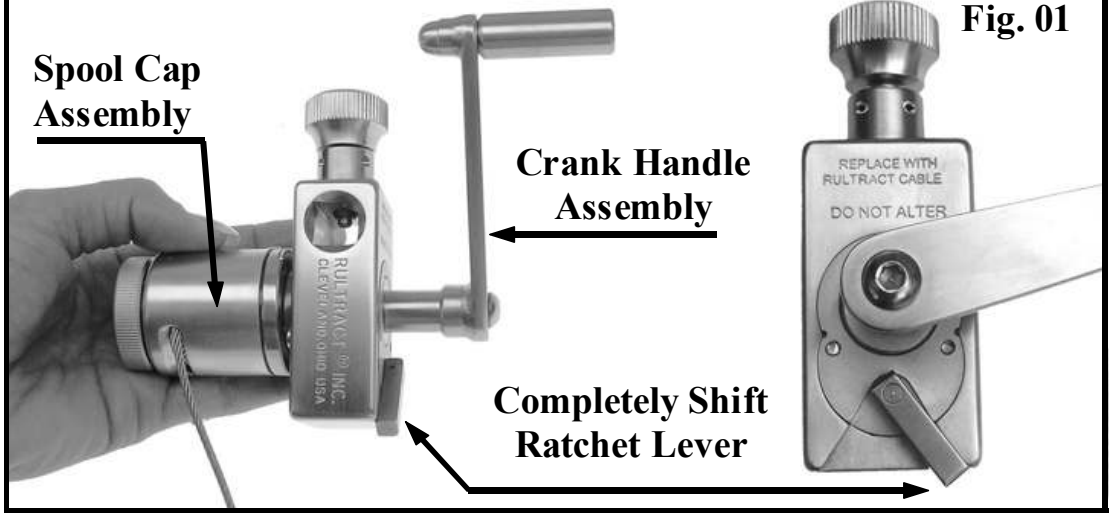


Fig. 01

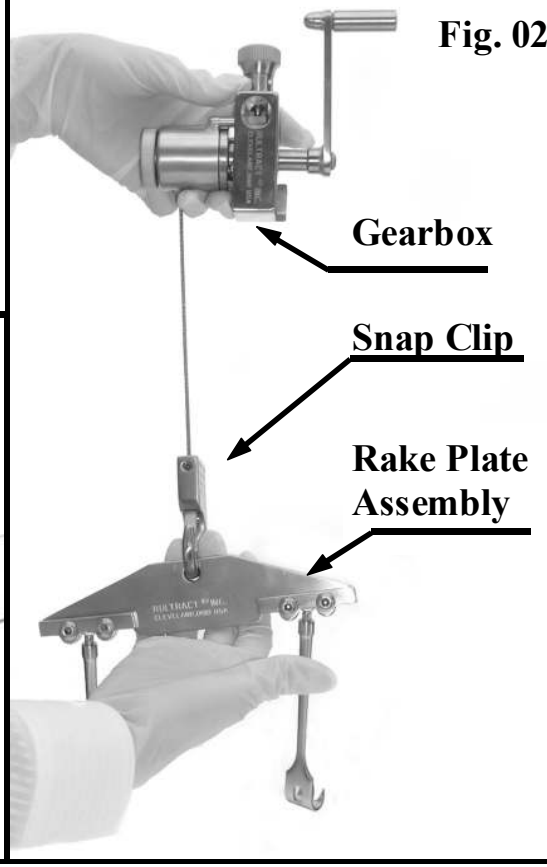


Fig. 02

DISASSEMBLE RATCHET FOR CLEANING (continued)

STEP 2 REMOVE SPOOL CAP AND CRANK HANDLE ASSEMBLY:
Holding the Crank Handle Assembly as shown, unscrew and remove the Spool Cap Nut using a counter clockwise rotation (Fig. 03 & 04). Slide Spool Cap Assembly from shaft of Crank Handle Assembly (Fig. 05). Slide Crank Handle Assembly out of Gearbox. At this time, note square of shaft and square hole in Gearbox (Fig. 06).

Fig. 03

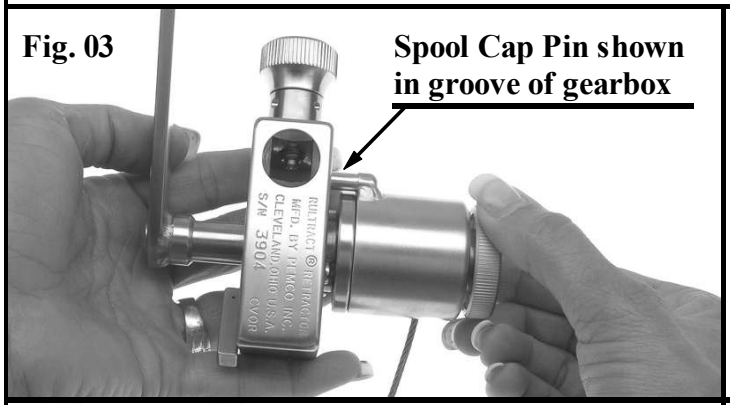


Fig. 04

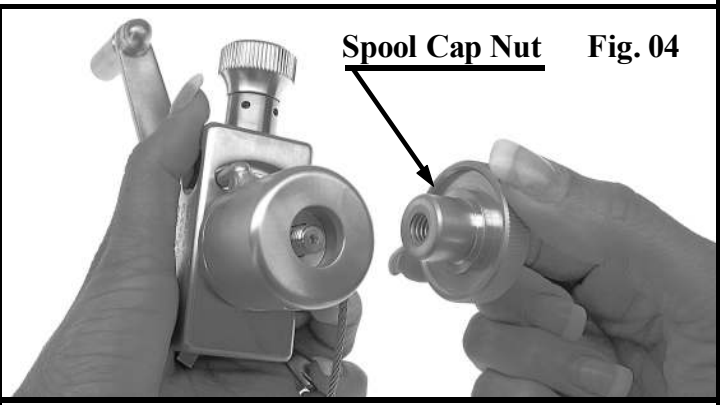


Fig. 05

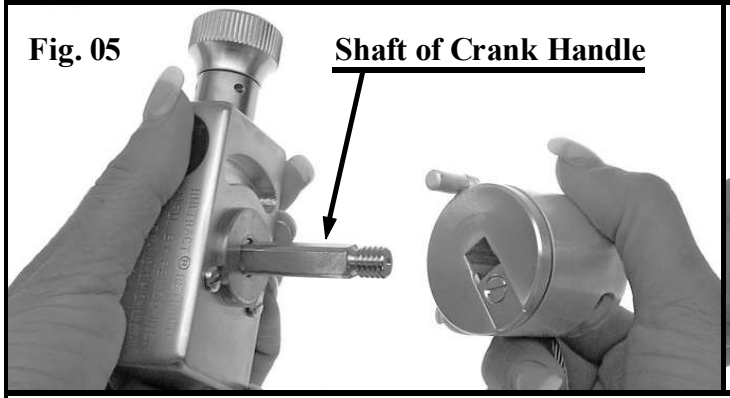
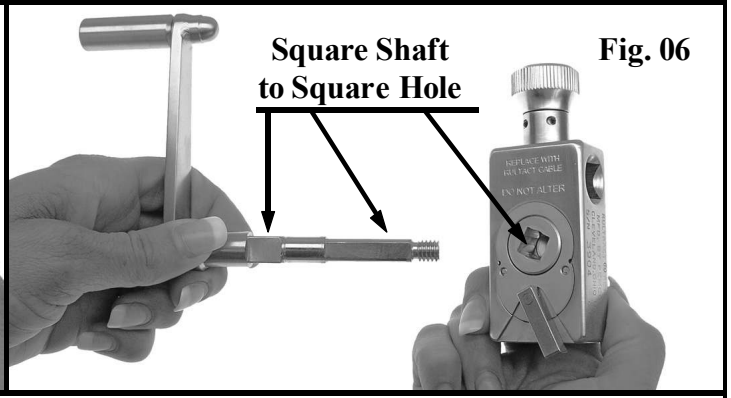


Fig. 06



CAUTION: Always insert spool cap pin into the groove of the gearbox. Failure to do so may result in disassembly or damage to the unit.

DISASSEMBLE RATCHET FOR CLEANING (continued)

STEP 3 REMOVE SPOOL CAP FROM SPOOL:
To remove Spool Cap from Spool, line up Cable Guide with Pin and Cable Access Plate of Spool (Fig. 07). This will align flat on Spool with Cable Guide and allow the two pieces to separate (Fig. 08). Slide Spool Cap along cable to rest on Snap Clip or Pivot Hub (Fig. 09).

Fig. 07

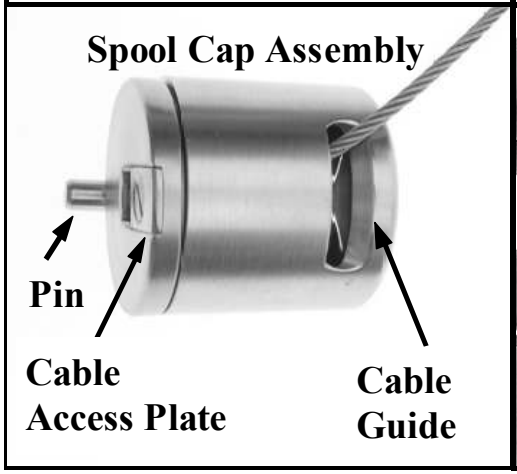


Fig. 08

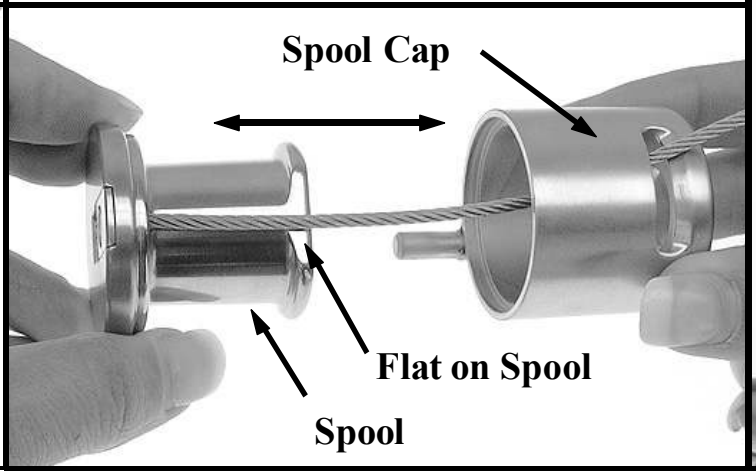


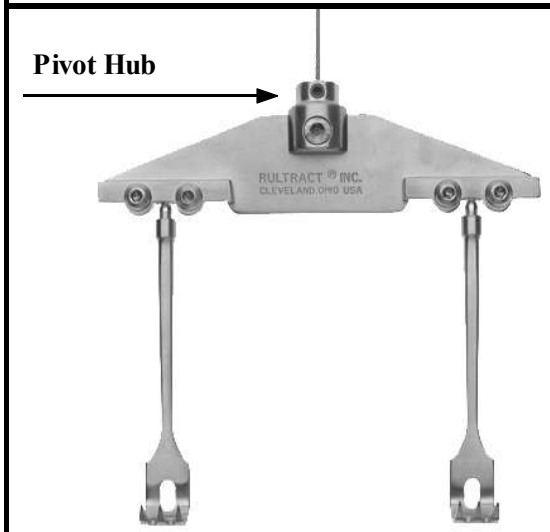
Fig. 09

DISASSEMBLE RATCHET FOR CLEANING (continued)

STEP 4 RAKE PLATE:

Rake Plate can be disconnected from Snap Clip

Do not disassemble Rake Plate from Pivot Hub



The following two items should not be removed. If these fasteners are removed a bolt retaining compound must be reapplied.

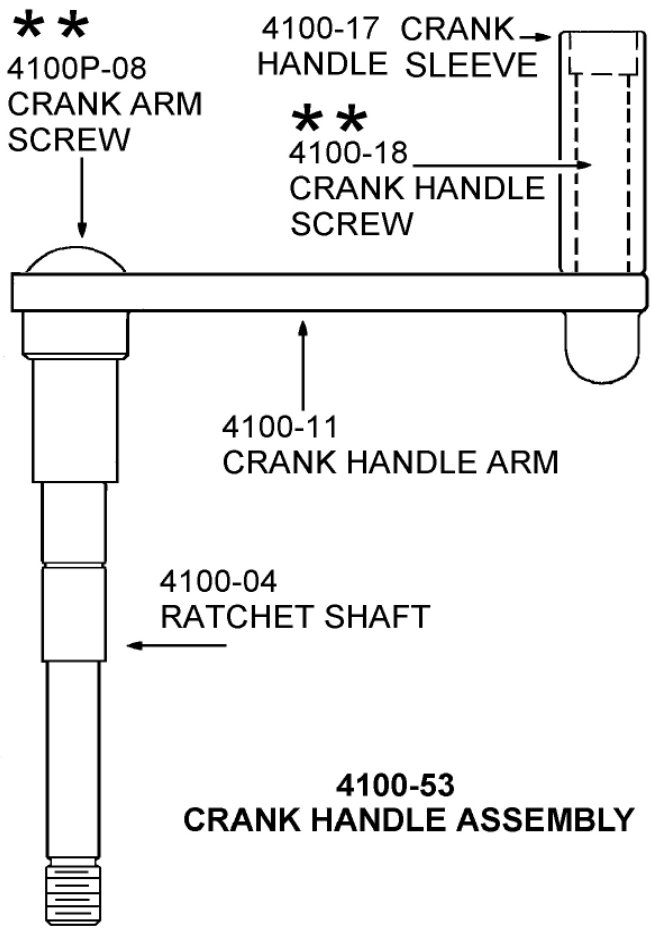
** 1 pc 4100-18 Crank Handle Screw to mount Crank Handle to Crank Arm.

** 1 pc 4100P-08 Crank Arm Screw to mount Crank Arm to Ratchet Shaft.

CAUTION:

Check and tighten all fasteners on the Ratchet/Rake Assembly.

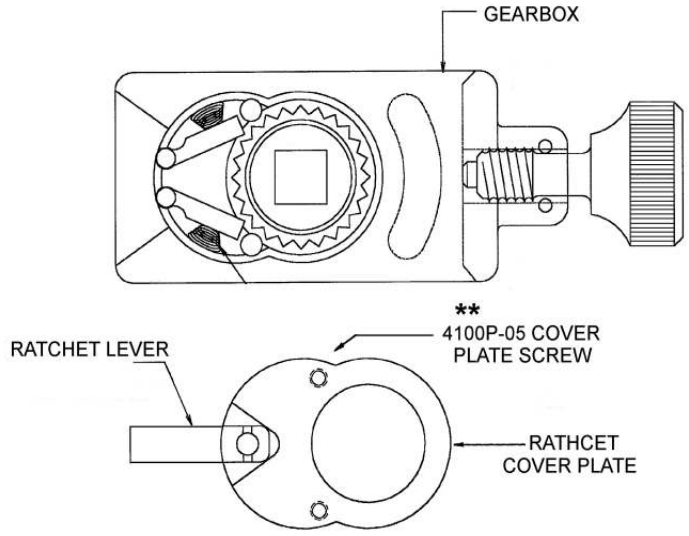
Failure to do so may result in components to loosen or disassemble during use.

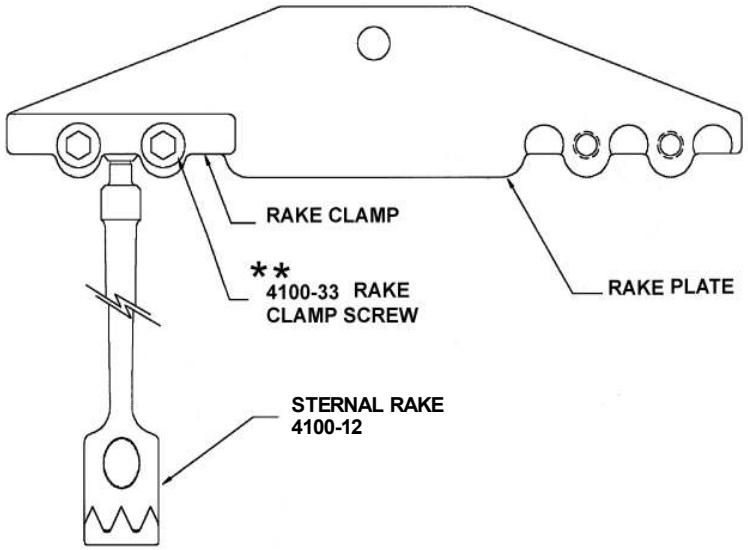


RATCHET/RAKE FASTENERS**: CHECK FOR TIGHTNESS PRIOR TO STERILIZATION**

** 2 pcs 4100P-05 Cover Plate Screw to retain the Cover Plate on the Gearbox.

** 4 pcs 4100-33 Rake Clamp Screw to mount Rake Clamps to Rake Plate.

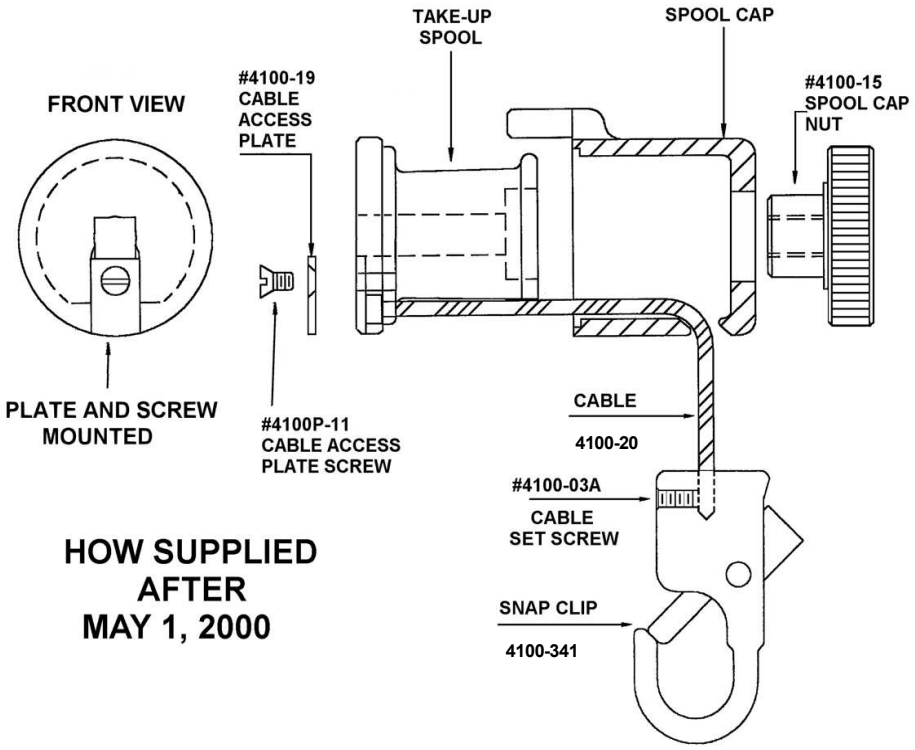




RATCHET/RAKE FASTENERS: CHECK FOR TIGHTNESS PRIOR TO STERILIZATION

** 1 pc 4100-15 Spool Cap Nut to retain Spool Cap Assembly.
** 1 pc 4100P-11 Cable Access Plate Screw to retain Cable Access Plate.
** 1 pc 4100-03A Cable Set Screw to retain Cable in hub.

SPOOL CAP ASSEMBLY



REASSEMBLE RATCHET FOR STERILIZATION AND USE

STEP 1
INSTALL CRANK HANDLE:

Slide the shaft of Crank Handle into square hole of Gearbox located above the Ratchet Lever (Fig. 01). Note: Both squared sections of the shaft must be completely inserted and flush in gearbox (Fig. 02).

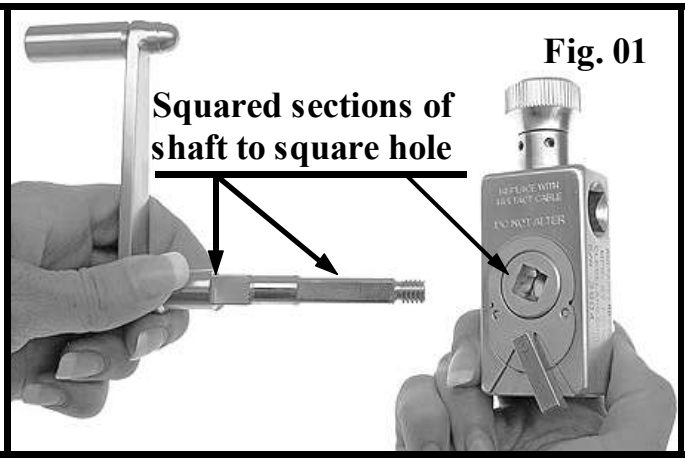


Fig. 01

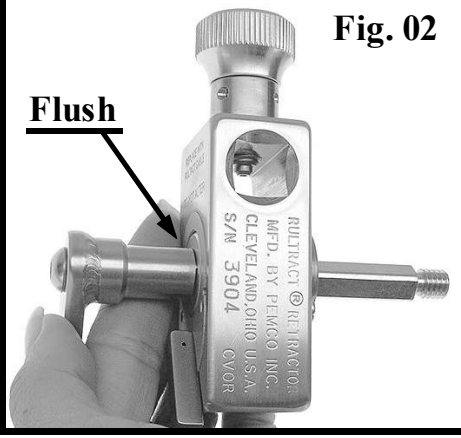


Fig. 02

STEP 2 REASSEMBLE SPOOL AND SPOOL CAP: Align the Cable Guide with the flat surface of the Spool (Fig. 03). Slide Spool and Spool Cap together (Fig. 04).

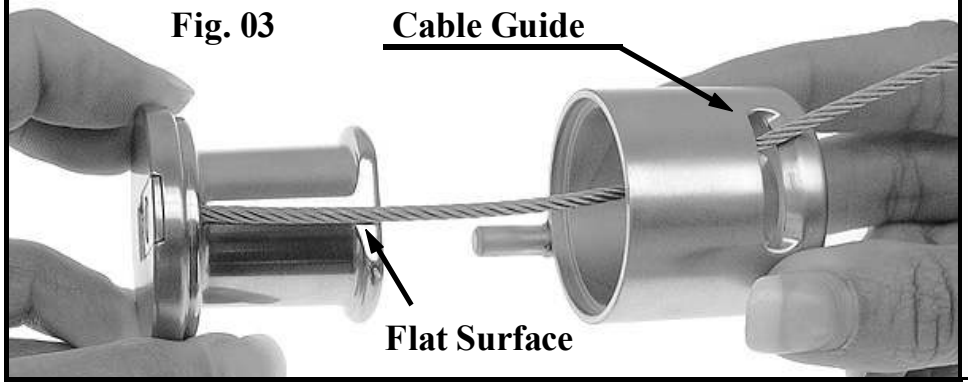


Fig. 03

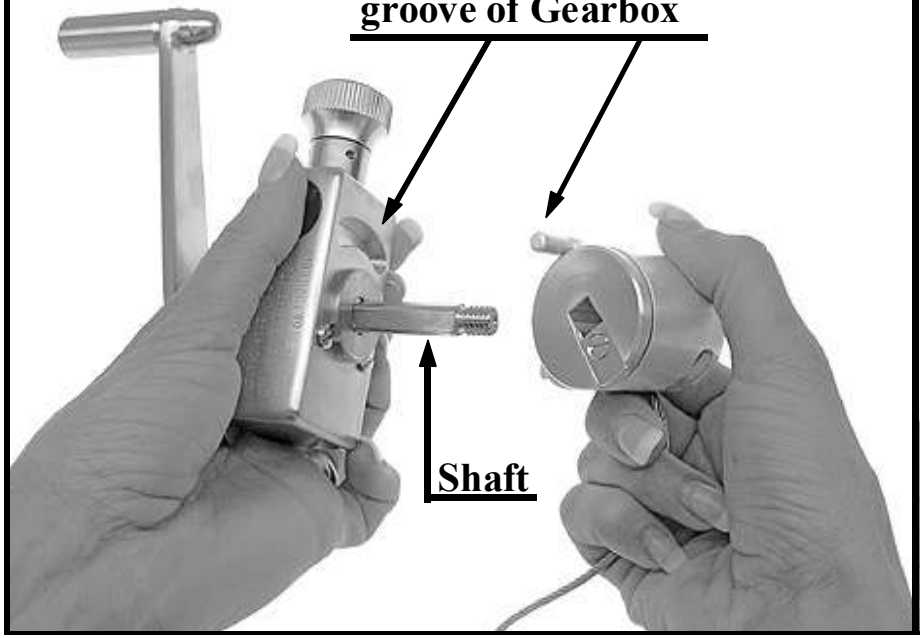
Fig. 04

Spool and Spool Cap Assembled

REASSEMBLE RATCHET FOR STERILIZATION AND USE (continued)

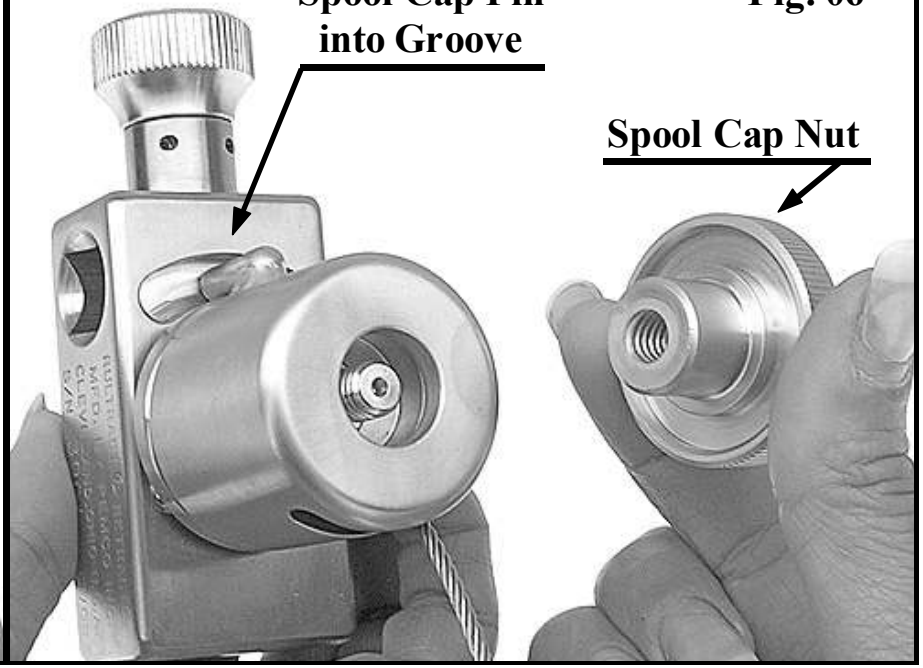
STEP 3 SPOOL CAP ASSEMBLY: While holding the Gearbox and Crank Handle together, line up Spool Cap Pin with the groove in the Gearbox. Slide the Spool Cap Assembly onto the shaft (Fig. 05).
Spool Cap Pin must be inserted into groove of Gearbox. While holding Crank Handle Assembly and Gearbox firmly, screw the Spool Cap Nut onto the shaft by turning clockwise. **Hand tighten securely (Fig. 06).**

Spool Cap Pin into groove of Gearbox **Fig. 05**



Spool Cap Pin into Groove **Fig. 06**

Spool Cap Nut



REASSEMBLE RATCHET FOR STERILIZATION AND USE (continued)

STEP 04 TEST WINDING FUNCTION:

Allow rake plate to hang freely.** Weight of Rake Plate allows for proper alignment of Cable on Spool. Total length of exposed cable is approximately 16 inches (Fig. 25). Note: Leave one to two inches of Cable exposed to prevent flexing of Cable on Cable Guide at insertion site (Fig. 26). This position protects the Cable from kinking and allows gas or steam to penetrate during sterilization.

DEMONSTRATION
PROPER ALIGNMENT OF CABLE ON SPOOL WHEN WOUND CORRECTLY.
Shown without Spool Cap

Fig. 25

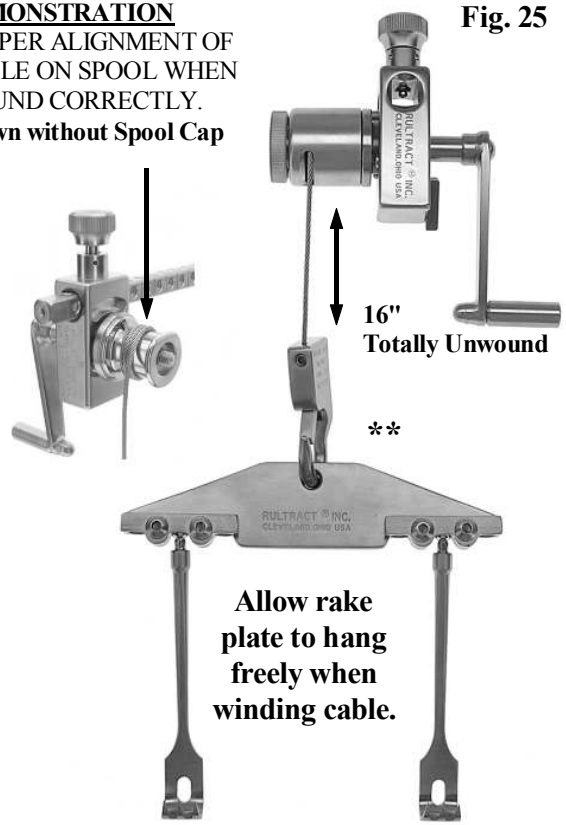
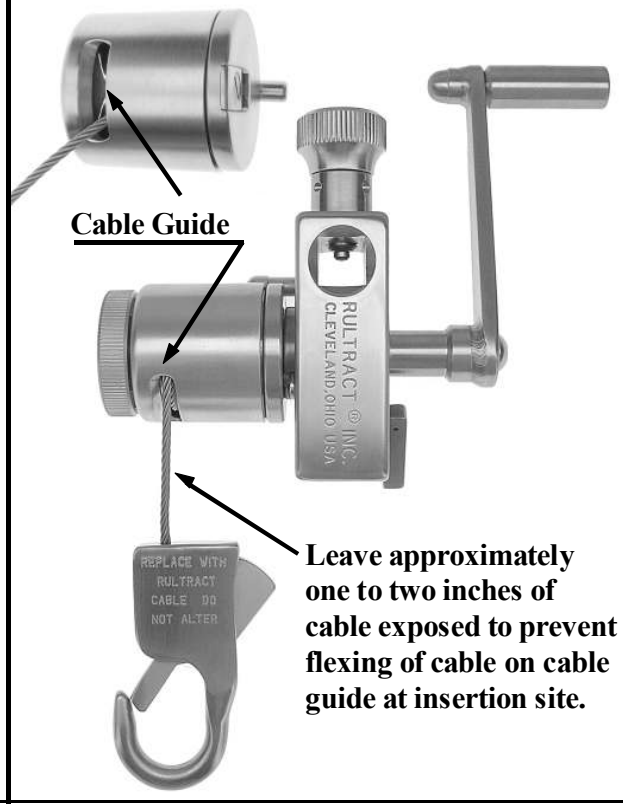


Fig. 26



STERILIZATION

The following are GUIDELINES for product sterilization.

The Rultract® retractor assembly is a reusable instrument. It is supplied non-sterile and must be cleaned and sterilized prior to initial use and all subsequent use.

This validated process should be considered as a guideline only. Time, temperature and other conditions required for sterilization may vary according to type of sterilizer, cycle design, wrapping material, and/or other hospital practices.

Sterilization containers must be validated by their manufacturer for use in sterilization process. Validated cycles should be indicated in the container's Instructions for Use.

You must validate your own sterilization practice when it differs from the Instructions for Use provided by the device, container or sterilizer manufacturer.

Recommendations for sterilization may be obtained from AAMI (Association for Advancement of Medical Instrumentation) at http://www.aami.org/

Rultract's Sterilization guidelines were validated by Biotest Laboratories Inc. of Minneapolis, Minnesota.
The guidelines are as follows:

Guidelines for Sterilization : Cable should be wound on spool prior to sterilization leaving approximately 1 1/2 to 2 inches exposed. The instruments may be sterilized by the following steam sterilization methods: prevacuum, flash, and steam (gravity) wrapped. The following cycles were verified utilizing a combination of metal instruments and/or metal instruments in a common sterilization tray with a mass up to 40 pounds (18 kg). The wrapped instruments were wrapped with non-woven single use Steriwrap™. (manufactured by Proper).

Option 1: Wrapped instruments	Pre-vacuum Sterilization Parameters (Minimum time and temperature): Temperature 132°C (270°F) Exposure Time 4 minutes
Option 2: Wrapped instruments	Steam (Gravity) Sterilization Parameters (Minimum time and temperature): Temperature 121° C (250°F) Exposure Time 30 minutes
Option 3: Unwrapped instruments	"Flash" Sterilization Parameters (Minimum time and temperature): Temperature 132° C (270°F) Exposure Time 3 minutes

CAUTION: Disassemble unit prior to cleaning. The spool cap nut must be unscrewed to separate the spool, spool cap, crank handle assembly and gearbox assembly. ***It is not necessary to remove fasteners or roll pins for proper cleaning and sterilization.*** Further disassembly is not necessary and may void guarantee.

RULTRACT® RETRACTOR CABLE REPLACEMENT INSTRUCTIONS

Rultract, Inc. is the ONLY authorized service center in the U.S.A.

When your Rultract® instrument needs repair or service, contact Rultract Inc. or Rultract® distributor for the location of an authorized service center. All instruments must be decontaminated before being returned for service. Repair charges will apply to instruments repaired outside the warranty. **Any modification or alteration by user will void all warranties and release Rultract® from any liability.**
Recommended Factory Service Every 12-18 Months.

LOANER EQUIPMENT AVAILABLE: CONTACT RULTRACT® FOR DETAILS

HANDLING OF RULTRACT® RETRACTOR CABLE

WARNING:

Cables worn or damaged through mishandling must be replaced with a **new Rultract® Cable**. Do not attempt to repair, cut, alter or modify the Cable in any way. **Cutting and reattaching the Cable will cause it to weaken and fray. This will result in failure during use.**

CAUTION:

** **Always allow rake plate to hang freely when winding Cable.** The weight of Rake Plate allows for proper alignment of Cable on Spool. Failure to allow the Rake Plate to hang freely may cause the Cable to kink during winding. Leave approximately one to two inches of Cable exposed to prevent flexing of Cable on Cable Guide at insertion site.

CAUTION:

Always insert spool cap pin into the groove of the gearbox. Failure to do so may result in disassembly or damage to the unit.

STEP 1 UNWIND CABLE: While holding the Ratchet by the Spool Cap Assembly, shift Ratchet Lever to reverse direction (Fig. 01). Pull down on Snap Clip or Rake Plate Assembly **to completely unwind the cable, approximately 16" (Fig. 02).** If cable is jammed or will not unwind freely, proceed to the next step and remove the Spool Cap Assembly.
Note: Worn or Damaged cable must be replaced at this time with a new Rultract® Cable.

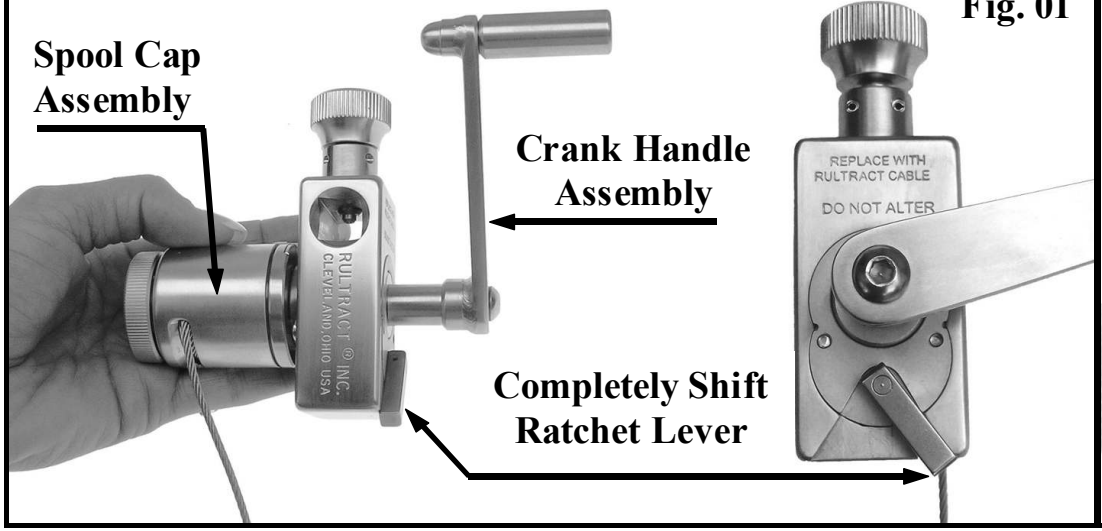


Fig. 01

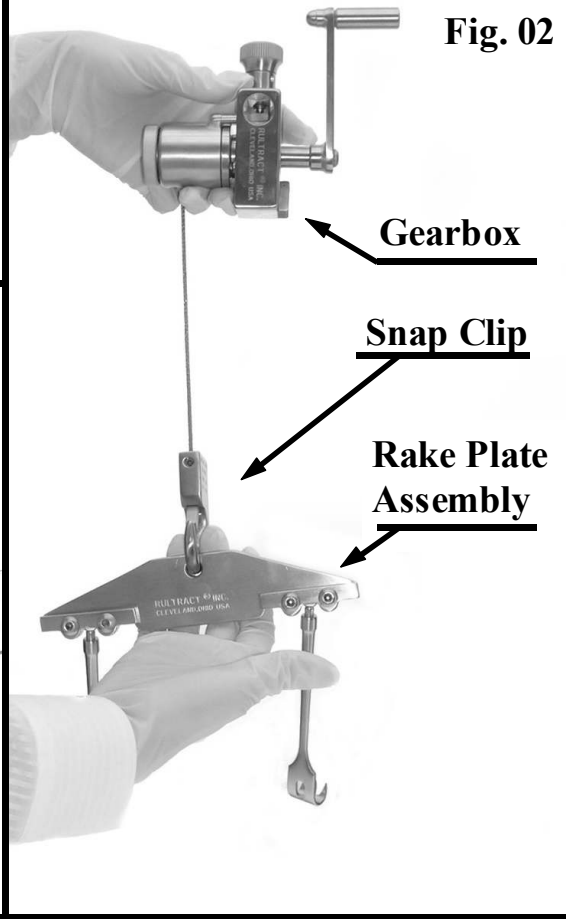


Fig. 02

STEP 2 REMOVE SPOOL CAP AND CRANK HANDLE ASSEMBLY:
Holding the Crank Handle Assembly as shown, unscrew and remove the Spool Cap Nut using a counter clockwise rotation (Fig. 03 & 04). Slide Spool Cap Assembly from shaft of Crank Handle Assembly (Fig. 05). Slide Crank Handle Assembly out of Gearbox. At this time, note square of shaft and square hole in Gearbox (Fig. 06).

Fig. 03

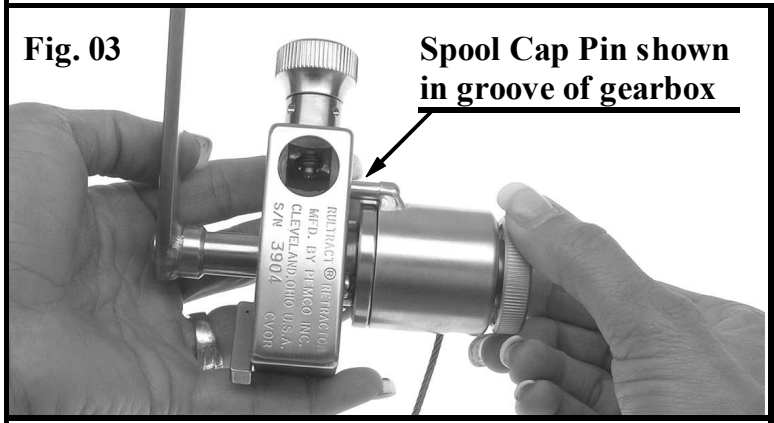


Fig. 04

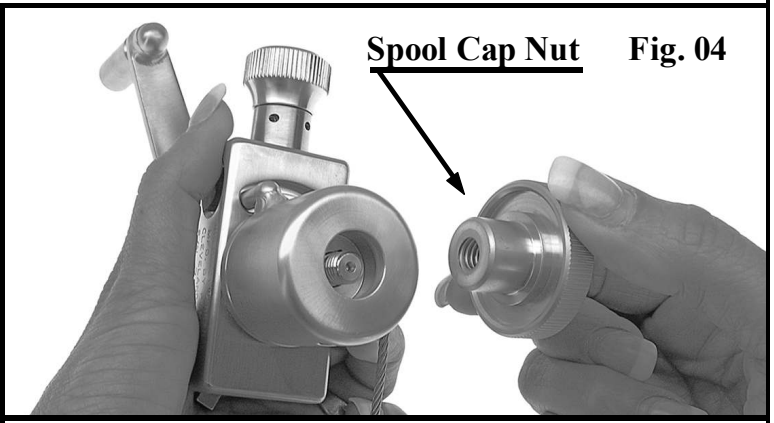


Fig. 05

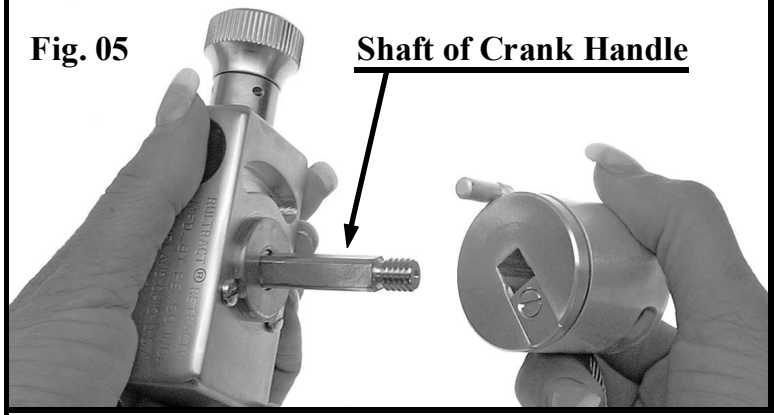
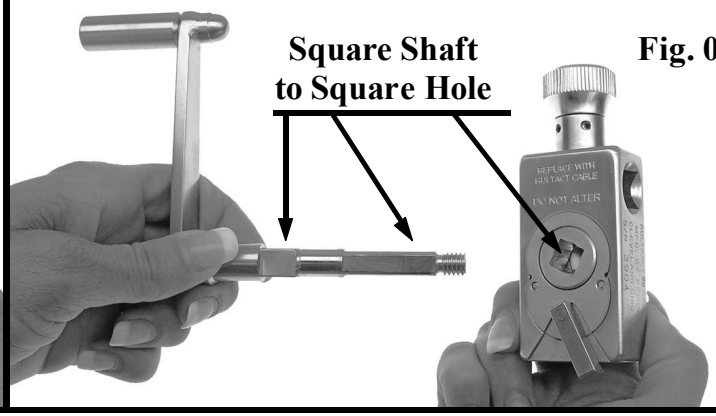


Fig. 06



CAUTION: Always insert spool cap pin into the groove of the gearbox. Failure to do so may result in disassembly or damage to the unit.

STEP 3 REMOVE CABLE FROM PIVOT HUB OR SNAP CLIP:
With Cable completely unwound, hold Pivot Hub or Snap Clip in one hand. Insert 1/8" allen wrench (supplied with cable replacement pack) into Cable Set Screw (Fig. 07 or 08). Loosen a minimum of two full turns. It is not necessary to completely remove set screw. To remove Cable, hold the Spool Cap Assembly in one hand and pull on hub (Fig. 09). Note: Set Screw has created an upset in the existing cable (Fig. 10).
WARNING: Always wear eye protection when removing cable.

Fig. 07

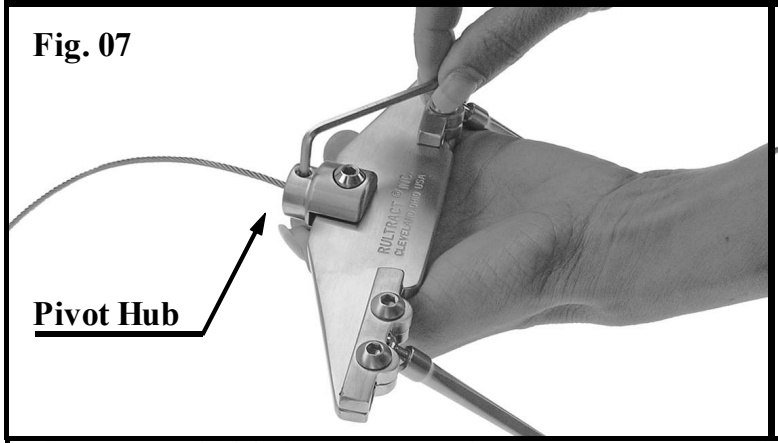


Fig. 08

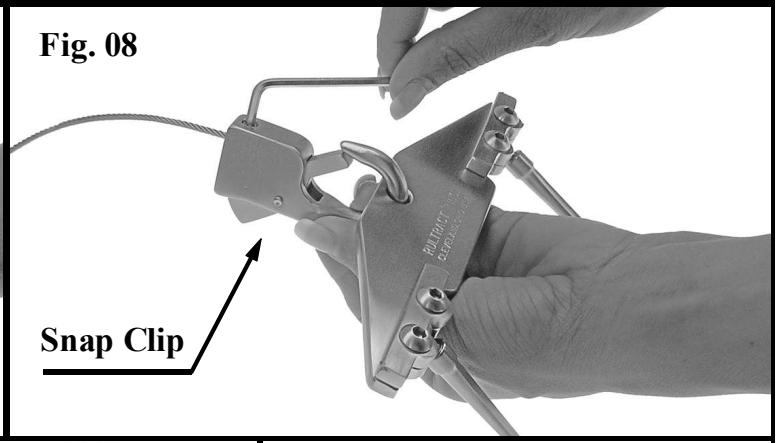


Fig. 09 **PULL TO REMOVE**

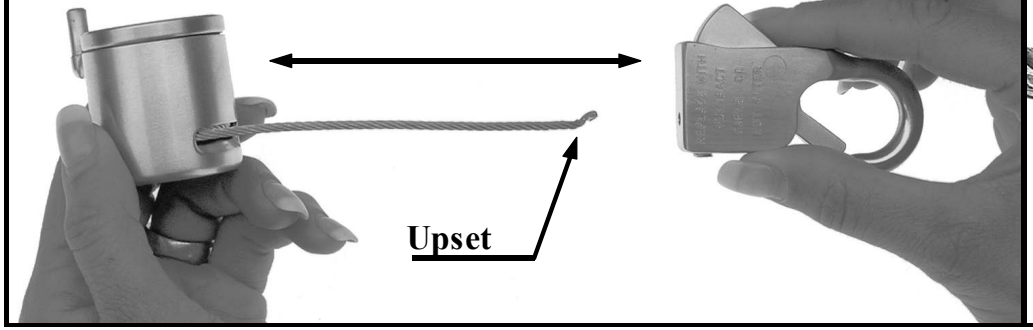
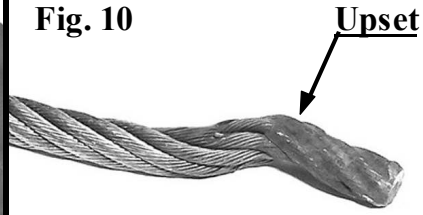


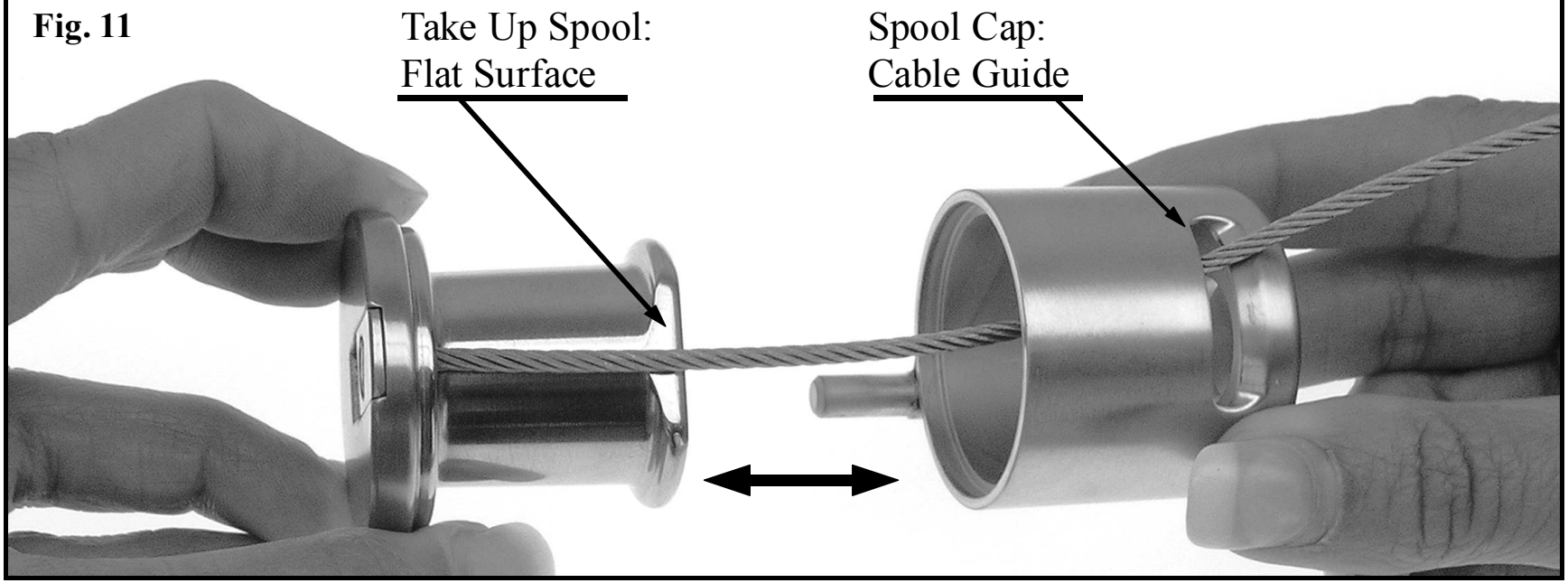
Fig. 10



Existing Cable Upset

STEP 4 SEPARATE SPOOL CAP AND TAKE UP SPOOL:
Pull Cable completely through the Spool Cap cable guide (Fig. 11). At this time note the flat surface of the Spool.

Fig. 11



STEP 5 REMOVE CABLE FROM SPOOL:
While holding the Spool, remove the Cable Access Plate Screw and Cable Access Plate (Fig. 12). Note: Orientation of Cable Access Plate and screw, flush with all surfaces. Cable Bushing is seated in Spool (Fig. 13). Pull Cable through the hole (Fig. 14).

Cable Access Screw and Plate

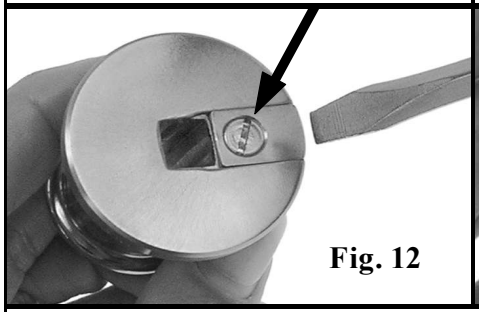


Fig. 12

Cable bushing seated in Spool

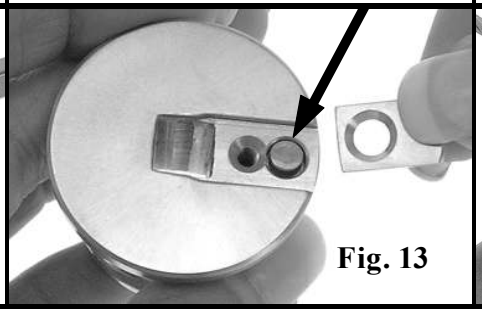


Fig. 13

Direction of pull

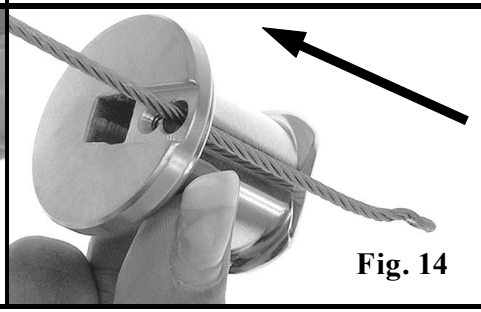


Fig. 14

STEP 6 INSTALL CABLE:
Insert tip of a **new Rultract® cable** through the same hole (Fig. 15). Assure the Cable Bushing is properly seated. Replace the Cable Access Plate (**recess side up**) and loosely insert Cable Access Plate Screw. Push outer edge of Cable Access Plate inward when tightening screw (Fig. 16). This will assure the edge of the Cable Access Plate is flush with the edge of the Spool. Note: After Cable Access Plate is tightened, cable must spin freely **(**Fig. 17).

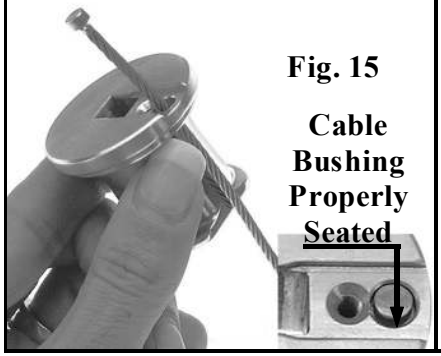


Fig. 15

Cable Bushing Properly Seated

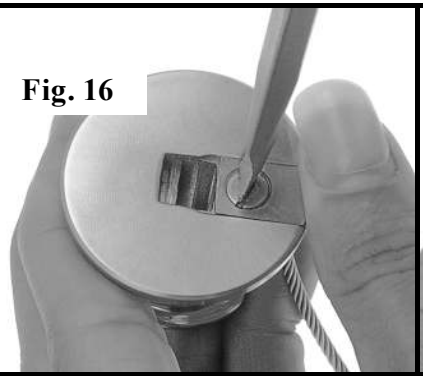
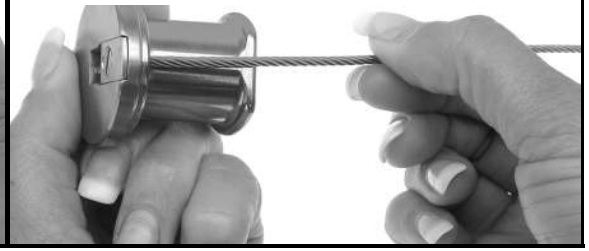


Fig. 16

Cable must spin freely **Fig. 17**



STEP 7 REASSEMBLE SPOOL CAP AND SPOOL:
Insert **new Rultract® Cable** into largest opening of Spool Cap and through the Cable Guide (Fig. 18). Align the Cable Guide with the flat surface of the Spool and slide the two pieces together (Fig. 19).

Fig. 18

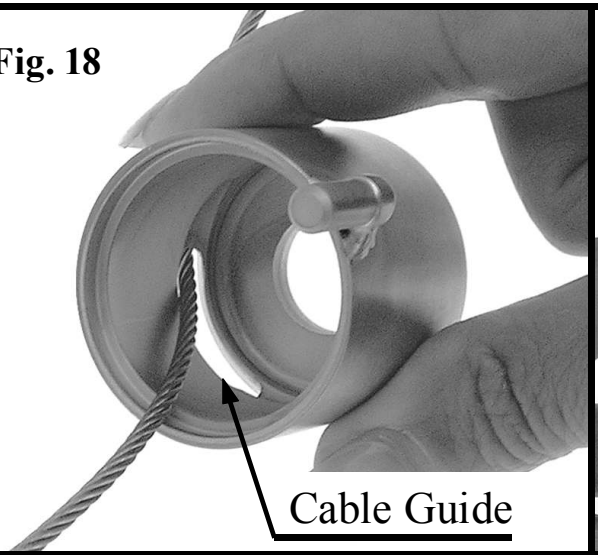
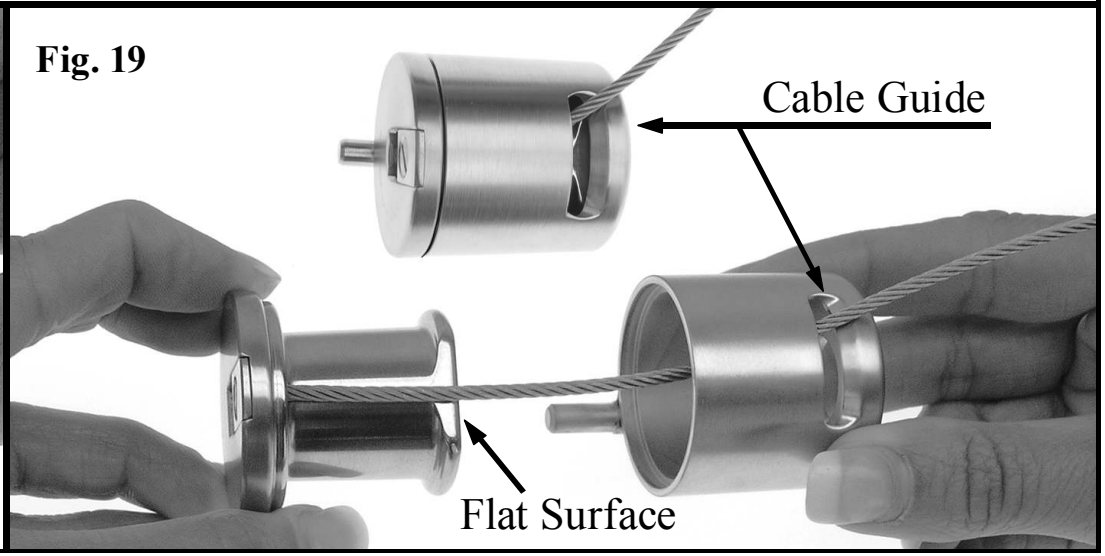


Fig. 19



STEP 8 INSTALL CRANK HANDLE ASSEMBLY, SPOOL CAP AND SPOOL CAP NUT:

Slide the shaft of the Crank Handle Assembly into Gearbox by inserting the squared end into the square hole located above the Ratchet Lever (Fig. 20). Note: Both squared sections of the shaft must be completely inserted and flush. While holding the Gearbox and Crank Handle together, line up Spool Cap Pin with the groove in the Gearbox. Slide the Spool Cap Assembly onto the shaft (Fig. 21). Spool Cap Pin must be inserted into groove of Gearbox. While holding Crank Handle Assembly and Gearbox firmly, screw the Spool Cap Nut onto the shaft by turning clockwise. **Hand tighten securely (Fig. 22).**

Fig. 20

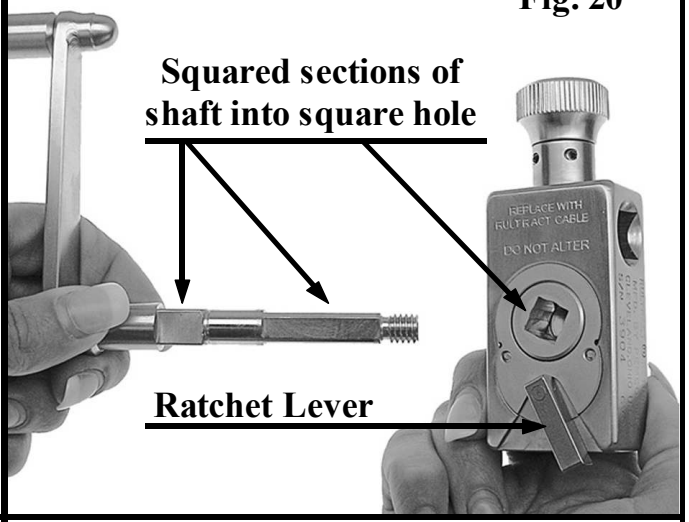


Fig. 21

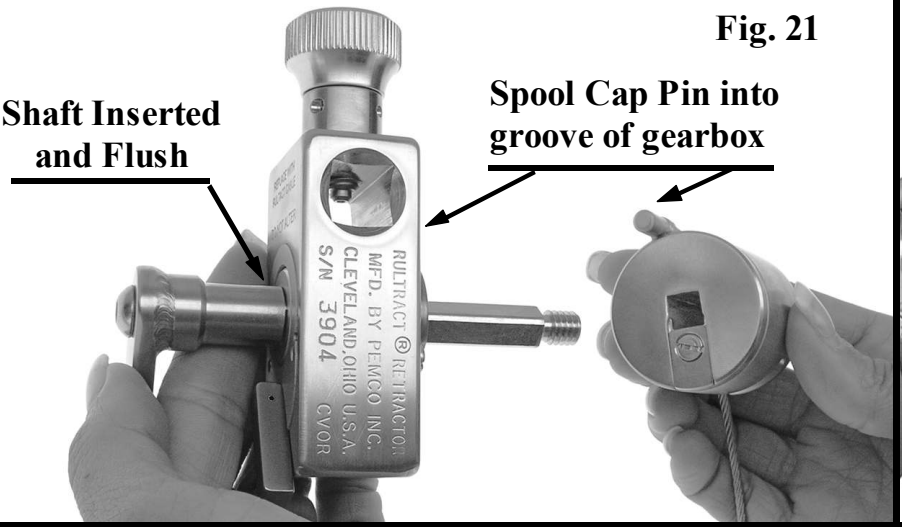
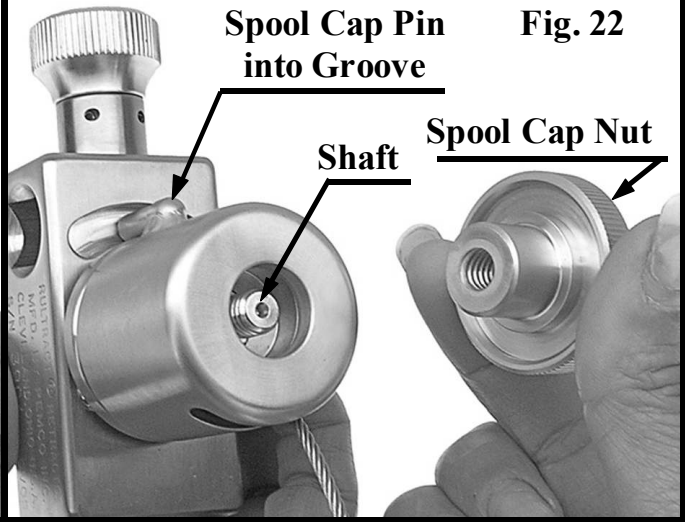


Fig. 22



STEP 9 CABLE INSERTION INTO SNAP CLIP OR PIVOT HUB:

Insert the **new Rultract® cable** completely into the hole until it stops, approximately 1/2" deep. **Make sure set screw is not blocking cable (Fig 23).** Proper tightening of the cable will require some force to compress the cable. Holding the rake plate securely will give the correct amount of leverage. Turn set screw until it makes contact with the cable. **Note** position of allen wrench and tighten set screw 1 to 1 1/2 turns (Fig. 24). Proper tightening of the set screw creates an **upset,** which properly retains the cable. Once the set screw has been tightened do not reposition cable.

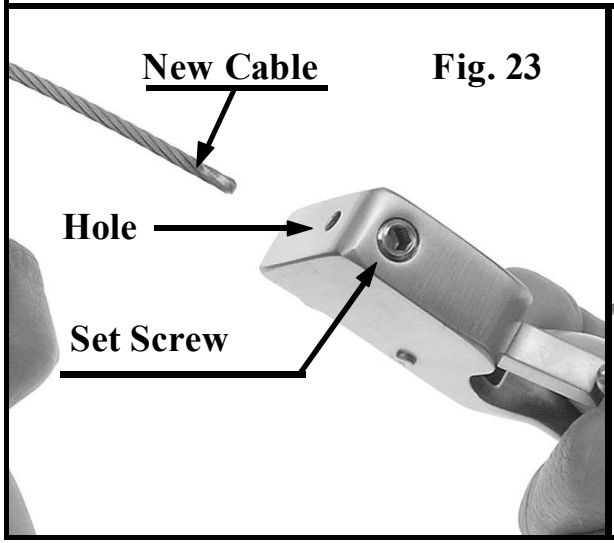


Fig. 23

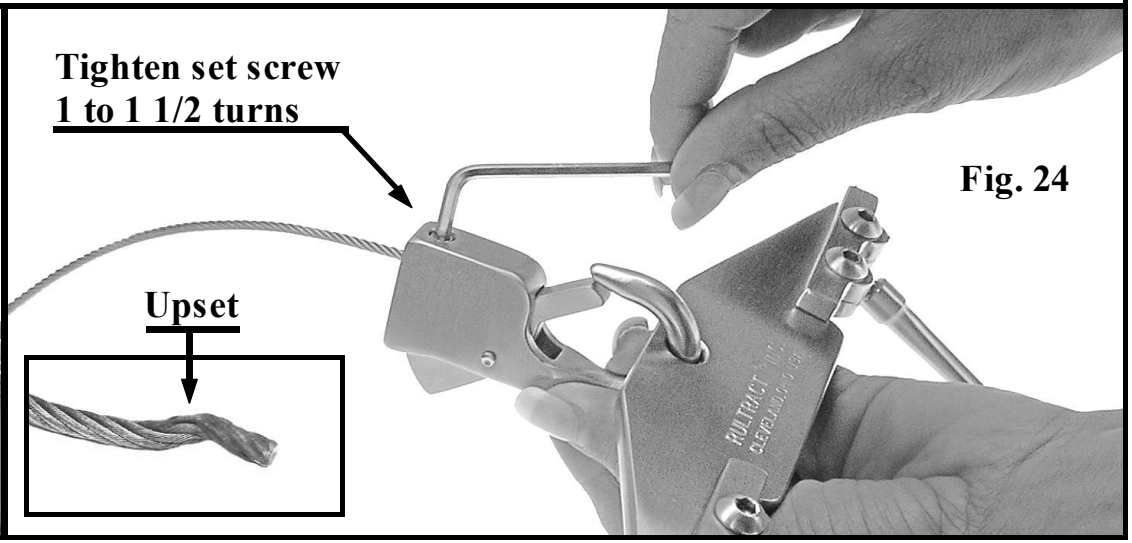


Fig. 24

STEP 10 TEST WINDING FUNCTION:

Allow rake plate to hang freely.** Weight of Rake Plate allows for proper alignment of Cable on Spool. Total length of exposed cable is approximately 16 inches (Fig. 25). Note: Leave one to two inches of Cable exposed to prevent flexing of Cable on Cable Guide at insertion site (Fig. 26). This position protects the Cable from kinking and allows gas or steam to penetrate during sterilization.

DEMONSTRATION
PROPER ALIGNMENT OF CABLE ON SPOOL WHEN WOUND CORRECTLY.
Shown without Spool Cap

Fig. 25

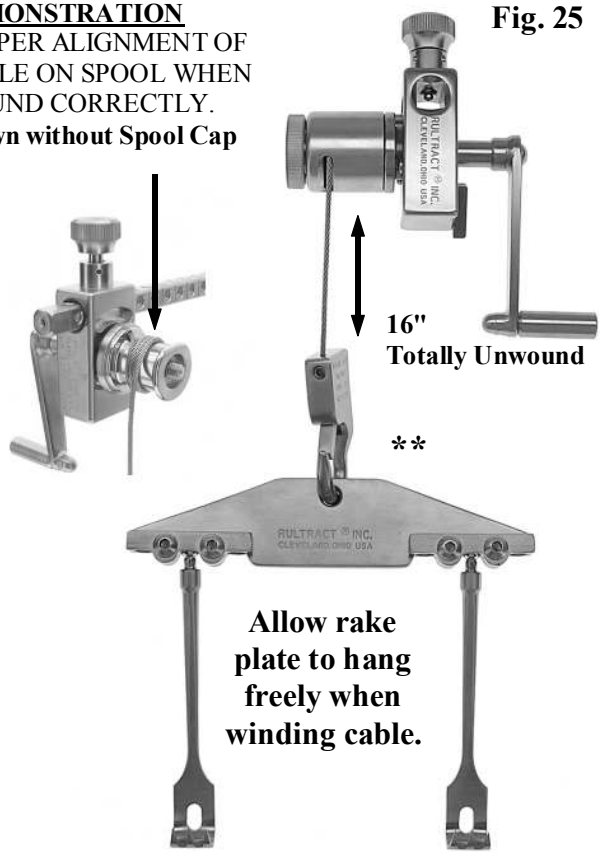
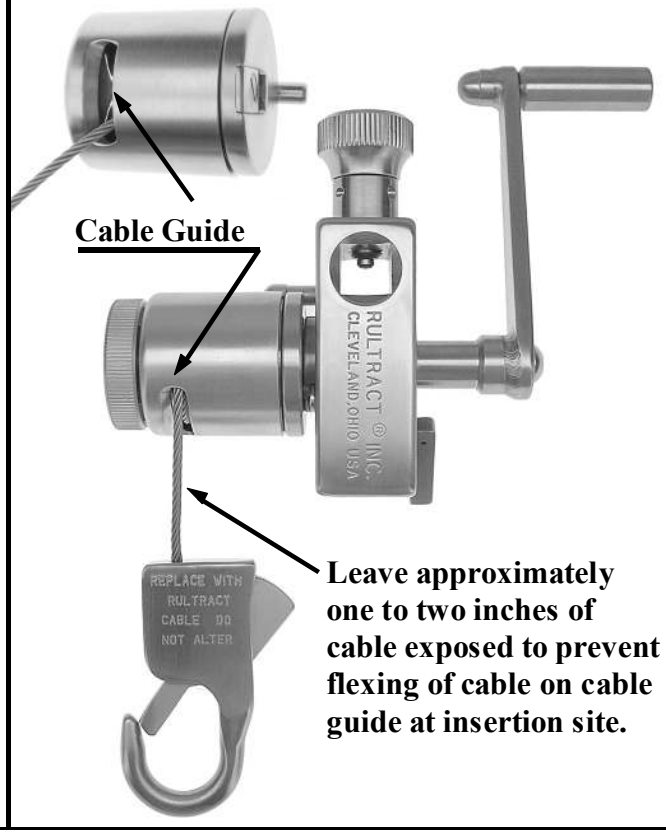


Fig. 26



ACCESSORY RAKES

4100-60A	4100-60B	4100-60C	4100-60D
			
Blunt Tip, Shallow Reach Rib Rake, with 3 blunt tips 3/32 x 3/4 Stem 6" long	Blunt Tip, Deep Reach, Rib Rake, with 4 blunt tips 3/32 x 1 1/8 Stem 6 1/2" long	Blunt Tip, Medium Reach, Rib Rake, with 3 blunt tips 3/32 x 1 1/8 x 2 3/8 Stem 6 3/4" long	Blunt Tip, Long Reach, Rib Rake, with 3 blunt tips 3/32 x 1 1/8 x 3 3/8 Stem 6 3/4" long

ACCESSORY RAKES

4100-70	4100-71	4100-72	4100-73	4100-74	4100-75
					
Dull Tip, Short Blade 1/8 x 1 1/2 x 1 1/2 Stem 6 1/4" long	Dull Tip, Long Blade 1/8 x 1 x 2 Stem 6" long	Dull Tip, Narrow Blade 5/32 x 5/8 x 1 1/2 Stem 5 1/4" long	Dull Tip, Narrow Blade 5/32 x 5/8 x 2 1/2 Stem 5 1/4" long	Sharp Tip, Dual Prong Facilitates Scope 1/8 x 1 x 1 Stem 6" long	Blunt Tip, Single Prong 5/32 x 5/8 x 1 1/2 Stem 5 1/4" long

ACCESSORY RAKES

	4100-60AS Short, with 3 sharp tips Full radius, 3/32 x 3/4 Stem 2 1/4" long	**Rultract® Skyhook Interchangeable** **<u>Pediatric Rakes</u>**
4100-60P-01	4100-60P-02	4100-60P-03
		
Short Stem, with 3 blunt tips Full radius, 3/32 x 3/4 Stem 2 1/4" long	Short Stem, with 3 sharp tips No radius, 3/32x 3/4 Stem 2 1/4" long	Short Stem, with 2 blunt tips Full radius, 1/8x 1/2 Stem 2 1/4" long
4100-60P-04	4100-60P-05	4100-60P-06
		
Single prong, blunt tip Full radius, 1/8x 1/2 Stem 4" long	Single prong, blunt tip Right angle bend, 1/8x 3/8 Stem 4" long	Single prong, blunt tip Full Radius, 1/8x 5/16 Stem 4 5/8" long

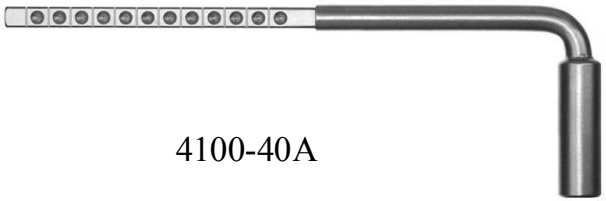
ACCESSORIES

4100-52D	Sternal Rake Plate Assembly, dull tip
4100-40A	Square Short Top Post - 13 ½" x 5" long (square insert)
4100-40AS	Spline Short Top Post - 13 ½" x 5" long (spline insert)
4100-40B	Right Angle Extender Bar w/Lateral Guide (9" rise and 5 ½" extension)

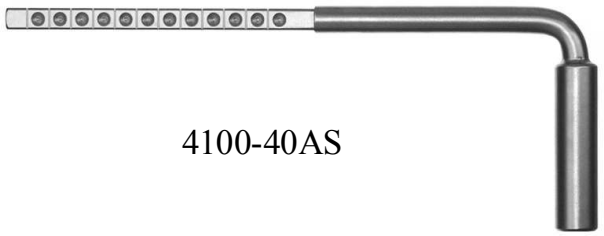
Cleaning:

- No disassembly required.

4100-52D



4100-40A



4100-40AS

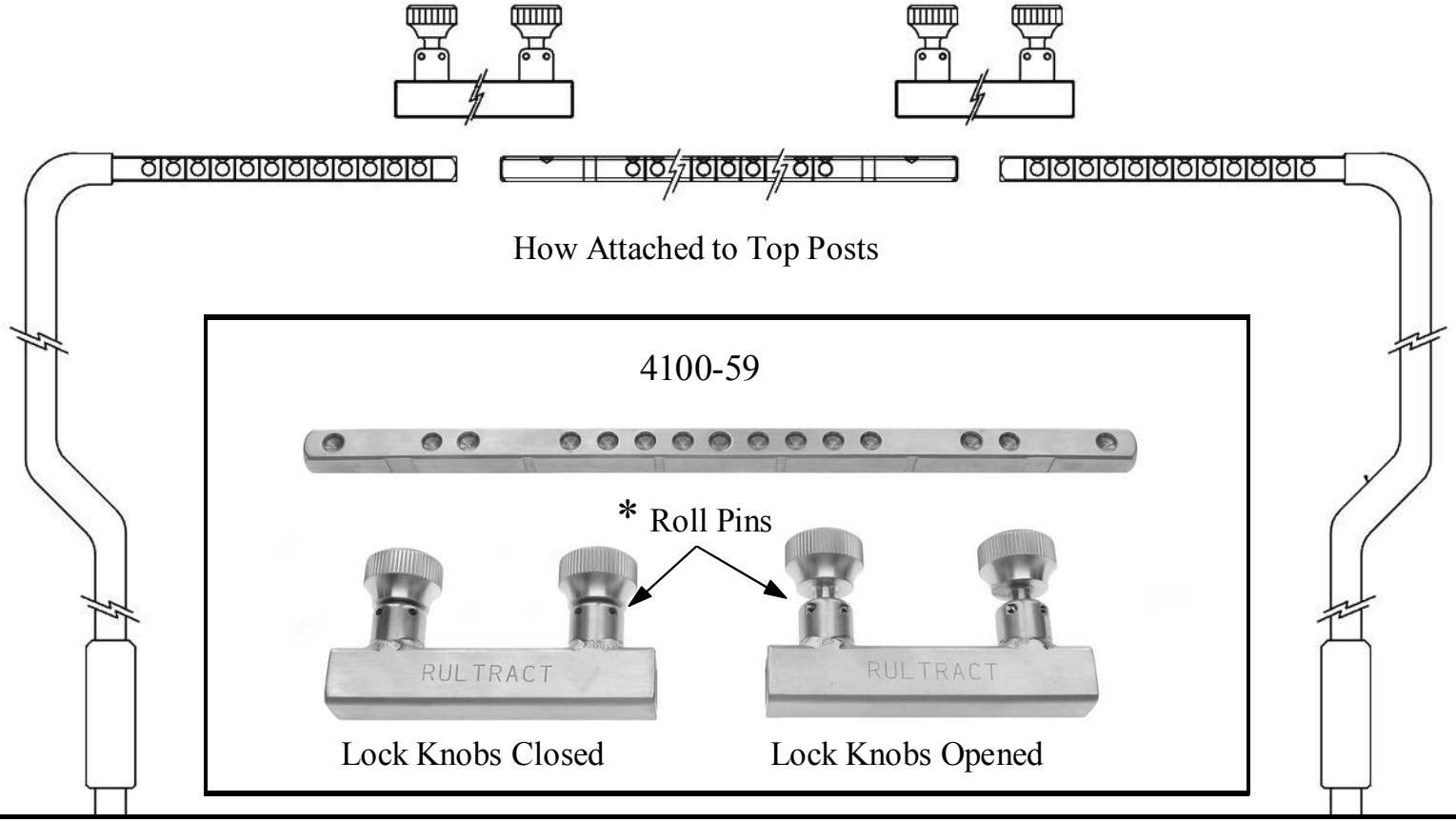
4100-40B

Lateral Pull Guide

ACCESSORIES

Coupler
4100-59 Coupler Assembly

Cleaning:
Do not disassemble
Do not remove retaining roll pins*
Back out (open) the non-removable Lock Knob



How Attached to Top Posts

4100-59

Lock Knobs Closed Lock Knobs Opened

ACCESSORIES

Ring Rakes

4100-12R Sternal Ring Rake, Sharp Tip
4100-12RD Sternal Ring Rake, Dulled Tip

Cleaning:
No Disassembly Required

4100-12R

4100-12RD

REPLACEMENT PARTS

Ball End Rakes

4100-12 Sternal Rake, Sharp Tip
4100-12D Sternal Rake, Dulled Tip

Cleaning:
No Disassembly Required

4100-12

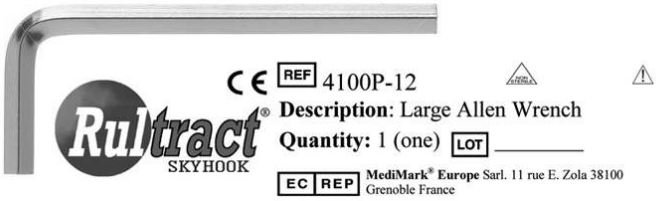
4100-12D

REPLACEMENT PARTS

4100P-12	Large Allen Wrench - 5/32"
4100P-13	Small Allen Wrench - 1/8"
4100-20	Cable Replacement (allen wrench included)
4100-20P	Cable Replacement Pack, 3 each (allen wrench included) NOT SHOWN

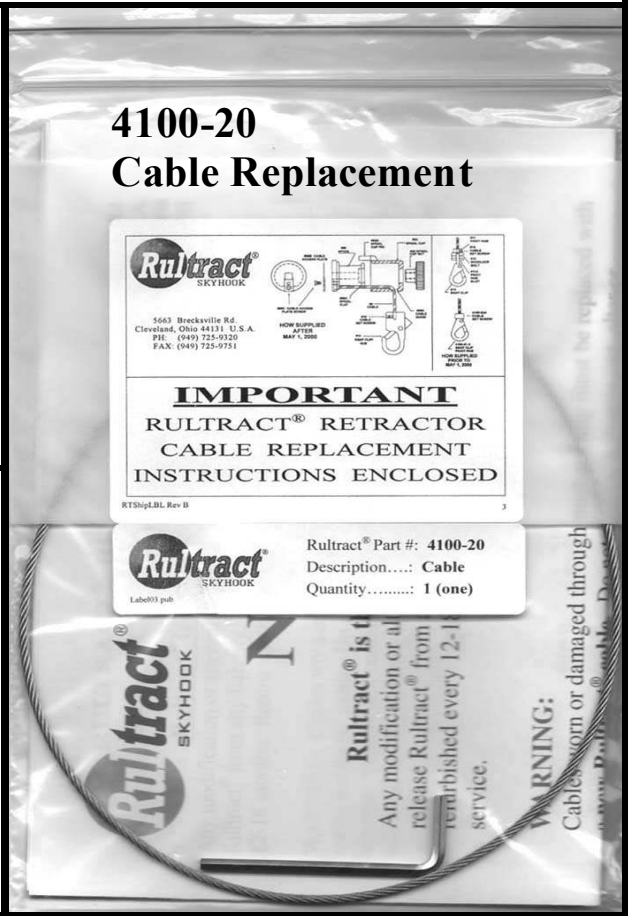
NOTE:
ALL REPLACEMENT CABLES ARE 18" LONG.
INSTALLED AND UNWOUND CABLE EXPOSED 16" LONG.

4100P-12
Large Allen Wrench
One per pack



4100P-13
Small Allen Wrench
One per pack

4100-20
Cable Replacement



REPLACEMENT PARTS

4100-0341 Snap Clip
Includes: (1) Snap Clip
(1) Rultract Cable
(1) Large Allen Wrench - 5/32"
(1) Small Allen Wrench - 1/8"

NOTE:
ALL REPLACEMENT CABLES ARE 18" LONG.
INSTALLED AND UNWOUND
CABLE EXPOSED 16" LONG.

	RATCHET ASSEMBLY and RAKES (Ball End)	Weight Kg	Weight Lbs
4100-IMR-6	Ratchet / Rake Assembly with Snap Clip	1.426	3.140
4100-IMR-41	Ratchet Assmbly with Snap Clip	1.070	2.380
4100-12	Sternal Rake, sharp tip, replacement rake for #4100-52	0.040	0.009
4100-12D	Sternal Rake, dull tip, replacement rake for #4100-52D	0.040	0.009
4100-52	Sternal Rake Plate Assembly, sharp tip	0.349	0.770
4100-52D	Sternal Rake Plate Assembly, dull tip (Special Order)	0.349	0.770
	RULTRACT® Skyhook POSTS	**Weight Kg**	**Weight Lbs**
4100-08	One Piece Post - 9 ½" x 30" long (round base)	1.420	3.150
4100-08R	One Piece Post with Rotating Square Bar - 11 x 30" long (round base)	1.750	3.870
4100-32A	Square Top Post - standard length, 9 ½" x 18" long (square insert)	1.060	2.370
4100-32AL	Square Top Post - extended length, 9 ½" x 22" long (square insert)	1.220	2.690
4100-32AS	Spline Top Post - standard length, 9 ½" x 19" long (spline insert)	1.100	2.410
4100-32ALS	Spline Top Post - extended length, 9 ½"x 23" long (spline insert)	1.260	2.800
4100-32AT	Square Tilting Top Post - 12 ½" x 20" long (square insert)	1.800	3.980
4100-32AST	Spline Tilting Top Post - 12 ½" x 21" long (spline insert)	1.850	4.070
4100-40A	Square Short Top Post - 13 ½" x 5" long (square insert)	0.570	1.250
4100-40AS	Spline Short Top Post - 13 ½" x 5" long (spline insert)	0.690	1.530
4100-32C	Square Tip Bottom Post w/ collar, (round base) 5/8" Dia. x 20" long	0.780	1.730
4100-32CS	Spline Tip Bottom Post w/ collar (square base) 5/8" Dia. x 20" long	0.700	1.540
4100-28C	Square Tip Double Bend Bottom Post - 5/8" Dia. x 18" long	0.740	1.600
4100-28CS	Spline Tip Double Bend Bottom Post - 5/8" Dia. x 18" long	0.740	1.630
	RULTRACT® Skyhook TABLE CLAMPS	**Weight Kg**	**Weight Lbs**
4110	Round Base Combination Clamp	1.240	2.730
4110-S	Square Base Combination Clamp	1.240	2.740
4150-S	Spline Tip, Double Bend Post/Clamp, Scrub Applied - 19" long	1.750	3.852
4160-S	Spline Tip, Double Bend Post/Clamp, Circulator Applied - 20" long	1.610	3.544
4150	Square Tip, Double Bend Post/Clamp, Scrub Applied - 19" long	1.740	3.842
4160	Square Tip, Double Bend Post/Clamp, Circulator Applied - 20" long	1.600	3.536

	RULTRACT® Skyhook EXTENDER BARS and COUPLERS	Weight Kg	Weight Lbs
4100-39S	Extender Bar w/ Cross Square (6 1/2" extension)…	0.356	0.780
4100-39TS	Rotating Extender Bar w/Cross Square (2" rise w/ 8" extension)	0.704	1.550
4100-39R	Riser Extender Bar w/Cross Square (4" rise and 8" extension)	0.630	1.380
4100-40B	Right Angle Extender Bar w/Lateral Guide (9" rise and 5 ½" extension)	0.840	1.840
4100-59-07	Coupler Assembly, (7" bar between top posts)	0.800	1.730
4100-59-08	Coupler Assembly, (8 ¼" bar between top posts)	0.850	1.870
4100-59-11	Coupler Assembly, (11 ¼" bar between top posts)	0.935	2.060
	RULTRACT® Skyhook ACCESSORY RAKES (Ring End)	**Weight Kg**	**Weight Lbs**
	MINIMALLY INVASIVE RAKES: Purchase as set or individual		
4100-60A	Blunt Tip Shallow Reach Rib Rake, 3/32" thick x 3/4" w/ radius end	0.045	0.100
4100-60B	Blunt Tip Deep Reach Rib Rake, 3/32" thick x 1 1/8" w/ radius end	0.028	0.170
4100-60C	Blunt Tip Medium Reach Rake, 3/32" thick x 1 1/8" x 1 3/8" reach	0.092	0.200
4100-60D	Blunt Tip Long Reach Rake, 3/32" thick x 1 1/8" x 2 3/8" reach	0.102	0.224
	PEDIATRIC RAKES	**Weight Kg**	**Weight Lbs**
4100-60AS	Short stem with 3 sharp tips, full radius, 3/32" thick x 3/4" wide w/ radius end	0.023	0.052
4100-60-P01	Short stem with 3 blunt tips, full radius, 3/32" thick x 3/4" wide w/ radius end	0.023	0.052
4100-60-P02	Short stem with 3 sharp tips, no radius, 3/32" thick x 3/4" wide w/ squared end	0.031	0.068
4100-60-P03	Short stem with 2 blunt tips, full radius, 1/8" thick x 1/2" wide w/ radius end	0.025	0.056
4100-60-P04	Single prong, blunt tip, full radius, 1/8" thick x 1/2" wide w/ radius end	0.038	0.084
4100-60-P05	Single prong, blunt tip, right angle bend, 1/8" thick x 3/8" wide 2" reach	0.042	0.094
4100-60-P06	Single prong, blunt tip, full radius, 1/8" thick x 5/16" wide w/ radius end	0.028	0.062
	XIPHOID RAKES	**Weight Kg**	**Weight Lbs**
4100-70	Dull Tip, Short Blade Xiphoid Rake, 1/8" thick x 1 1/2" x 1 1/2" reach	0.083	0.182
4100-71	Dull Tip, Long Blade Xiphoid Rake, 1/8" thick x 1" x 2" reach	0.073	0.162
4100-72	Dull Tip, Narrow Blade Xiphoid Rake, 5/32" thick x 5/8" x 1 1"/2 reach	0.103	0.228
4100-73	Dull Tip, Narrow Blade Xiphoid Rake, 5/32" thick x 5/8" x 2 1/2" reach	0.102	0.224
4100-74	Sharp Tip, Dual Prong Xiphoid Rake, facilitates scope. 1/8" thick x 1" x 1" reach	0.059	0.130
4100-75	Blunt Tip, Single prong, Xiphoid Rake, 5/32" thick x 5/8" x 1 1"/2 reach	0.082	0.180
	MULTIPURPOSE RAKES	**Weight Kg**	**Weight Lbs**
4100-12-R	Sternal Ring Rake, Sharp Tip	0.042	0.092
4100-12-RD	Sternal Ring Rake, Dulled Tip	0.042	0.092

Rultract® SKYHOOK Surgical Retractor Systems™

The Rultract Retractor Skyhook System offers a near universal set of patient and tissue retraction and manipulation options virtually unattainable in any other current technology. This is the only system capable of tissue retraction in 3 dimensions. Further, other retractors are typically procedure and specialty -specific in use. The Rultract Skyhook system is able to used in multiple specialties. The Rultract Skyhook retractor system as stated above can be used for sternal, thoracic, abdominal, rib, xyphoid, manubriaum retraction and stabilization of arms, legs and the head in specific procedures as indicated by the physician/surgeon.

The Rultract Skyhook Retractor System is also, currently, the only known system that can assist in lifting the Medtronic Thoratrak MICS Retractor as noted.

Our retractor affords a cost savings because of its versatility in providing exposure for both the cardiac and thoracic procedures including, but not limited to the following.

The Rultract SKYHOOK™ Retractor is used and mentioned in the links listed below.

Minimally Invasive Atrial Septal Defect Closure using the Subxiphoid Approach
http://www.hsforum.com/stories/articleReader$1124

An **assist to the Medtronic MICS Thoratrak®** for the MICS Cabbage Procedure to facilitate the LIMA harvest. The Rultract Skyhook is also used to pull the Thoratrak® retractor cephalad to gain better access to the ascending aorta (McGinn Proximal Technique).
http://www.medtronic.com/mics/documents/200901133b_EN.pdf

Transcervical thymectomy,
http://jtcs.ctsnetjournals.org/cgi/content/full/130/1/221

Video assisted Extended transcervical thymectomy,
http://www.ctsnet.org/sections/clinicalresources/thoracic/expert_tech-35.html
http://gallery.ctsnet.org/main.php?g2_itemId=202

Transcervical extended mediastinal lymphadenectomy,
http://www.ctsnet.org/sections/clinicalresources/thoracic/expert_tech-44.html
http://mmcts.ctsnetjournals.org/cgi/content/full/mmcts.2005.001693/
http://www.ctsnet.org/multimedia/experts/yendamuriTEMLA/yendamuriTEMLA1_setup.html

Mediastinal parathyroidectomy,
Minimally invasive management of the mediastinal parathyroid Adenoma,
“Rultract Skyhook system retraction system provides access to the anterior and superior mediastinum, allowing for the use of video-assisted visualization that aids resection of the mediastinal parathyroid adenoma without sternotomy. VATS provides excellent visualization of the middle and posterior mediastinum avoiding the morbidity of thoracotomy.” "Christopher B. Komanapalli, MD; James I. Cohen, MD, PhD; Mithran S. Sukumar, MD, FACS"
http://www.ctsnet.org/sections/videosection/videos/media-92.html

Minimally invasive repair of pectus excavatum in which the Rultract 4100-59-11 Coupler System (http://www.rultract.net/Root/pdf/4100-59.pdf) facilitates sternal elevation prior to passage of the introducer through the anterior mediastinum.
http://ejcts.ctsnetjournals.org/cgi/content/full/33/5/931
http://ejcts.ctsnetjournals.org/cgi/content/full/33/5/931/FIG1
Providing unparalleled **Sternal Lift in the Diagnosis and staging of Pulmonary Malignancies**as seen at the STS University presentation in San Diego in January 2011.

Femoral Popliteal Bypass
Pericardial window by video-assisted thoracoscopy

Also, as seen on our website:

- Internal Mammary Artery Dissection
- Assisting with the Grafting of Radial Artery
- Re-do Heart Surgery / Xiphoid Entry
- Subxiphoid Pericardial Procedures
- Congenital Heart
- Pediatric / ASD
- Minimally Invasive Procedures
- Parasternal Incisions.
- Transabdominal GEA-Midcab

CONTACT INFORMATION

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Rultract, Inc. is the <u>ONLY</u> authorized service center in the U.S.A.

When your Rultract® instrument needs repair or service, contact Rultract Inc. or Rultract® distributor for the location of an authorized service center. All instruments must be decontaminated before being returned for service. Repair charges will apply to instruments repaired outside the warranty. **Any modification or alteration by user will void all warranties and release Rultract® from any liability.**
Recommended Factory Service Every 12-18 Months.

<u>LOANER EQUIPMENT AVAILABLE: CONTACT RULTRACT® FOR DETAILS</u>