

List of Optical Supplies, as ordered from Lombart Instruments
(1-800-LOMBART), as of 24 November 2017

Description of Item	Lombart item number	price	year of this price
Dust Covers			
Dust Cover for Reichert Ultramatic RxMaster Phoroptor (with Lombart Logo on cover)	RE1RE11625282L	\$12.00	2006
Nylon Dust Cover for Refractor Phoroptor/Vision Tester (replaces above phoroptor cover, and it is no longer clear plastic)	RE-1-LOCOVER	\$16.00	2009
Dust Cover for Reichert Ultramatic RxMaster Phoroptor (Reichert version, with no logo on cover)	RE1RE11625282	\$26.00	2011
Dust cover for Haag-Streit Slit Lamp, Nylon	SL1HS0003	\$38.00	2009
Dust Cover for Reichert 12603 Lensometer	LE1RE12600116L	\$7.00	2002
Dust Cover for Reichert (B&L) Keratometer	KE1RE719175001L	\$7.00	2004
Exam Room Parts or Supplies			
Black Long Handle Occluder	OCC0ZZLHB	\$7.00	2006
Reichert Nearpoint Rotochart	RE9RE11999	\$102.00	2017
Lombart Card Holder for AO/Reichert Phoroptor (this card holder fits on the nearpoint rod, and holds the Rotochart)	RE9LO11628911L	\$68.25	2017
Volk 78D small Aspheric Lens, Clear (31mm)	IL-0-VO78SMC	\$198.00	2008
Marco Shaft and Handle, Small (for phoroptor arm)	CS9MACS07005C	\$34.05	2014
Marco Shaft and Handle, Long, Assembled (for phoroptor or Keratometer arm) Using this longer arm makes it easier to tighten the phoroptor arm (due to the longer lever length), with some phoroptor arms. And the handle is less likely to break than the above "small" handle. The "small" handle is also used as one of two levers on the Marco Keratometer arm.	CS9MACS050001	\$45.15	2014
Broken Marco Shaft Handles.			2014
No Marco replacement part available. I found a replacement part from a different company. What I used was a 1" diameter plastic knob, which is pre-threaded with a metric size thread (M8 x 1.25) sold by the Essentra Company, which I found on-line. http://www.essentracomponents.com/sku/KPB-1220 This was the link that worked in 2014.			
I bought 10 of the plastic knobs, costing me \$25 total, including shipping. The knobs work GREAT for the long handles. But the short handles end up with too little leverage with just the 1" knob. (The original plastic handle is much longer than the 1" knob, and gives a lot more leverage.) To keep the knob from unscrewing, use a thread sealant, such as LOCTITE Threadlocker, Blue. Snug the knob up as much as you can, without damaging the knob or handle with whatever tools you use.			
This DID NOT WORK: The Marco parts manual shows a replacement screw-on plastic handle. (Part # "Z01005"), listed as #48 on the exploded parts diagram for the phoroptor arm, (The parts diagram, "1233 Refractor Arm U04139-3 refractor arm U04-02 10-07[1]"). However, my parts person at Lombart found the handle is not sold separately. The whole long handle at \$45 or the short handle at \$34.			
Marco Refractor Arm Thrust Bearing	CS9MADS6E0020	31.10	2011

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(This is a ball bearing cluster plus 2 formed washers. One bearing set is used on top of the center pivot cylinder of the Marco phoroceptor arm, and one bearing set is used below the cylinder)

Marco Encore Stand Pivot Pin (This is a metal shaft that goes through the middle of the pivot cylinder in the center of the Marco phoroceptor arm.)	CS9MAES030038	21.25	2011
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Marco Refractor Arm Screw (The 4 mm Allen head adjustment screw (2 needed) for the middle of the pivot cylinder in the center of the Marco phoroceptor arm.)	CS9MAES030031	4.15	2011
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Marco Refractor Arm Set Screw (these set screws press into the side of the above 4 mm head "Marco Refractor Arm Screw" to keep it from loosening.) Two of these used in each phoroceptor arm.	CS9MAES030034	2.95	2015
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Marco Phoroceptor Arm Front Pivot, Misty Grey, Current Style	CS9MAES0327MG	275.00	2011
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In December 2011, I had to replace this pivot assembly when a Marco phoroceptor arm "froze" at the center pivot point of the arm. I tried to tap out the "Marco Encore Stand Pivot Pin" (see above) with a hammer and punch, but it was so jammed that eventually the metal shaft mushroomed at the end. I continued to hammer and eventually this "Pivot" assembly snapped. This released the cylinder pivot assembly and I was then able to cut through the shaft, and recover the cylinder and most of the bearing parts. It would have probably taken less time to disassemble the arm, and cut through this part with a hacksaw, in order to release the cylinder + pivot assembly.

Based on an email from a Lombart parts person (December 2011), "a new Marco refractor arm is part number 1233MG and cost \$819.00" (MG = Misty Grey -- which is the standard color for the Marco Phoroceptor arm) That part number "1233MG" is not the entire Lombart part number, but probably a portion of the part number from Marco.

Marco Refractor Arm Retaining Clip (this is the snap ring that fits on the bottom of the tightening lever assembly for the Marco Refractor Arm) Without this clip, the Lever Arm can be lifted out of the refractor arm, making the arm non-functional. I got a special tool that helps remove and replace the retaining clip, which is a sort of snap ring with two holes in it (where the removal tool fits.) I have not yet figured out why some Marco tightening levers have no up and down movement, and others have too much play. One time I replaced one of these "Clips" I was surprised to find that the clip did NOT fit securely inside a groove, but only held on the outside of the shaft. Usually the shafts have a groove for the "Clip" -- so that the shaft holds in place once the clip slides into that groove. In theory, one should be able to use some washers to fill the gap (to reduce up and down play), by placing washers above the clip, if there is too much up and down play.	CS9MAES030030	3.25	2012
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Reliance Handle for Wheelchair Refractor Arm, Black (This is a "quick release" lever and screw shaft for the Reliance stand)	CS9RL1702599	21.85	2017
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Quick release lever for Marco Stands. Either the below "The Marco Deluxe Stand Ratchet Handle and Safety Collar" -- or just buy an 8 mm Allen wrench, and secure it in place with self-adhesive aluminum tape.

Instead of using, the below "Ratchet Handle" -- I bought 8 mm Allen wrenches, the LONG version. I shopped the Internet, and the best price I got was just less than \$30 for 15 wrenches, including shipping. (2017) That let me equip 15 exam rooms in my HMO, so the phoroceptor arm can be lowered to wheel chair height. What I then did was used self-adhesive aluminum tape to secure the wrench in position on the Allen Head Screw. It stays in place all the time, and is pretty much hidden behind the pole, when not in use. I found that positioning the wrench close to vertical seemed to work well. (test to see if that alignment works, prior to taping the wrench in place). Use a permanent black marker to mark the pole at the bottom of the collar, so you know where to return the phoroceptor arm AFTER it was lowered. To lower the phoroceptor arm to wheel chair height, do the following. For best results, get BEHIND the stand, so you are closer to the pole. Hold the bottom of the phoroceptor arm with your Right hand, and get ready to support about 30 lbs. With your left hand, turn the Allen wrench about 90 degrees. With both hands, ease the phoroceptor down to the appropriate height to reach the wheel chair patient, and re-tighten the lever. If there is a Keratometer arm, perhaps lower it to the top of that "collar" on the pole. The reverse is tougher, to lift up the 30 lbs, and hold it in position with your right hand, while tightening the lever with your left hand. Except for "weight-lifters" perhaps better to use 2 people for the lift.

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Marco Deluxe Stand Ratchet Handle and Safety Collar	CS9MA9023	115.00	2017
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The Marco Deluxe Stand Ratchet Handle and Safety Collar. This is useful when the phoroceptor arm needs to be raised or lowered, such as with a (very short or very tall person – or a Wheel Chair patient). Typically, the phoroceptor arm is secured with an 8 mm Allen head screw. This ratchet handle functions as a quick release lever, so the arm can be lowered without grabbing a separate tool. The Safety Collar is placed lower on the pole, to keep the phoroceptor arm from going too low on the stand. (The safety collar is attached with Allen Head screws to the pole.) To insure the phoroceptor arm is raised back to its starting position, I suggest using a permanent marker to mark the bottom of the phoroceptor arm collar – BEFORE moving the arm. That way, you know where to “aim” when putting the collar back to its starting point. THE BIG PROBLEM --- The phoroceptor + arm is a major weight-lifting effort. Be prepared to support the weight of the phoroceptor AND the arm (about 30 lbs), as soon as you loosen the “quick release lever.” Same problem when getting it back in place. Probably a 2-person job, unless you are a weight-lifter. If the chair is on a wheel chair glide, then the chair can be slid out of the way. Then the phoroceptor arm is lowered far enough to where the patient can see through the phoroceptor. Then the patient wheel chair can be rolled into position. The “ratchet” feature, is that the lever position can be adjusted for the best leverage position. Pushing in the lever a certain way (against spring tension) allows the angle of the lever to be repositioned, if it is not already optimal for best leverage.

Stool seat (Reliance, Upholstered 15” (Seat only) for 5340 / 5346 / 5356)	ST9RL1374573	\$72.00	2003
Lombart Penlight (pkg of 6)	RAOZZPL	\$8.00	2002
Haag-Streit Measuring Prism (applanation tip)	TO1HS2236A	\$98.00	2002

Lamp (For Omni Unit) CS-IV Overhead Lamp, White	CS1LOIVLAMP	\$135.00	2003
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Reichert (B&L) Occluder (for Keratometer)	KE9RE712135566	\$42.00	2003
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Omni Systems (Replacement) Pneumatic Piston	ST9IS5487	\$97.50	2003
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Lorgnette Pinhole Occluder	OC0ZZPL	\$23.95	2003
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Titmus Near Point Vision Card, Plastic	TCOTINPVC	\$12.00	2002
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B&L Reduced Snellen Test Card (Cross Cylinder Check on Back) non-laminate	TCOBL713587	\$12.00	2002
Replacement Standard 3-D viewers, Black	RA1SOSO010	\$8.50	2004

Stereo Fly Test	RA0SOFLY	\$129.00	2006
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Ishihara 24 Plate Book Test Chart	CT-0-ZZISH24	\$159.00	2006
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Titmus Near Point Vision Card, Plastic	TC-0-TINPVC	\$12.00	2006
My favorite Nearpoint card, which also has a “map” on the back of it			

Batteries

Optec 3.6v (Halogen) battery	HI3SO360H11	\$25.00	2001
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Welch Allyn 72200 3.5v Rechargeable Battery (black) 0403	HI3WA72200	\$34.95	2001
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Battery for Welch Allyn 72200 3.5v (made for Lombart, to replace the more expensive Welch Allyn 72200)	HI-3-ZZ72200L	\$19.95	2009
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Bulbs

GE CAX 130v Projector Bulb	CP2GECAX130/ 12	\$5.29	2002
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Description of Item	Lombart item number	price	year of this price
High Performance CAX 130v Halogen Bulb	CP2ZZCAX130H	\$29.00	2004
Heine Omega 100/150/180/200 or Propper Indirect (Halogen) bulb, 6v 10 w	IO2HE0488068	\$53.00	2009
Keeler Vantage Bulb (wireless BIO)	IO2KES7075	\$44.00	2014 quote
Keeler All Pupil / All Pupil II Bulb	IO2KE1084	\$40.50	2009
Haag-Streit 900 Main Bulb	SL2HS1013/3	\$20.00	2003
Welch Allyn 03000 (Halogen) Bulb for Ophthal, 11600/05,10/11710 Spot Retin. 1800	HI2WA03000/3	\$18.25	2003
Welch Allyn 08200 (Halogen) Bulb for 18200 Retinoscope	HI2WA08200	\$23.75	2002
Marco CP-670/690 Projector Bulb, 6v, 20 w	CP2MA6026	\$37.00	2003
Marco CP-690 C4 Capacitor	CP9MACP6900C4	\$15.00	2011
<p>This replacement capacitor is the part that can typically restore a malfunctioning Marco CP-690-E projector, when it stops working, and the only thing the chart does is sits there and “hums” and / or “rumbles” but does not turn on the light, and does not respond to the remote control. The C4 capacitor needs to be removed by “un-soldering” the existing capacitor from the circuit board (using soldering iron, while pulling away the component with a needle-nose pliers). Then the new capacitor is soldered in place. If successful, the chart will be restored to full function. I have done this a number of times since 2011. I obtain the part, I put in a work order, and I have a Kaiser BioMedical Technician remove the old capacitor and then solder the replacement in place.</p>			
Marco CP-600 Projector Bulb 12v 20w	CP2MA1005	\$37.00	2000
Marco Keratometer I / II Main Bulb	KE2MA1043/3	\$5.00	2001
Refraction Desk Fixation bulb (for Omni unit)	RF2ZZ12ESB	\$6.50	2003
Autorefractor Part:			
Topcon CL-100/200/LM-8 Lens Protector Seal Kit	LE-9-TO4203658000	\$21.00	2009
Trial Frame parts			
Marco Trial frame Swivel Ring, left (part of the Marco Trial frame, the ring and gear connector, that holds lenses)	TF9MAMTL10014	\$52.00	2003
Trial Frame Nose Rest Only	TF-9-LO43	\$6.60	2008
Trial Frame Cell (R) (I don't remember exactly what this was, or what brand of frame it was for)	TF9LO49	\$27.60	2010
Replacement Trial Lenses			
Topcon Replacement Corrected Curve Spherical Lens (specify power, sign, color)	TL1TOSPH	\$19.00 \$29.00	2002 2009
Topcon Replacement Corrected Curve Cylindrical Lens (specify patient right or left, power, sign, color) (By 2011, the trial lens cost was \$33 for spheres and \$37 for cylinders)	TL1TOCYL	\$21.00	2002
Marco Replacement Corrected Curve Sphere Lens (specify power, sign, color)	TL1MA7020	25.00	2017

Description of Item	Lombart item number	price	year of this price
POC Parts			
Marco CP-690E Remote Control Unit (Remote control for Marco Projector CP-690E)	CP692000	\$355.00	2008 phone quote
Marco CP-600 Remote Unit for Serial #31040 and higher	CP9MACP64325A	\$326.50	1999
Marco CP-1/2/600/670 Mirror	CP9MACPOG14	\$53.00	2001
CP-600 diffuser (diffuser lens for Marco CP-600 POC)	CP9MAX2345	\$30.00	2000
Nikon NP-3 / NP-3S Remote Control (specify model)	CP1NI88553	\$105.00	2003
Nikon Red/Green with Letters Chart for NP-3	CP1NI88553	\$100.00	2003
Reichert 11082 POC Switch	CP9RE11082037	\$31.75	2003
Screens for Projectors:			
Reichert Square Screen (20" x 20") unframed	CP-1-RE11808	\$69.00	2004
20 x 20 Square Screen with Swivel (unframed) (I ordered this, but got a 22" x 18" screen, which actually works better for the Marco POC. And there is also a 20" x 16" swivel screen.	CP-1-ZZSWIVELU*	\$100.00	2007
Wheelchair Accessible Viewing Mirror, Limestone I tried out this mirror which has an net effective mirror size (less frame) of about 23" x 11" and can be oriented vertically or horizontally. It is pretty weird (and was optically warped) and I think we ended up NOT using it in the exam room at Burke.	CP-1-ZZWAVML	\$185.00	2007
Binocular Indirect Parts			
Headband for Topcon ID-10 Indirect Ophthalmoscope (Lombart-made equivalent)	IO1TO415602500L	\$150.00	2003
Replacement Headband for Mentor BIO (order directly from Mentor, 5425 Hollister Ave, Santa Barbara, CA 93111, 1-800-992-7557)	22-7727	\$95.00	1999
Mentor BIO +2 Lens, New Style (15mm) Each	101ME79006130	\$25.00	2000
As of 2008, Mentor parts no longer available, and the Mentor BIOs no longer sold. So good luck.			
BIO Connector plug:			
Plug, Female Twist Lock	ZZ9ZZ7464	\$12.00	2003
Plug, Male Twist Lock	ZZ9ZZ7465	\$14.80	2009
To wire this, you need a MALE Twist Lock connector for this modification.			
Microswitch Indirect Hanger for Marco or Reliance Stand	IO-1-ZZCMP133*	\$40.00	2009
This is a combination hanger + on/off switch that works on the Marco stand (for 2007The new Marco stand has a twist lock connector for power source input for the BIO. Using a flat screwdriver tip, rotate the power setting to 6.5 volts. The rheostat on the stand (for Binding Posts) then controls the BIO brightness. ?). It also works for the Marco stand that is 2" decades older, which has a twist lock receptacle and voltage adjustment, and Binding Switch rheostat.			
To wire this, you need a MALE Twist Lock connector for this modification.			
Pigtail for Indirect Keeler All-Pupil 5 Pin Female Plug with 1 foot cord	IO-1-ZZPIGTAIL	\$50.00	2009

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This is a wiring adapter I got for a Keeler All Pupil BIO, having a 5 Din plug. It came with about a foot of cord, which I then connected to a pair of Banana Plugs to hook into the Banana Jack Receptacle.

I was surprised to find that Radio Shack carried the Male 5 Din plugs, but only had female 5 Din plugs as a connector (5 Din female on both sides, without a wiring connector separation. This made this adapter plug from Lombart about 3 times the price of what I would expect for the parts alone.

Pigtail for Indirect (I believe this is a wiring adapter for the BIO, that I got for WB/Optomtry in 2006, after the Omni Unit crashed to the floor, and a Marco Stand was put in its place. But I don't remember exactly what it is.)	IO-1-ZZPIGTAIL	\$45.00	2006
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Parts for Keeler All-pupil BIO:

Keeler All Pupil / Vantage Bulb	IO2KE1084	\$40.50	2009
Keeler All Pupil Top Cover for PD Box	IO9KEEP1900028	\$18.00	2002
Keeler All Pupil Aperture Lever	IO9KEEP2900767	\$13.50	2009
Keeler Replacement Mask	IO9KEEP3904081	\$5.25	2004

Mask no longer sold, as of Feb 2009

Keeler All Pupil Diffuser Bar (3 filters)	IO-1-KEA5277	\$75.00	2009
Keeler Aperture Wheel Spring for All Pupil	IO9KEEP3914044	\$2.95	2003
Keeler Mirror for All Pupil	IO9KEEPXXXXXX	\$25.00	2010
Keeler Vantage/ All Pupil +2 Lens, Pair	IO9KEEP3953721	\$58.50	2010
Keeler Vantage Eye Lens Retainer	IO9KEEP3953641	\$18.00	2010
Keeler Vantage Rubber Eye cups, pair	IO9KEEP3953799	\$20.00	2010

Keeler, For headrest assembly: When the Keeler Vantage or All Pupil (II) headband is too loose for some heads, an extra pad can be ordered to replaced the unpadded back snap-on pad.

Heine Foam Crown pad	IO-9-HE111928	\$44.40	2009
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As of 2009, Keeler Apparently now sells a smaller version of the headband that will fit any human head.

Keeler Slimline Wireless Lithium Polymer Battery Pack

	IO3KE1919P5338	244.00	2017
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(This is a battery for the Keeler Vantage Plus BIO, that has a small rechargeable battery, with a release button built into the battery.)

Heine EN50 6' (6 ft) extension cord	IO1HE0033510	\$34.00	2011
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Power cord, which is an RCA type plug that fits into the top of the HEINE Omega 180 BIO, male one side, female the other side. A standard radio shack RCA plug will not make electrical connection to the RCA plug of the BIO, since the prongs are wider, made for the thicker metal of the HEINE BIO cord. The radio shack equivalent will work as an extension, to make the cord a full 12 foot long.

The Heine cord can be ordered, and then to extend the length to 12 foot, a functional equivalent can be bought from some Radio Shack stores, in 6 ft. Most rooms seem to have two 6-foot cords.

Heine Omega BIO RCA Plug	IO9HE0033224	\$43.00	2009
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(this is a screw-on cap for the main Heine bulb. It covers the bulb and connects the terminals on one side, and provides a male RCA plug to connect to the BIO power cord on the other. The Power Cord for the Heine Omega 180 is an RCA plug with a female connector on one side and male connector on the other side.

The Original Heine plug has a thick rim of metal that plugs into the RCA plug above (IO9HE0033224).

If you plug in a standard American RCA plug (such as found in Radio Shack) into the top fitting of the BIO, it will not make electrical contact with the outer rim of the female side of the RCA plug, and the BIO won't work.

However, you can use the 6 foot Radio Shack version to lengthen the cord (hook it at the end of the Heine cord) it will make electrical connection to the male end of that plug, and connect into the console.

The Heine cord can be ordered, and then to extend the length to 12 foot, a functional equivalent can be bought from some Radio Shack stores, in 6 ft. Most rooms seem to have two 6-foot cords. The Radio Shack cord does NOT make a proper electrical connection to the BIO, itself, unfortunately.

Heine 2D Lens, Each, For all Omega / Sigma Indirects

	IO9HE05631000	\$11.50	2015
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(this lens sold individually, is half the price of the [below] Keeler lenses, sold as a pair)

Description of Item	Lombart item number	price	year of this price
Heine Ocular Eyepiece Funnel for Indirect (this is a screw-on eye piece, that hold the 2D lens in place)	IO9HE115732	\$22.80	2015
Heine Omega Eye Cup (this is a rubber eye cup that snaps onto the above screw-on eye piece for the Heine Indirect)	IO9HE116616	\$5.80	2015
Keeler Vantage/ All Pupil +2 Lens, Pair (also fits Heine Omega 180) (this item lists as 11.85 mm in size)	IO9KEEP3953721	\$58.50	2010
Keeler Vantage/ All Pupil plano Lens, Pair (These replaceable lenses for the All Pupil (II) version, as the original all pupil does not have removable lenses)	IO9KEEP3953748	\$56.25	2009

June 2009. This lens size (Keeler All Pupil) also fits the HEINE Omega 180. Due to a missing lens for a Keeler All Pupil, I had to get a pair. Then a month or so later, while servicing some Heine BIOs, I found a +2 lens missing there, and found the “12 mm” Keeler All Pupil lens also fit in the Heine, saving another replacement charge. (the Heine lens, sold individually, is half the price of the Keeler lenses, sold as a pair)

Slit Lamp Parts

Slit Lamp Arm Switch (Green) for CS-III/CS-IV/OMNI (replacement switch for slit lamp arm, on Omni Unit) (Was only \$9 in 2001)	CS9L08251	\$25.00	2003
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Expeditor Slit Lamp Switch, Illuminated Rocker (This is NOT for the Omni unit, but for another slit lamp arm arrangement that is used at various Kaiser facilities. This was used in the 3 rd (mirrored) room at Reston.)	RF9ZZ62305	\$12.50	2003
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Haag-Streit 900 Lamp Housing Cover Assembly	SL9HS0940	\$80.00	2002
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Haag-Streit Axle Lock Screw for Slit Lamp	SL9HS0242	\$24.00	2010
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This is the rubber sleeve that fits over the joystick to improve grip of the joystick, during slit lamp exams. Haag-Streit Joystick Rubber	SL9HS4269	\$16.00	2017
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After years of use, the rubber sleeve of the Joystick expands, gets loose, and won't stay in place.

The REPLACEMENT rubber sleeve is very tight, and somewhat hard to get into position.

Another approach, is to glue the old rubber sleeve to the joystick.

What I have found that works well, is to use 5-minute epoxy. This comes in two tubes. On a small (disposable) surface, put a small and equal amount from each tube. Then using a “chop stick” whip the two portions together, thoroughly. Then using the chop stick, transfer the mixed glue onto the metal surface of the joystick, coating the attachment area thoroughly. Then slide the rubber sleeve in place. Then wrap a few rubber bands on top of the rubber sleeve (and leave the rubber bands in place), until the glue hardens (usually within 10 minutes). Then remove the rubber bands, and wipe off and clean up any stray glue smears from the joystick before it hardens further, using alcohol prep pads.

Haag-Streit replacement screw for Breathshield	SL9HS0357	\$13.00	2004
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Haag-Streit Main Bulb Cable, New Style (with molded plug)	SL9HS0357	\$13.00	2004
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Haag-Streit 16mm Female Plug (replacement plug for top / cap of Haag-Streit 900 slit lamp)	SL-9-HS4561C	\$37.50	2009
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Forehead rest (strap) for Haag Streit (also fits the 940 Perimeter) Haag-Streit 900BP Head Band	SL9HS1352	\$34.50	2013
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Topcon Slit Lamp Cap Assembly (6E/Incandescent Style)	SL-9-TO4032025700	\$84.30	2007
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(I got this slit lamp cap for an old-style Topcon cap I was repairing at North Capitol)

Exam Chair Parts

(used) Encore Armrest (for Marco Chair) Used in 2003, for a damaged Marco Chair arm at North Capitol.	CSUMAEMCO10069	\$80.00	2003
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(Below chair parts bought for chair in room 2, Burke (most likely prior to 2008?) as arm was unable to be moved up or down, and the internal arm bushing had gotten severely damaged, and the below parts were needed for repair) A similar problem was found with one chair at Fair Oaks, and one chair at Reston, in 2012. These (and other) chairs (and stands) were transferred from WE / NC when the Omni Units at Fair Oaks, Reston, Falls Church, Camp Springs, and Silver Spring were replaced (in 2012). They replaced 20 to 24 year old Omni units with Marco chairs and stands that were at least 14 years old. In a number of rooms it didn't work well as these units were substantially aged and worn, and some were even lacking charging wells.

Marco Encore Arm Cam Shaft Assembly, Patient right	CS9MAEMC01079R	101.50	2012
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Marco (Encore Arm) Patient Right Sleeve This the sleeve / collar, through which the above "cam shaft" goes	CS9MAEMC010076R	65.85	2012
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Marco Replacement Bolt, Hex socket Head Two of these needed; these are the longer of the 3 screws to secure the "sleeve" to the chair frame. 3 screws are needed for one sleeve. Such as to rebuild the Right arm of the exam chair.	CS9MAEMC010078	6.95	2012
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Marco Replacement Bolt for Encore Chair, Hex Head, Counter, Short One of these needed; this is the shortest of 3 screws to secure the "sleeve" to the chair frame.	CS9MAEMC010077	2.95	2012
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Marco Encore Chair E-Ring This E-Ring (similar to a snap ring) holds the (above) "cam" to the long lever inside the chair, needed to lift up the arm or to lock it in place, in the down position.	CS9MAEMC010081	2.95	2012
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Marco Encore/Tilt Arm Assembly When a Marco arm surface starts to fall apart, you just can't replace the rubber top. The original is all one rubber piece (depending on the manufacturer serial number). It is then replaced with a top that seems rubber on the surface, but has an underlying wooden frame (this is the first part needed to rebuild the "Marco Encore/Tilt Arm Assembly"). Then it needs the next part (Marco Encore Arm Frame Assembly) to hold the arm to the Marco Encore Arm Cam Shaft Assembly, then it needs 6 screws to hold those two pieces together, then it needs a longer replacement screw to hold the bottom plastic cover in place.	CS9MAEMC010090	114.30	2012
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Marco Encore Arm Frame Assembly (this is the second part of the "Marco Encore/Tilt Arm Assembly")	CS9MAEAC010147	98.95	2012
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Marco Encore/Tilt Arm Screws (requires 6) (this is the third [group of] parts of the "Marco Encore/Tilt Arm Assembly")	CS9MAEMC010137	1.95 (11.70)	2012
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Marco Encore/Tilt Screw This is a wood screw, about 1.25" long, needed as the fourth part of the "Marco Encore/Tilt Arm Assembly" – This longer replacement screw is needed to hold the bottom plastic cover in place, and is shaped so that it is countersunk into the bottom of the arm, and does not stick out above the surface of the plastic cover.	CS9MAEMC010095	2.95	2012
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Marco Refractor Arm Retaining Clip (this is the snap ring that fits on the bottom of the tightening lever assembly for the Marco Refractor Arm) Without this clip, the Lever Arm can be lifted out of the refractor arm, making the arm non-functional.	CS9MAES030030	3.25	2012
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Other Optical Equipment Parts

Reichert Power Gear for Lensmeter	LE9RE12600165	\$141.00	2002
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Reichert NCT Forehead Pad	TO9RE11700027	\$2.95	2000
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Reichert NCT Chinrest Cup	TO-9-RE11575852	\$24.95	2006
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Pad Holder Only for Reichert Non Contact Tonometer

Description of Item	Lombart item number	price	year of this price
	TO9ZZPADHOLDER	\$15.00	2000
Reichert NCT Joystick End (this is a screw-in metal fitting that holds a half-round plastic tip (TO-9-RE 11660066, which is glued into this part) that contacts the stage of the NCT)	TO-9-RE 11660063	\$23.50	2009
Reichert (NCT) Joystick Insert for Tonometer (this fits /glues into the above metal fitting (TO-9-RE 11660063) and is a half-round plastic tip that contacts the stage of the NCT)	TO-9-RE 11660066	\$3.95	2009
(Rheostat assembly for Welch Allyn Power handles) Welch Allyn 71500 Center Contact Assembly	HI9WA710125501	\$14.25	2002
Welch Allyn 41100 3.5V Halogen Finnoff Transilluminator	HI-0-WA41100	\$69.00	2008
(Occluder for Keratometer) Reichert (B&L) Occluder	KE9RE712135566	\$36.50	2004
Reichert (B&L) Keratometer, Horizontal Lock knob and shaft This part is no longer made		\$70.00	2017
I requested this part, which is no longer made, after realizing it was missing from a Keratometer. This knob and threaded shaft serves to lock the keratometer in place, so it won't pivot from side to side, when taking keratometer readings. Lombart still had some in stock. The parts person assigned a "miscellaneous" part number to it (ZZ9ZZPART), but this number would not be useful on reorder.			
Marco Seat Cushion Thumb Bolt	CS9MAMTC010061	\$4.95	2017
This screw holds the seat cushion in place, for the Marco Exam Chair (Pro. No. 1262). It is like a "wing nut" attached to a bolt. The seat cushion can be removed, by unscrewing this bolt, with no tools typically needed. (Lift the chair up high. Tilt the seat back. This bolt goes through the frame of the chair and screws into the back of the seat cushion. The seat cushion is replaced by reversing this process.			
Related to this is SEAT REUPHOLSTERY. Marco does not sell replacement cushions for their exam chairs. However, Lombart sells seat cushions that have been re-upholstered. I describe this process, on my "phoroptor maintenance" website, complete with example "before and after" pictures of a replaced seat cushion, and images of the usual Marco upholstery colors. https://Groups.Google.com/forum/#!/forum/phoroptormaintenance Look for the heading: "Repair of Upholstery of exam chair, through Lombart Instruments." The way it goes, is -- you order the matching seat cushion from Lombart. They send you the cushion. You install the replacement cushion. You return your original (torn / worn) cushion for credit. The final cost should be around \$400 for the process, once the return seat is credited. WITHOUT RETURN of the cushion, the price is nearly twice that. October 2017.			
Marco Screw for Custom Chair (for Headrest Assembly; there are 2 screws which secure the sides of the headrest assembly on a Marco Exam Chair, model 1220, which keeps the headrest from rotating up or down). This screw is secured in place by a set screw which holds the side of the screw, so it won't accidentally unscrew. Failure the release the set screw makes it tough to loosen or tighten this screw. I have seen a couple cases where the head of this screw gets snapped off, as a worker tries to tighten or remove the screw, without first releasing the set screw. Then it becomes a difficult matter to remove the broken off screw from the threaded hole of the shaft. The broken off screw can potentially be removed, by drilling the correct size hole into the screw stump, and removing the screw stump using a screw extractor tool.	CS9MACC3A0045	\$3.95	2017
The below 3 washer types are used with the above screw (CS9MACC3A0045) on the headrest assembly. Marco Washer for Custom Chair (for Headrest Assembly; there are 2 washers which fit on the screw (A0045, above) to secure the sides of the headrest assembly on a Marco Exam Chair, model 1220, which keeps the headrest from rotating up or down)			
	CS9MACC3A0043	\$3.25	2017

Description of Item	Lombart item number	price	year of this price
Marco Nylon Washer for Custom Chair (for Headrest Assembly; there are 2 nylon washers which fit on the screw (A0045, above) to secure the sides of the headrest assembly on a Marco Exam Chair, model 1220, which keeps the headrest from rotating up or down). The nylon washer fits between the headrest bracket and the metal shaft into which the above screw (A0045, above) threads into.	CS9MACC3A0039	\$7.95	2017
Marco Wave Washer for Custom Chair (for Headrest Assembly; there are 2 wave washers which fit on the screw (A0045, above) to secure the sides of the headrest assembly on a Marco Exam Chair, model 1220, which keeps the headrest from rotating up or down). The wave washers act as compression washers, to put just enough tension on the mechanism, to hold the headrest in position.	CS9MACC3A0044	\$2.95	2017
Marco Replacement Screw for Custom Headrest Assembly (I believe this was a screw securing part of the headrest assembly on a Marco Exam Chair, model 1220, which kept the headrest from rotating out of position)	CS9MACC030020	\$2.95	2004
Marco Lamp Knob, Black Plastic This knob is used on the lamp assembly of a Marco ophthalmic stand. The knob tightens on a screw that holds the lamp assembly arm at a specific angle of tilt.	CS9MAOL1C0014	6.75	2017
Optec 360 Halogen Lamp Socket Assembly (this is the fitting on the inside, top of the Retinoscope, that the bulb inserts into, and screws into the battery compartment)	HI9SO50006	\$96.50	2005
Optec Halogen 360 Rechargeable Insert Only (B) (This is the central core of the Optec Retinoscope, containing the bulb, battery, and switch)	HI1SO360H04	\$159.00	2005
Optec 360 Retinoscope "B" Switch Assembly, Ring FLUSH I believe this is the base / switch assembly for the Optic 360 Retinoscope.	HI-9-SO50009	\$73.50	2008
Optec 360 Switch Ball Bearing	HI-9-SO10135	\$2.95	2009
I wanted springs for the Ball Bearing switch – but got "Lamp Spring" Optec 360 Lamp Spring	HI-9-SO30030	\$2.95	2009
Parts for the Omni Unit Chart box			
LittleFuse 14V 80MA Green Bulb for Fixation Light	RF2ZZ900113G	\$13.50	2004
LittleFuse 14V 80MA Red Bulb for Fixation Light	RF2ZZ900113R	\$10.00	2004
LittleFuse 14V 80MA White Bulb for Fixation Light	RF2ZZ257W	\$10.00	2004
Omni System White Bulb for 4-Dot (bulb #00113X021W)	RA2IS8254	\$10.00	2004
Marco 101 Lensometer Parts			
Marco Large Pin Spring for Lensometer	LE9MAL1P0012	\$2.95	2001
Marco 101 Rubber Ring	LE9MAL10131	\$5.45	2017
Marco 101/201 Ink Pad	LE1MA4009	\$5.45	2017
Lensometer Marking Ink, Red	LE1ZZINK	\$18.50	2017
Marco 101 Gimbal Unit This "Gimbal" part is a combination of several parts for the Marco 101 lensometer. (The parts that hold the glasses in place while checking the prescription or marking up lenses.) It includes the "Marco 101 Rubber Ring, the black metal swivel to which the Rubber ring attaches, the "C-shaped" shiny metal ring that attaches to the black metal swivel, and the two expansion pins that secure the "C-shaped" shiny metal ring to the black metal swivel. All those parts can be replaced as one completed unit, instead of obtaining and assembling the components.	LE9MAL12158	42.00	2017

Description of Item	Lombart item number	price	year of this price
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While replacing the Gimbal, I added one procedure, which is to epoxy glue the two expansion pins to the black metal swivel. I did this by applying tiny amounts of epoxy glue where the expansion pins protrude through the inside of the black metal swivel. (I did this, because in the one optical department with 2 of these lensometers, three of the 4 expansion pins had fallen out, and were lost.) Since I was replacing the “Gimbal” for both, I wanted to reduce the risk of losing the expansion pins on the new Gimbal units.

The below 2 parts fit on the lensometer, on either side of where the glasses lenses sit, to determine the prescription

Marco 101 Rubber Ring	LE9MAL10131	\$5.45	2017
Marco 7 mm Nosepiece	LE9MAL10075	\$10.50	2016

Parts for Haag-Streit Tonometer Swing-away arm (also used for the main click-stop mechanism)

Haag-Streit click stop pin	TO9HS0361	\$5.95	2004
Haag-Streit Tonometer Screw	TO9HS0361A	\$2.95	2001

Bausch & Lomb, Model 70 Vertometer. Sold by Reichert.

Lensometer Parts. This was an expensive array of tiny parts just to replace the lens holder assembly.

Reichert Model 70 Lens Chuck	LE9RE216570305	\$74.75	2009
Reichert Model 70 Swivel with Screws	LE9RE216570304	\$33.00	2009
Reichert Lens Chuck screw for Model 70	LE9RE901103FL	\$11.05	2009
Reichert (B&L) Model 70 Chuck Button	LE9RE216570126	\$8.00	2009
Reichert Model 70 Chuck Button Screw	LE9RE912021200	\$10.25	2009

(The Chuck Assembly took one lens chuck + 4 chuck buttons + 4 chuck button screws + one swivel with screws + one of the two lens chuck screws were missing). All totaled, it was about \$200 to replace this missing lens holder, probably because one screw was lost, then the lens chuck assembly was also lost. I re-sealed all the screw threads with nail polish to reduce the likelihood of future loss of screws.)

Scopes

Welch Allyn 11710 3.5v Halogen Ophthalmoscope	HI0WA11710	\$222.00	2009
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Welch Allyn 18245 Elite Streak Retinoscope	HI0WA18245	\$215.00	2004
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Welch Allyn 41100 3.5V Halogen Finnoff Transilluminator	HI-0-WA41100	\$69.00	2008
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Welch Allyn 11820 PanOptic Ophthalmoscope	HI0WA11820	\$509.00	2001
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Welch Allyn 05258 Case for PanOptic Ophthalmoscope, Otoscope and Handle	HI1WA05258	\$37.00	2001
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Welch Allyn 05829 Hard Case for 3.5v Retinoscope (this case can hold two power handles, a retinoscope head, and a direct ophthalmoscope head)	HI1WA05829	\$41.00	2003
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Welch Allyn 71000-A 3.5v plug-in NiCad Handle (plugs directly into 110v outlet; uses rechargeable orange battery, 3.5v, Catalog No. 72300)	HI0WA71000	\$98.00	2003
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Welch Allyn 71670 3.5v NiCad well Handle (uses rechargeable black battery, 3.5v, Catalog No. 72200)	HI0WA71670	\$115.00	2013
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Welch Allyn Rectified Bottom Cap Assembly (3.5v Well Handle) [is a replacement bottom cap for the Welch Allyn power handle, used in wells]	HI9WA71610503	18.30	2009
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Welch Allyn 71140 Universal Desk Charger Only	HI0WA71140	209.00	2013
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Is a WA handle charger. Holds two handles and sits on a desk top.

Replacement Handle for MIO (Reichert Monocular Indirect Ophthalmoscope)

Description of Item	Lombart item number	price	year of this price
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Custom-made Replacement Monocular Indirect Ophthalmoscope handle, re-designed to use a different bulb, a different handle, with the Heine Indirect Accubox II as the power source.

MIO Handle with Cord and Bulb (Has RCA Plug to use with Heine Power source)

H11LOMIOHANDLE	\$525.00	2002
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Heine Indirect Accubox II with Battery and Transformer 9824	\$255.00	2002
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In April 2013, I FINALLY started using the above replacement power handle for the MIO, since I could no longer get a replacement MIO battery from my prior source (and I didn't try Lombart, to try to get this likely obsolete battery).

Using the Accubox II battery unit, the illumination was dramatically brighter than with the battery I had obtained from 2006. The Accubox also has a built-in rheostat, so that I don't have to use it on maximum illumination. The original power handle for the MIO was equipped only with an on/off switch.

Transporting the MIO with the Accubox Battery and transformer. I used a carrying case which was originally for a Mentor BIO. I removed the BIO and obtained two pieces of cushioning foam to fill the inside of the container. I then cut shapes in the foam, so that the MIO can fit there; the Accubox Battery can fit in another space. And the charger / transformer can fit in a third space I cut in the foam.

The bulb for the replacement handle is the below Heine BIO bulb.

Heine Omega 100/150/180/200 or Proper Indirect (Halogen) bulb, 6v 10 w

IO2HE0488068	\$53.00	2009
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Other Exam Room parts

Reliance Replacement Knob for Overhead Lamp (for the Reliance Refraction Desks, as used at Burke / Kaiser)	CS-9-RL0533799	\$16.50	2006
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Phoroptor Parts (Autophoroptor, Marco / Nidex RT-5100)

There are few user-serviceable parts on this phoroptor.

I did order replacement Forehead rests. Strangely, Lombart does not carry parts for this model.

I ordered directly from Marco.

Forehead Rest for RT-3100, RT-5100	Item Code: RT31-02-0211	Price: \$12.00	2015
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Marco: 1-800-874-5274

(I paid with my credit card, since I didn't have an active account with Marco.)

Phoroptor Parts (Reichert phoroptor, model 11625 & 11635) [Ultramatic Rx Master]

Tube Sil-Glyde Grease (1.5 oz)	ZZMZMISC	\$7.50	2004
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Tube Sil-Glyde Grease (1.5 oz)	ZZ-9-ZZPART	\$7.50	2009
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(while this grease has a "part number" when received, it doesn't pop up as a part number in the computer when I place the order, and there is often confusion when I place the order.)

Reichert Refractor Card Holder Only, black	RE9RE11628911	\$49.75	2008
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Shims for Reichert (and Topcon) sphere bearings

Topcon VT-10 Washer	RE9TO4223610550	\$3.95	2013
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This (above) shim fits with the Reichert sphere bearings. The correct part number is 11625-085 for the bearing. Three (3) of these bearings used for right bank. Three (3) of these bearings used for left bank.

Reichert Strong Sphere Dial Wheel for Phoroptor	RE9RE11625115	\$62.00	2001
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Reichert Ultramatic Pivot Knob Assembly	RE9RE11625913	\$39.00	2001
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Reichert Clamp Bracket for phoroptor	RE9RE11628169		2013
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This is the top bracket of the phoroptor that hold the phoroptor in place, and clamps to the ophthalmic stand (phoroptor arm). One phoroptor in 15 years, that the bracket clamp fractured, and the phoroptor could not be clamped / tightened to the phoroptor arm. A bunch of internal parts can be transferred from the broken bracket, if

Description of Item	Lombart item number	price	year of this price
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sent into Lombart. I was charged \$75 for the transfer of all those parts, PLUS the cost of the new bracket, and shipping / tax.

Reichert Indicator Gear for Refractor For the Risley prism assembly. When the arrow markings wear off or get too dim. Get these in pairs, as they are black rims with a white arrow, and can be used to replace the rims that lose the arrow marking, instead of doing all the work to re-paint the black arrow on the shiny metal rim.	RE9RE11625249	22.00	2013
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Reichert Nylon Face Shields without Lenses, 3 pair FINALLY, face shields that work like they did 20-30 years ago. They stay in place and are more rigid than the ones made from (approximately) 1995 to 2013.	RE1RE11645	\$33.00	2015
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As of 2009 The Reichert face shield still worked TERRIBLY

AND 4 April 2009, I tried order of Face Shields from Bernell for \$40 per set of 3 pairs. Unfortunately, Bernell sent me the same Reichert Versions, sold at a higher price.

AND 7 April 2009, I tried order of Face Shields WITH LENSES for \$62 per set of 3 pairs. **These face shield still work TERRIBLY**

Reichert Nylon Face Shields with Lenses	RE-1-RE11644	\$62.00	2009
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I then later tried an order of Burton face shields (in 2012). I serviced a phoroptor at a practice, which had a Burton-made phoroptor, that was designed similar to the Reichert phoroptor. The face shields were thick, rigid, and worked EXCELLENT. I ordered the Burton face shields from the Burton company (which a couple years ago became National Ophthalmics). Unfortunately, National Ophthalmics sent me the same Reichert versions. It was my final disappointment with trying to find an alternative source of functional face shields.

In March 2013, I had some email correspondence with some personnel at Reichert about the face shield problem. I described the problem in detail, and offered to send them an example of the last spare (functional) face shield I had remaining, so they could see what a functional face shield looks like, and how it works. I was “assured” that they would check back to their original design specifications, and try to resolve this face shield problem.

(2013) I recently placed two of the best (25+ year old) face shields on a spare (Reichert) phoroptor that has lost the paint around the patient oculars, at one Kaiser location. It seems to me that the problem is that the new face shields are made with flimsy, thin plastic. The old face shields have thicker, more rigid plastic, and stay perfectly in place.

May 2015. (This method has met with only limited success) . . . I devised a way to modify the old face shields to improve their functionality (i.e. face shields made from [approximately] 1995 to 2013). This method is to change the first bend of the face shield, the bend near where the clip secures the face shield to the phoroptor. Using a small size vice grips (which is about 4.5” long), bending the face shield, heating it, and then cooling it while it is bent. One jaw of the vice grips goes through the opening in the face shield. The other jaw grips the edge of the face shield where the clip holds it. Using the screw adjustment of the vice grips, increase the angle of the bend in the face shield, while heating it with a low power hair dryer. By heating and bending the face shield, that bend can be increased from almost flat, to about 45 degrees. Then immerse the face shield in cold water (while still bent with the vice grips), to hold the plastic in that shape. The new bend will cause the face shield to adhere more tightly against the phoroptor body.

2010. A failed attempt to modify the face shields, using double-stick tape. What can (sort of) work to hold the (new, currently available) face shields in place, is Scotch double-stick tape applied to the face shield around the nose area AND double-stick tape applied to the phoroptor surface. Firmly press in place. It holds and is hard to remove.

However, I found a year later, that most face shield attached in this manner had pulled loose.

Another approach might be to use a single layer of Scotch double-stick tape applied to all areas of the face shield, except where the clip attaches. Then press firmly in place. This approach also typically fails in less than a year. The problem is, Reichert doesn’t make the face shields as thick and strong as they used to. The face shields “look” the same, but they are structurally too weak, too flexible, and too thin to keep tightly in position against the patient side of the phoroptor. In 2013, I communicated this problem to individuals at Reichert. I have some hope that Reichert will eventually make face shield that function properly again.

The Topcon face shields have a similar problem, but they are an even worse match to the shape of the face shield matching the phoroptor surface. I used a single layer of Scotch double-stick tape applied to all areas of the face shield, except where the clip attaches. Then pressed firmly in place. It looked great. However, by the next day, the face shield had pulled away, but was still sort of holding in position, even though no longer a snug fit to the

Description of Item	Lombart item number	price	year of this price
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phoroptor surface. A similar thing had been previously tried with that same phoroptor. A powerful glue (which still adheres to the painted surface of the phoroptor) – but the glue would not hold the two surfaces together, and could be cleaned off the plastic face shields years later, even though it bonded very well to the phoroptor surface.

Reichert Ultramatic Card Beam Lock Screw	RE9RE11330318	\$18.50	2016
Reichert Card Beam Latch for Phoroptor	RE9RE11625328	\$16.00	2008
Reichert Ultramatic Lock Screw (phoroptor arm) (this is the screw that secures the Phoroptor to the Marco phoroptor arm, so as to prevent accidental release)	RE9RE11330317	\$9.95	2016
Reichert 11625 Forehead Rest	RE9RE11625022	\$12.75	2002
Reichert Prism Scale (on phoroptor)	RE9RE11636117	\$4.95	2016
Reichert Cylinder Knob Scale for Phoroptor	RE9RE11636123	\$4.95	2005
Reichert Thrust Washer for Phoroptor (This washer fits in the JCC mechanism, between the “Guard” and the “Housing, Cross Cylinder” and requires disassembly of the JCC assembly to install. The disassembly is complicated enough, that probably is best left to Lombart or other servicing company.) If the Thrust Washer gets too distorted, it can cause the mechanism to bind up, resulting in pronounced slipping of the cylinder axis, such as when flipping away the JCC or Risley mechanisms.	RE9RE11625260	\$4.95	2016
Reichert Ultramatic Sphere Dial Cover, Left Eye	RE9RE11625198	\$55.00	2000
Reichert Ultramatic Sphere Dial Cover, Right Eye	RE9RE11625199	\$52.50	2008
Reichert Phoroptor Turret Pin This turret pin has a slotted head. It attaches to the underside of the cylinder assembly. It prevents the cylinder assembly from turning around (360 degrees or more) when flipping away the JCC / Risley assembly. If the assembly rotates 360 degrees, the JCC will no longer align over the cylinder axis correctly. (Incidentally, the thread of this screw / pin is very fine, a 2-56 size, in the event that the screw snaps off. The shaft will have to be removed with a screw extractor, and the threads possibly will need to be cleaned out with the appropriately sized Tap. All a very difficult, and intricate process.)	RE9RE11625258	\$7.75	2014
There are two different turret pins. One that attaches to the phoroptor body, and one that attaches to the underside of the cylinder assembly. These two pins work together to keep the cylinder assembly from rotating too far. (If you try to rotate the cylinder assembly too far, these pins hit each other; that prevents the JCC / Risley assembly from rotating too far.) The pin that attaches to the phoroptor body typically has a smooth exterior. The pin that fits into the underside of the cylinder assembly has a slotted head.			
Reichert Ultramatic +/- .25 JCC Flip Cylinder	RE-9-RE11624871	\$71.15	2008
Reichert Ultramatic Weak Sphere Dial Index, Right Eye (This is a plastic wheel + mechanism that touches the outer edge of the 0.25D Sphere Dial wheel)	RE9RE11625889	\$70.00 \$54.00 in 2009 (why lower?)	2002
Re-glue of Lens for Reichert Minus (-2.00 D), on Axis, Auxiliary Cyl. Lens		\$50.00	2002
New / Replacement lens and frame for Reichert Minus (-2.00 D)			
Reichert Ultramatic -2.00 Auxiliary Cylinder (This is a replacement lens with its metal frame, for the 4-lens plug in set, typically supplied with a new phoroptor. The set typically has two -2.00 cylinders and two -0.12 cylinders, which plug into the phoroptor to extend the range of cylinder powers from -6.00 D to -8.00 D)	RE9RE11632855	\$137.00	2014
Reichert 11625 Internal -2.50 Cylinder Lens	RE9RE11629633	\$36.50	2003
(old part number)			
Reichert 11625 Internal -5.00 Cylinder Lens	RE9RE11629635	\$43.50	2009

Description of Item	Lombart item number	price	year of this price
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New Part number, as of 2014 (now a lens with anti-reflection coating) Reichert 11625 -5.00 Cylinder Lens	RE9RE11624635	\$50.65	2017
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From 2009 to 2014, I have made 4 pair of these plug-in -5.00 Auxiliary Cylinder Lenses for the Reichert Phoroceptor, to extend the cylinder range to 11D. I use a -5.00 internal cylinder lens and I used the -0.12 plug-in cylinder frame (after dissolving the glue holding that lens in place). I then glued the -5.00 cylinder lens, on the 180 degree axis, then made a label for the lens to attach to the frame.

Reichert 11625 Internal Lens -6.00 (Sphere)	RE9RE11624622	\$63.75	2013
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28 Feb 2014.

Today, an optometrist (at Kaiser) showed me an alternative to a -6D plug-in sphere lens. What she had been taught was to remove the face shield on the back of the phoroceptor, and clip a trial lens to that clip. She showed me (using our standard Topcon trial lenses), and the clip held the trial lens in place.

July 2013, request from a Kaiser Optometrist for a plug-in Sphere lens, to extend the sphere power beyond -19.00 D. I measured the sphere lens diameter, and it is also 20 mm (same size as the cylinder lens). Ordering a pair of -6.00 spheres, and gluing them into the -0.12 plug-in cylinder frame extends the phoroceptor range to nearly -25.00 D. By refracting using the -6.00 D spheres, due to the vertex distance, the plug-in sphere lenses add another -5.50 D to the range of the phoroceptor. To be safe, the phoroceptor refraction should be trial-framed, to determine the final sphere power.

Reichert Replacement Washer (This is a thin spacer washer for inside phoroceptor; these are used in phoroceptors where there is internal metal-to-metal grinding, such as if the sphere assembly touches parts of the cylinder housing assembly. It is also used inside the cylinder knob assembly on many phoroceptors. If there is too much front and back play of the two cylinder lens wheels, the lens wheels can bump into each other, and jam together. Placing 1 to 4 of these spacers under the snap ring inside the cylinder knob assembly can take up that play, resulting in smoother operation when changing the power of the cylinder lenses in the phoroceptor.)	RE9RE01061	\$2.95	2002
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Below 2 parts supplied and installed by Reichert, when replacing a scratched Risley prism lens.

Reichert Rotary Prism Lens	RE9RE11624638	\$28.55	2013
Reichert Drive Gear for Risley Prism Glass	RE9RE11625250	\$35.00	2013

Reichert Spring Washer This is a compression washer, which fits inside the cylinder knob assembly, and is under the two locknuts used to secure the cylinder axis rotation tension. Old washers can get so compressed and worn that it no longer functions, and must be replaced. This "Spring Washer" is also known as a "Wave Washer" in one Reichert Parts manual.	ZZ9REX54078	\$4.95	2013
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Reichert Replacement Set Screw (for Auxiliary knob or 3D sphere control wheel)	ZZ9REX20599	\$2.95	2002
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Reichert Replacement Screw (one of two screws that secure the Geneva bracket assembly. This screw is accessed from outside of the phoroceptor.)	ZZ9REX34591	\$2.95	2002
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Reichert Replacement Screw (the screw that secures the gear connecting between the Geneva bracket assembly gear and the Auxiliary Gear. This screw is accessed from outside of the phoroceptor. One screw on right bank, one screw on left bank.)	ZZ9REX53908	\$2.95	2011
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Reichert Replacement Screw (for JCC assembly, these screws secure the axis / power scale as well as Risley scale)	ZZ9REX34593	\$4.50	2016
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Reichert Replacement Screw (secures the clear plastic sphere dial cover)	ZZ9REX1396	\$2.95	2000
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Reichert Replacement Screw (3 of these screws secure sphere power plate)	ZZ9RE0848	\$4.25	2014
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Description of Item	Lombart item number	price	year of this price
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Reichert Replacement Screw (on patient side of phoroptor, these screws secure metal clip that holds face shields to phoroptor body, as well as securing the corneal sighting mechanism)

ZZ9REX27022058	\$2.95	2000
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Reichert Replacement Pin (this pin secures the forehead rest in place, on patient side of phoroptor)

ZZ9REX50480	\$2.95	2001
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Reichert Replacement Drive Pin (the head of these pins holds the reading rod metal clip, so that the reading rod stays in the “up” position)

ZZ9REX9970	\$2.95	2003
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Reichert Ultramatic Window (this covers the front of the vertex distance sighting scale, on the doctor side of the phoroptor)

RE9RE11625352	\$3.95	2004
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Reichert Ultramatic Polaroid Lens, Left Eye

RE9RE11625853	\$37.00	2006
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Reichert Ultramatic Polaroid Lens, Right Eye

RE9RE11625858	\$37.00	2006
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Reichert Refractor White Maddox Rod

RE-9-RE11629637	\$9.50	2007
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Reichert Replacement Steel Ball
(this is the ball bearing that is inside the JCC assembly, to make a click-stop for axis and power)

RE-9-RE11330450	\$2.95	2008
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Reichert Ultramatic auxiliary Dial Scale and Knob Assembly,
Patient Left (white Maddox on this side)

RE9RE11636871	102.65	2011
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Reichert Ultramatic auxiliary Dial Scale and Knob Assembly,
Patient Right (red Maddox on this side)

RE9RE11636872	104.15	2011
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Reichert Phoroptor Green Filter

RE9RE11625652	55.65	2011
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Reichert Phoroptor Cross Cylinder Scale
(this is the plate covering the JCC assembly, denoting checking for axis or power)

RE9RE11636042	4.95	2010
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Reichert Prism Scale

RE9RE11628247	4.95	2010
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This is a part that I have had replaced, due to “Metal Fatigue”

Reichert Clamp Bracket, Black,
for Non-Illuminated Phoroptor

RE9RE11628169	154.30	2016
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The story is, the bracket at the top of the phoroptor, which clamps onto the arm of the Ophthalmic stand, is tightened by a knob. If the phoroptor is removed and replaced multiple times, especially over a period of many years, the metal at the end of the bracket can eventually snap off. Then the phoroptor will no longer clamp securely to the phoroptor arm. In my situation, I service over 130 phoroptors each year. I bring loaner phoroptors to each facility. I leave the loaner phoroptor in the exam room, and take the original phoroptor from that room to service it. I then return with the original phoroptor, and take the loaner to a different exam room or facility. A loaner phoroptor can be in 15 different exam rooms each year. So far, two of the loaner phoroptors had the end of the bracket snap off. I then disassembled the bracket from the phoroptor. I sent the broken bracket, with a letter of explanation to Lombart. The technicians at Lombart removed the rest of the parts from the bracket and sent me the replacement. The main part was \$154, the repair was \$75. The shipping and tax added more cost. Expect \$250 or more cost PLUS the cost of shipping the broken bracket to Lombart, for repair / replacement.

In May 2017, I was tasked with re-building a phoroptor that had apparently been dropped, severing off the Left Bank, and breaking the hanging bracket, so that the phoroptor could no longer hang from an Ophthalmic stand. These are the parts I needed to restore the phoroptor.

Reichert Main Support for Phoroptor, Black

RE9RE11636077	145.35	2017
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Reichert Phoroptor Plate
(This looks like a rectangular piece of cardboard that is a backing for the “Replacement Level” (below)

RE9RE11330226	15.00	2017
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Description of Item	Lombart item number	price	year of this price
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Reichert Replacement Level (I glued this Level in place with 5-minute epoxy, then filled in the gaps with white, fast-drying caulk.)	RE9RE11040300B	5.95	2017
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Reichert Phoroceptor Left Eye Sphere Housing, Black Enamel	RE9RE11636018	243.55	2017
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Reichert Refractor Upper Slide Bearing (I replaced two of these, One on each bank that secures each sphere housing to the Main Support bracket.)	RE9RE11625027	5.95	2017
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Reichert Refractor Tilt Spring (This spring was apparently lost (popped out) when the phoroceptor broke).	RE9RE11625042	16.74	2017
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See my on-line video (on Vimeo), "Restoring a Broken Phoroceptor" (35 minutes) vimeo.com/218241325

In July 2017, the cylinder mechanism of a phoroceptor malfunctioned. The right cylinder would not advance between 0.25 and 0.50 power, and there was a cylinder lens in place when the cylinder power was "0.00" and NO cylinder lens was present when the power said "1.00"

What had happened was a metal pin inside the phoroceptor dislodged. Without that pin, one of the cylinder lenses did not advance. That threw off all the powers of the phoroceptor, on that side. I sent the cylinder assembly into Lombart, and they repaired it. They replaced the plate with the 5 metal pins. (See the below part, "Reichert Phoroceptor Cylinder Wheel Drive.") The cost was this part, PLUS \$150 for the repair, plus shipping and tax. The round trip for the repair took about a week, in this case. With round trip shipping, the total cost was nearly \$300.

Reichert Phoroceptor Cylinder Wheel Drive, Right Side	RE9RE11625892	86.00	2017
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A similar malfunction happened to a different phoroceptor several years earlier, except the LONG pin dislodged. On that phoroceptor, the stronger power cylinder wheel would not advance. The cylinder powers went from "0.00" to 1.00 in 0.25 D increments, Then restarted at "0" even though the power was supposed to be 1.25 or higher. A similar repair was done, by sending the cylinder assembly to Lombart for repair -- and replacement of the "Reichert Phoroceptor Cylinder Wheel Drive." The "Wheel Drive" has 4 short pins, which advance the cylinder power of one lens wheel (in 0.25D increments, from 0.25 to 1.00). And the "Wheel Drive" has one longer pin that advances both power wheels, moving to the power wheel that is in 1.25 D increments (the cylinder powers 1.25, 2.50, 3.75 and 5.00). Combining those lenses with the 0.25 D increment cylinder wheel brings the maximum cylinder power to 6.00 D.

For this reason, it is safer for a clinic to have a spare phoroceptor, which can be put in place as soon as any such malfunction occurs.

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Stethoscope parts:

Welch Allyn 5079-63 Black Two Piece Tubing for Stethoscope, P.O. #6003408 MA-9-TY507963	\$14.00	2004
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(I believe this was replacement tubing for Lora's Stethoscope?)

In 2010, Lora's stethoscope tubes again began to rot. I then tried to order this tubing, however the tubes were much shorter than Lora wanted (about 15", I believe they were). Ultimately, by on-line search, I found a source for a stethoscope with longer tubes (about 18" or more), which I transferred to Lora's stethoscope. The cost for this replacement stethoscope was no more than the above tubes were costing in 2010 (about \$26).

Other Miscellaneous items

Topcon Chinrest Pin (I believe these are the little plastic pins that hold in the chinrest papers)	ZZ-9-TO4236440210	\$3.25	2005
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Reichert Tonometer "OVERRIDE" switch cover	TO-9-RE12411035	\$8.50	2005
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Reichert Lensmeter Nosepiece tip	LE-9-RE11360025P	\$35.00	2005
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Description of Item	Lombart item number	price	year of this price
(I think this is the part the glasses lens rests on, with the lensometer)			
Reliance Replacement Knob for Overhead Lamp (this is a part I replaced on the Reliance Ophthalmic stand, as used at Burke / Optometry)	CS-9-RL0533799	\$16.50	2006

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B-VAT visual acuity system
 Remote control replaced
 November 2007
 Source: Science 20/20 Inc
 681 Encinitas Blvd, Suite 302
 Encinitas CA 92024
 1-877-436-9868
Science2020@abac.com

\$75 + \$15 shipping