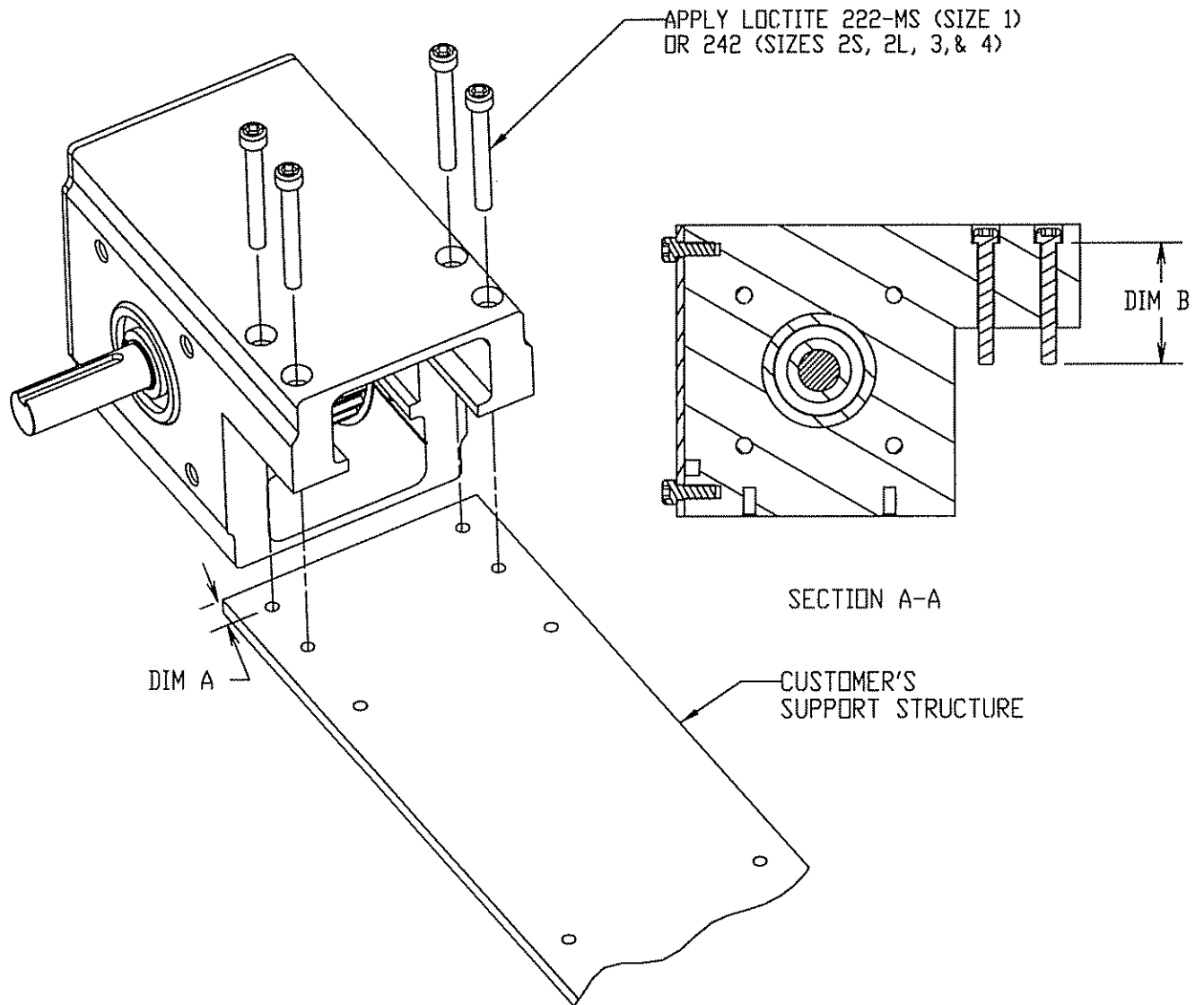


LoPro® SYSTEM DRIVE END MOUNTING

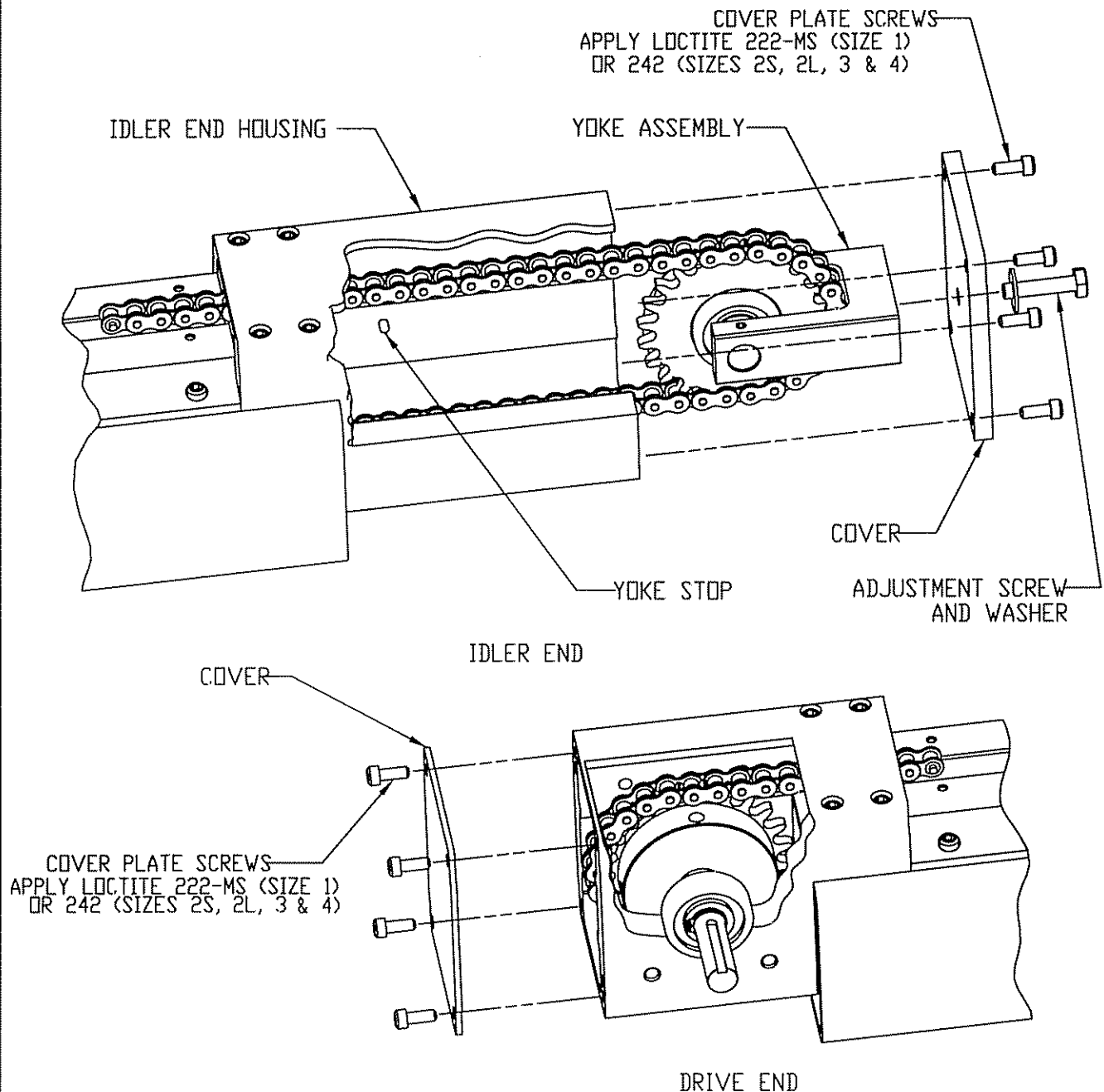


LoPro DRIVE/IDLER END	MOUNTING HARDWARE SIZE	END TO MOUNTING HOLE DIM A	MINIMUM SCREW LENGTH DIM B
1	M3	6.0 mm [.236 in] Max.	22.0 mm [.866 in]
2S	M5	10.0 mm [.394 in] Max.	30.0 mm [1.181 in]
2L	M5	10.0 mm [.394 in] Max.	35.0 mm [1.378 in]
3	M6	13.0 mm [.511 in] Max.	45.0 mm [1.772 in]
4	M8	13.5 mm [.531 in] Max.	55.0 mm [2.165 in]

LoPro® CHAIN INSTALLATION

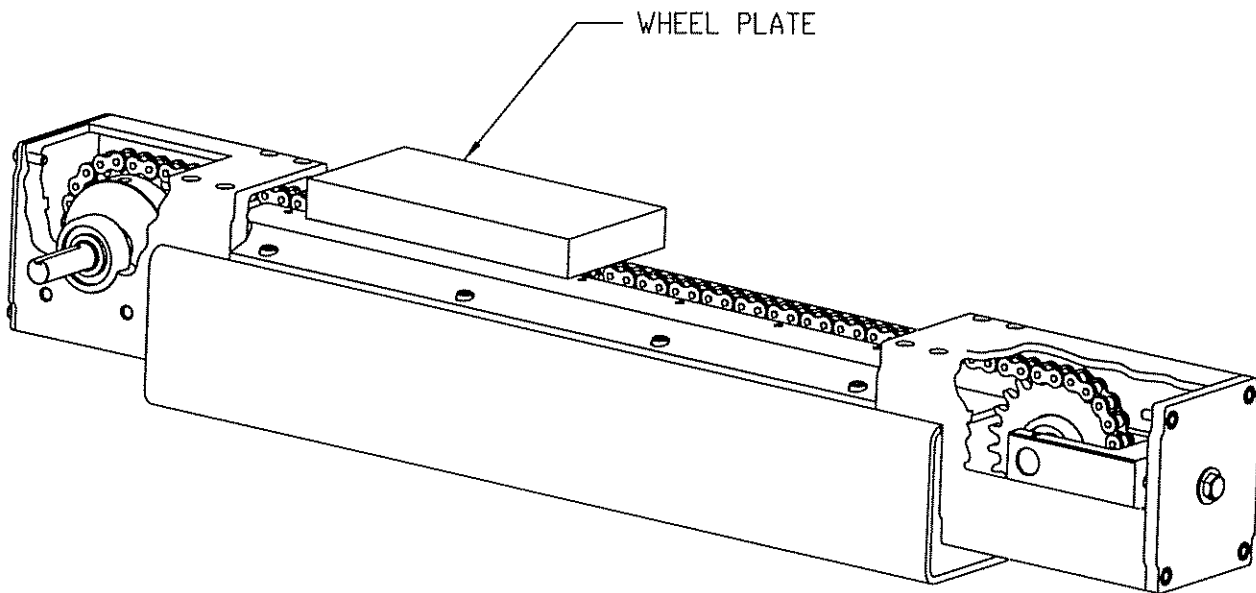
INSTRUCTIONS:

1. REMOVE ADJUSTMENT SCREW FROM IDLER END.
2. REMOVE COVERS FROM DRIVE END AND IDLER END.
3. SLIDE YOKE ASSEMBLY OUT OF IDLER END.
4. THREAD CHAIN THROUGH IDLER END AND THEN THROUGH BOTTOM OF YOKE ASSEMBLY, THEN OVER THE SPROCKET.
5. PLACE IDLER END COVER AGAINST YOKE ASSEMBLY. THREAD ADJUSTMENT SCREW LOOSELY INTO YOKE.
6. SLIDE YOKE ASSEMBLY AND CHAIN INTO IDLER END HOUSING UNTIL IDLER END COVER IS AGAINST THE IDLER END HOUSING, THREADING THE CHAIN THROUGH IDLER END HOUSING.
7. REPLACE IDLER END COVER SCREW. TIGHTEN COVER SCREWS.
8. THREAD OTHER END OF CHAIN THROUGH BOTTOM OF THE DRIVE END ASSEMBLY.
9. ROUTE CHAIN OVER SPROCKET AND BACK THROUGH DRIVE END ASSEMBLY.
10. REPLACE DRIVE END COVER.



LoPro® CHAIN INSTALLATION

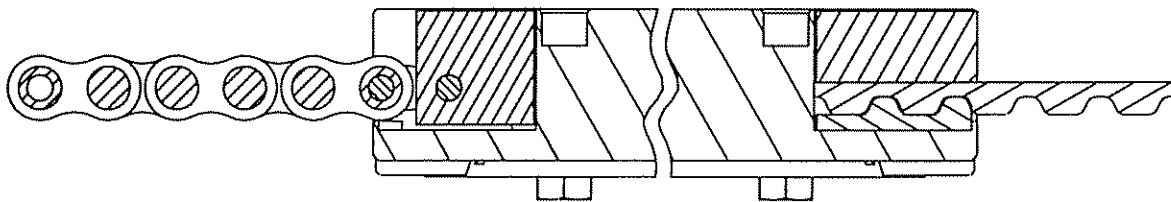
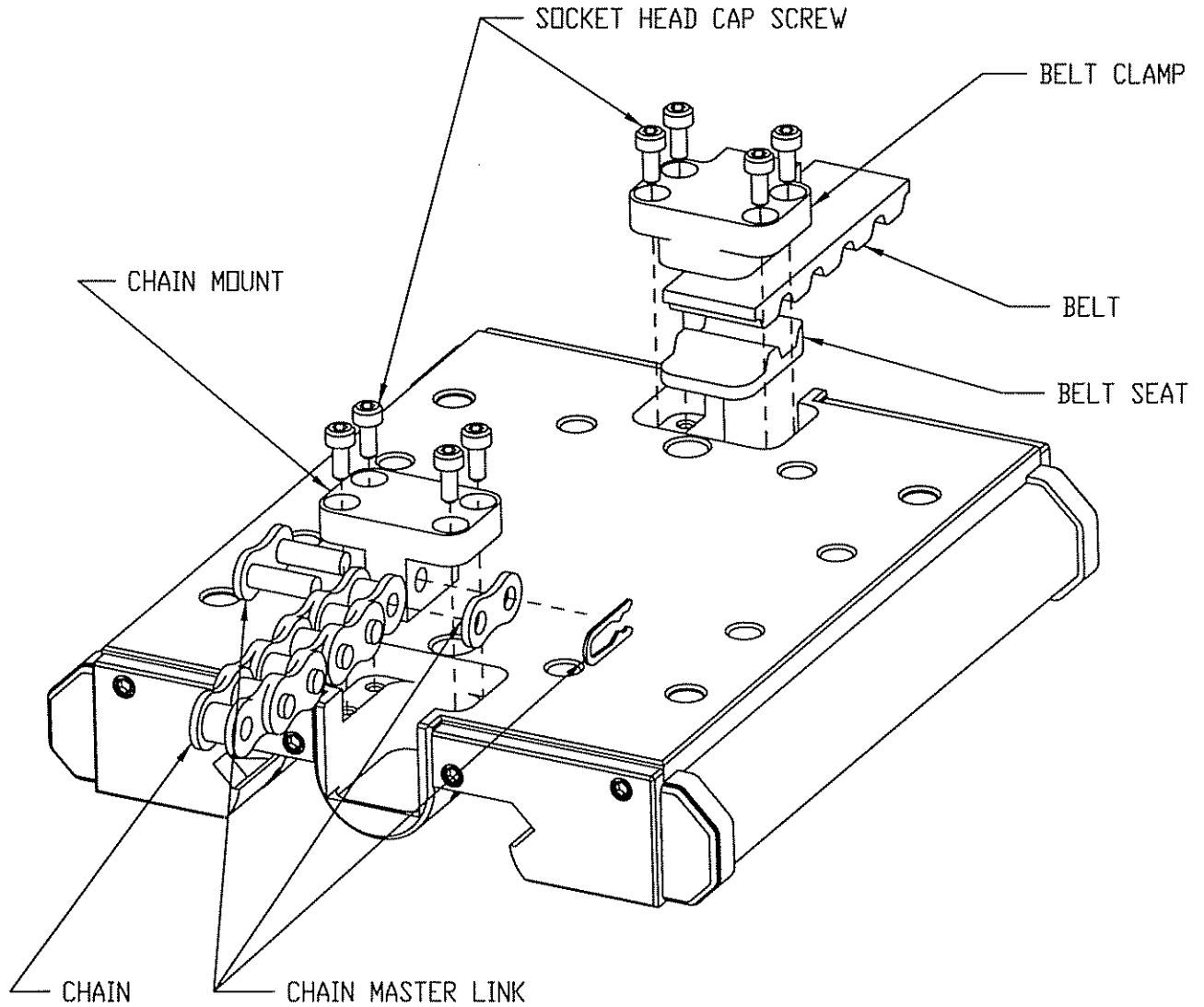
CHAIN INSTALLED THROUGH DRIVE ENDS.
SEE MANUAL LPWWPAMAN OR LPBWPCAMAN
FOR ATTACHING CHAIN TO WHEEL PLATE.



LoPro[®] WIPER WHEEL PLATE BELT OR CHAIN ATTACHMENT

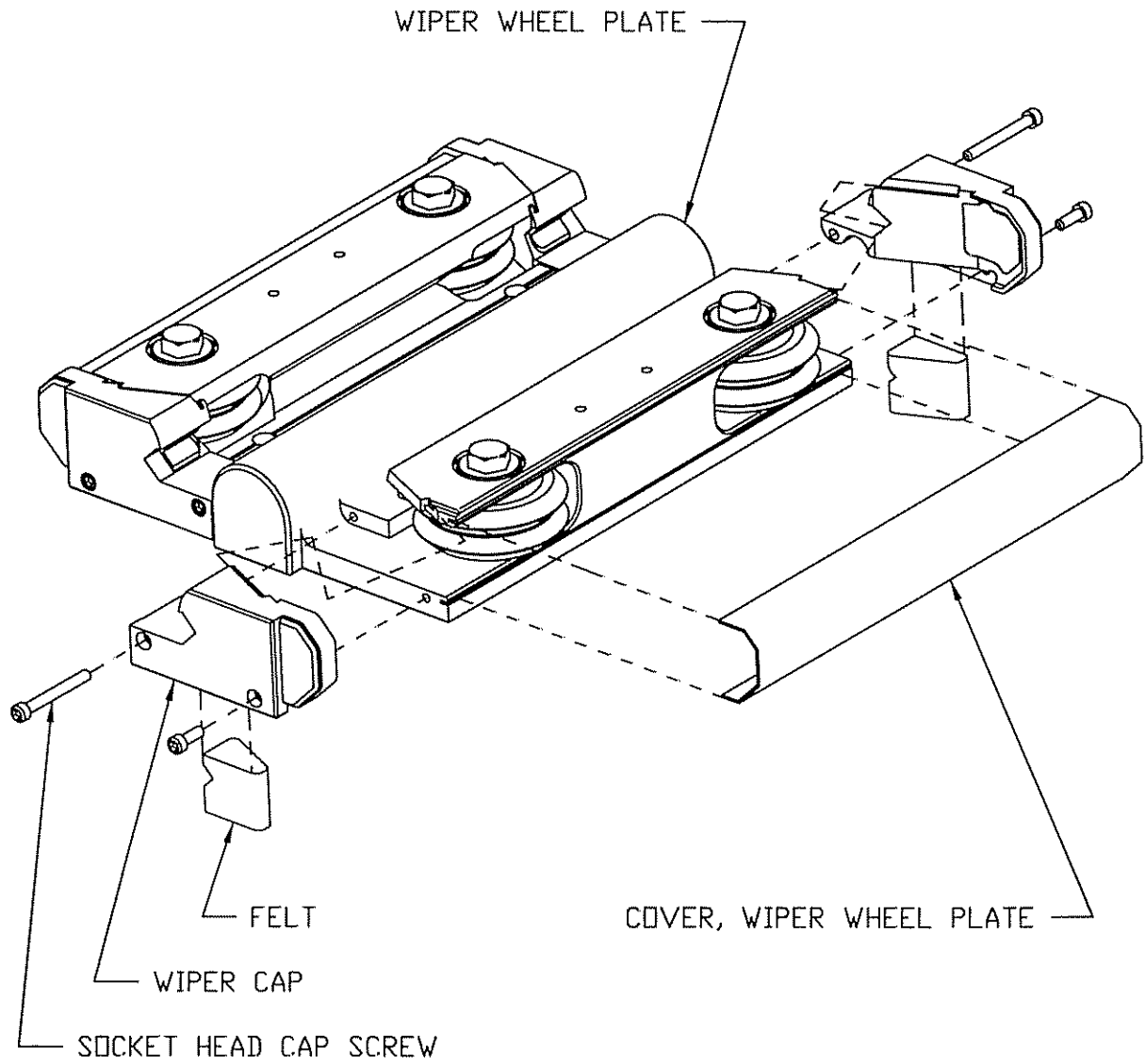
CHAIN: ATTACH CHAIN TO CHAIN MOUNT WITH MASTER LINK. SCREW CHAIN MOUNT TO WHEEL PLATE.

BELT: LOOSEN BELT CLAMP SO THAT BELT SLIPS IN BETWEEN BELT CLAMP AND BELT SEAT. TIGHTEN SCREWS TO CLAMP BELT.

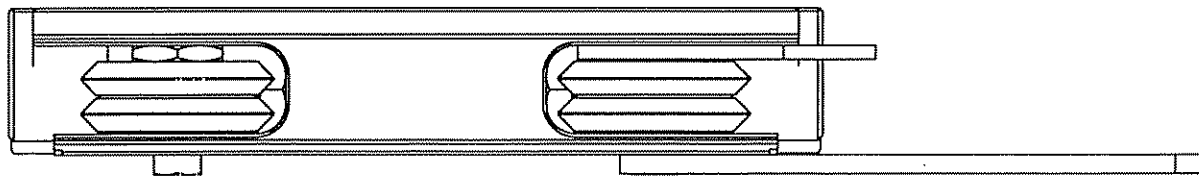
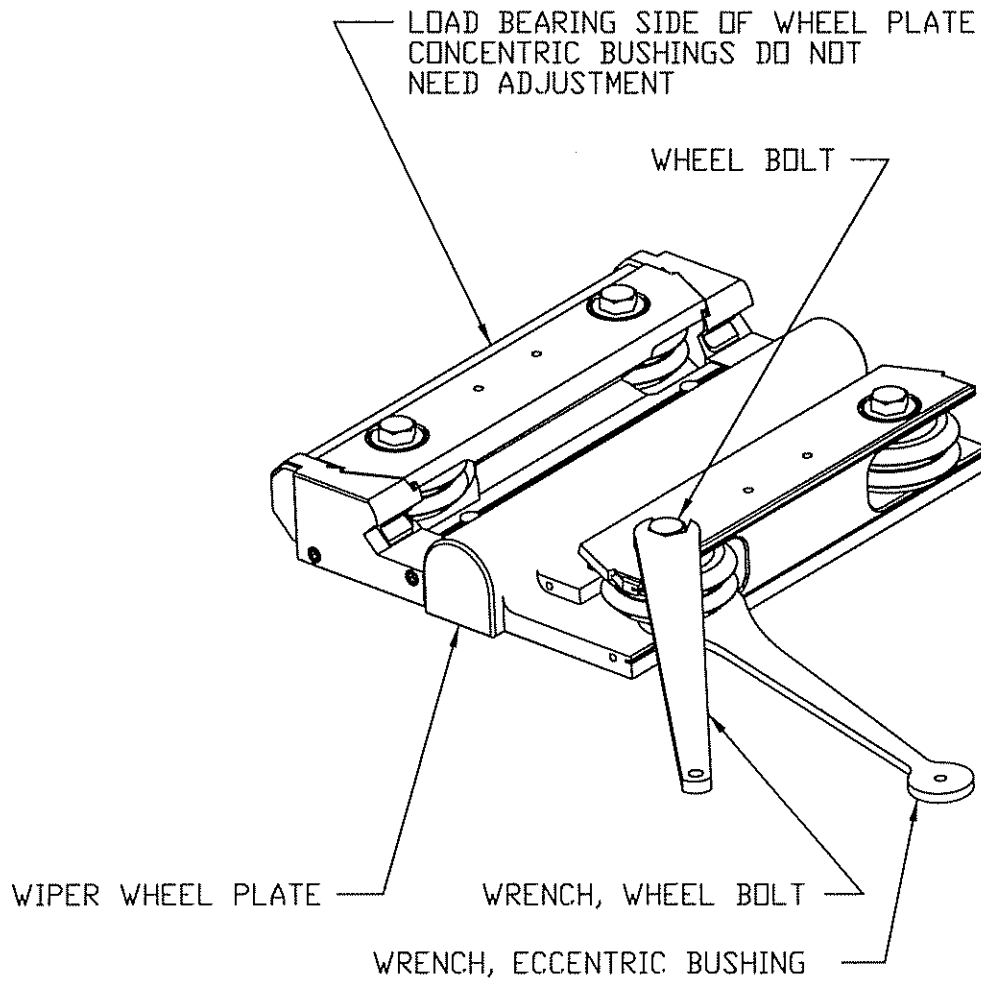


WHEEL PLATE CROSS SECTION

LoPRO® WIPER WHEEL PLATE MAINTENANCE

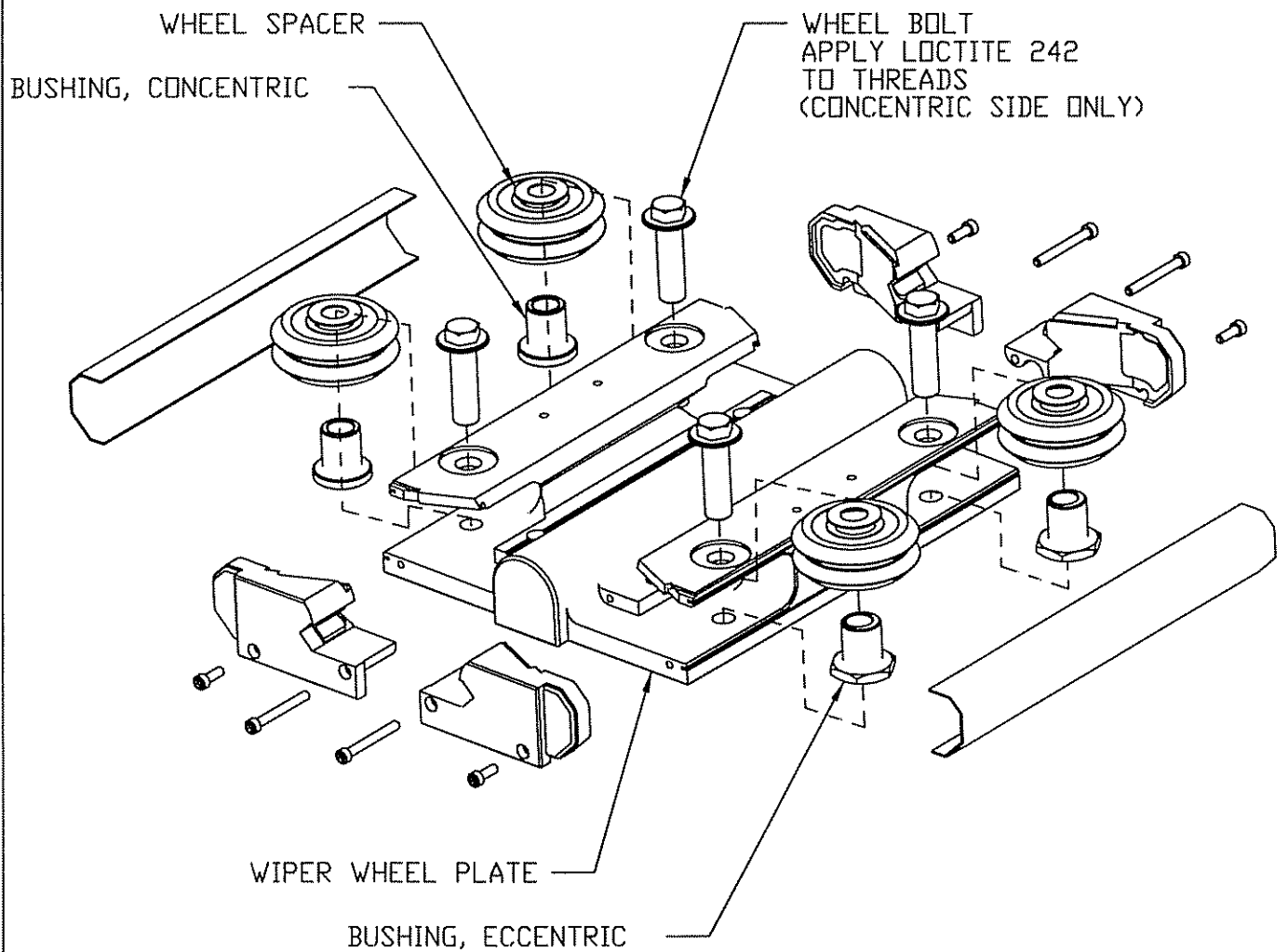


ECCENTRIC BUSHING ADJUSTMENT



LoPro® WIPER WHEEL PLATE MAINTENANCE

EXPLODED VIEW OF WHEEL PLATE SHOWING WHEEL REPLACEMENT



LoPro[®] BELT OR CHAIN TENSIONING

TO ADJUST BELT OR CHAIN TENSION:

1. MOVE WHEEL PLATE TO DRIVEN END OF SYSTEM.
2. TIGHTEN OR LOOSEN ADJUSTMENT SCREW LOCATED ON IDLER END COVER.
3. THIS WILL SLIDE YOKE ASSEMBLY IN THE IDLER END HOUSING.
4. ADJUST UNTIL DESIRED TENSION IS ACHIEVED.

GENERAL

LoPro SYSTEM LENGTH, LOAD, SPEED, AND ACCELERATION PROFILES ALL AFFECT THE DRIVE TENSION REQUIRED FOR CONSISTENT, TROUBLE-FREE OPERATION. IN GENERAL, OVER-TENSIONING THE SYSTEM SHOULD BE AVOIDED TO PREVENT PREMATURE WEAR OF DRIVE SYSTEM COMPONENTS.

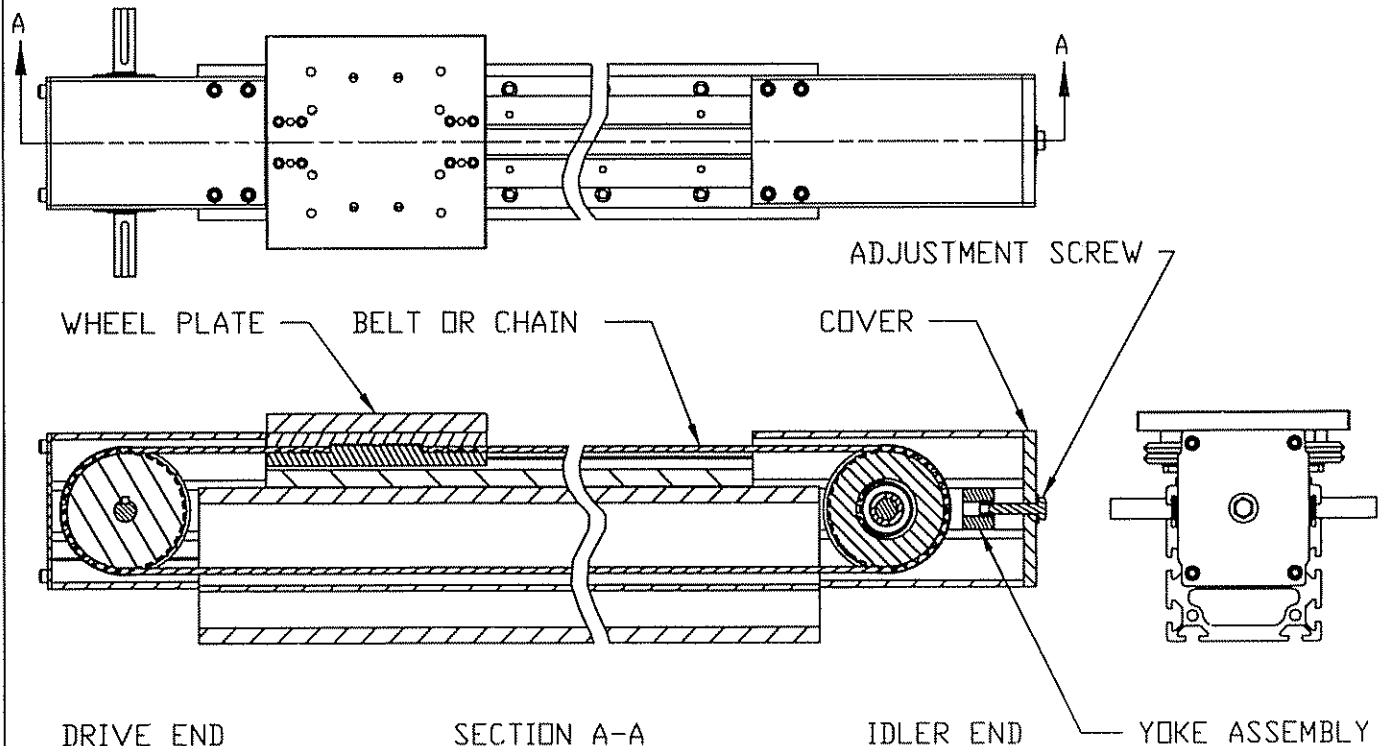
BELT DRIVEN LoPro SYSTEMS

THE IDEAL TENSION IN LINEAR DRIVE BELT SYSTEMS IS ACHIEVED WHEN THE TENSILE FORCE IS EQUAL TO THE TRANSMITTED FORCE. THE TRANSMITTED FORCE IS THE FORCE IN THE BELT WHEN IT ACCELERATES OR DECELERATES THE LOAD. THE FORCE IS EQUAL TO THE LOAD MASS X ACCELERATION + FRICTION

THE BELT TENSION CAN BE DIFFICULT TO ESTIMATE WHILE ADJUSTING YOUR LoPro SYSTEM. THE BELT SHOULD FEEL FIRM WHEN PRESSED UPON WITH A FINGER, BUT NEVER BE "GUITAR STRING" TIGHT WHEN TAPPED WITH A FINGER. THE BELT TENSION IS CORRECTLY SET WHEN THE SLACK SIDE OF THE BELT REMAINS TAUT UNDER MAXIMUM OPERATING LOAD. BELT FLAP OR SAGGING IS INDICATIVE OF INSUFFICIENT TENSION.

CHAIN DRIVEN LoPro SYSTEMS

HORIZONTALLY MOUNTED CHAIN DRIVEN LoPro SYSTEMS WILL HAVE SIGNIFICANT VARIATIONS IN CHAIN TENSIONING REQUIREMENTS, NAMELY DUE TO THE VARYING LENGTHS OF THE SYSTEM. FOR SHORTER TRAVEL LENGTHS, THE CHAIN CAN BE TENSIONED TO PREVENT CONTACT WITH THE TRACK PLATE. FOR LONGER SYSTEMS, THE TENSION TO SUPPORT THE CHAIN WEIGHT WOULD BE EXCESSIVE; A WEAR STRIP WOULD BE REQUIRED. CHAIN DRIVEN LoPro IN SIZES 3 AND 4 ARE PROVIDED WITH A UHMW POLYETHYLENE STRIP, WHICH IS FIXED TO THE TRACK PLATE FOR A REDUCED FRICTION CHAIN SUPPORT.



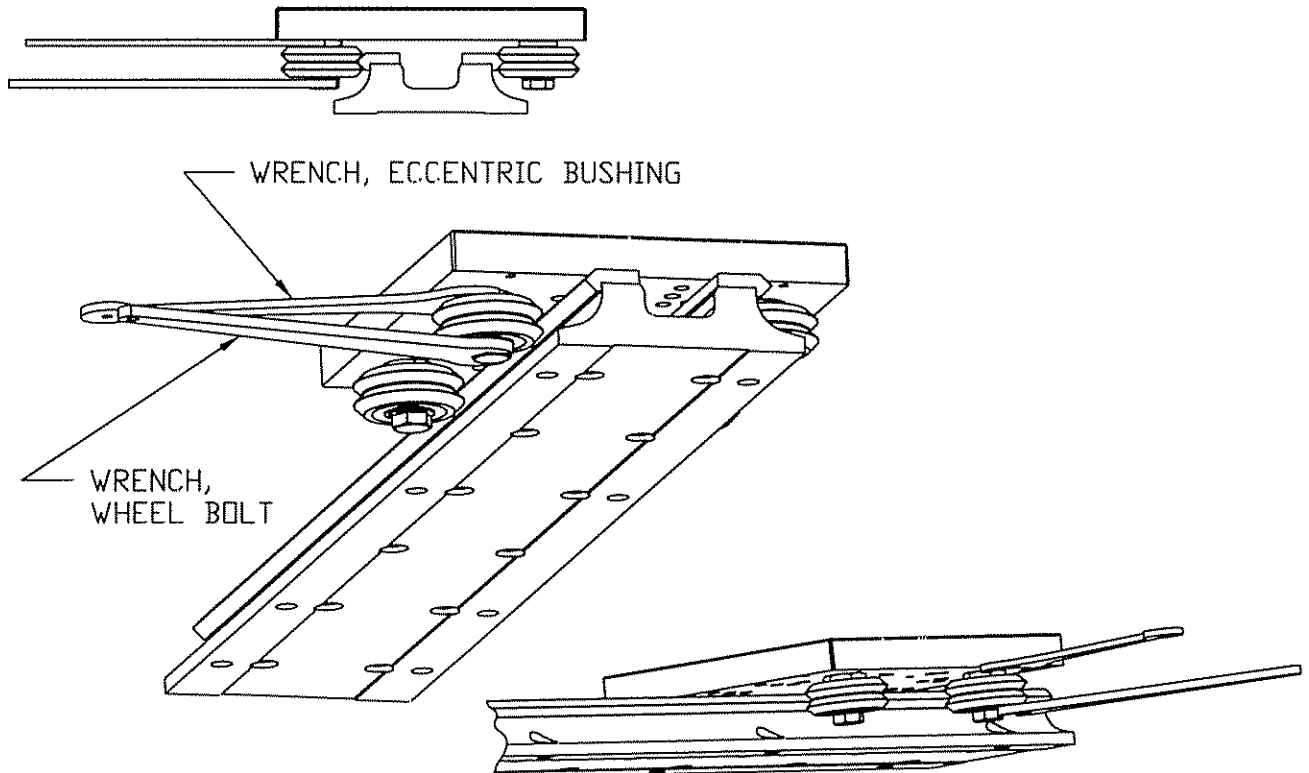
LoPro® DUAL VEE® WHEEL FIT-UP

TO OBTAIN THE BEST PERFORMANCE FROM A Bishop-Wisecarver LoPro LINEAR MOTION SYSTEM, CARE SHOULD BE TAKEN TO ENSURE THE WHEEL PLATE IS CORRECTLY ADJUSTED.

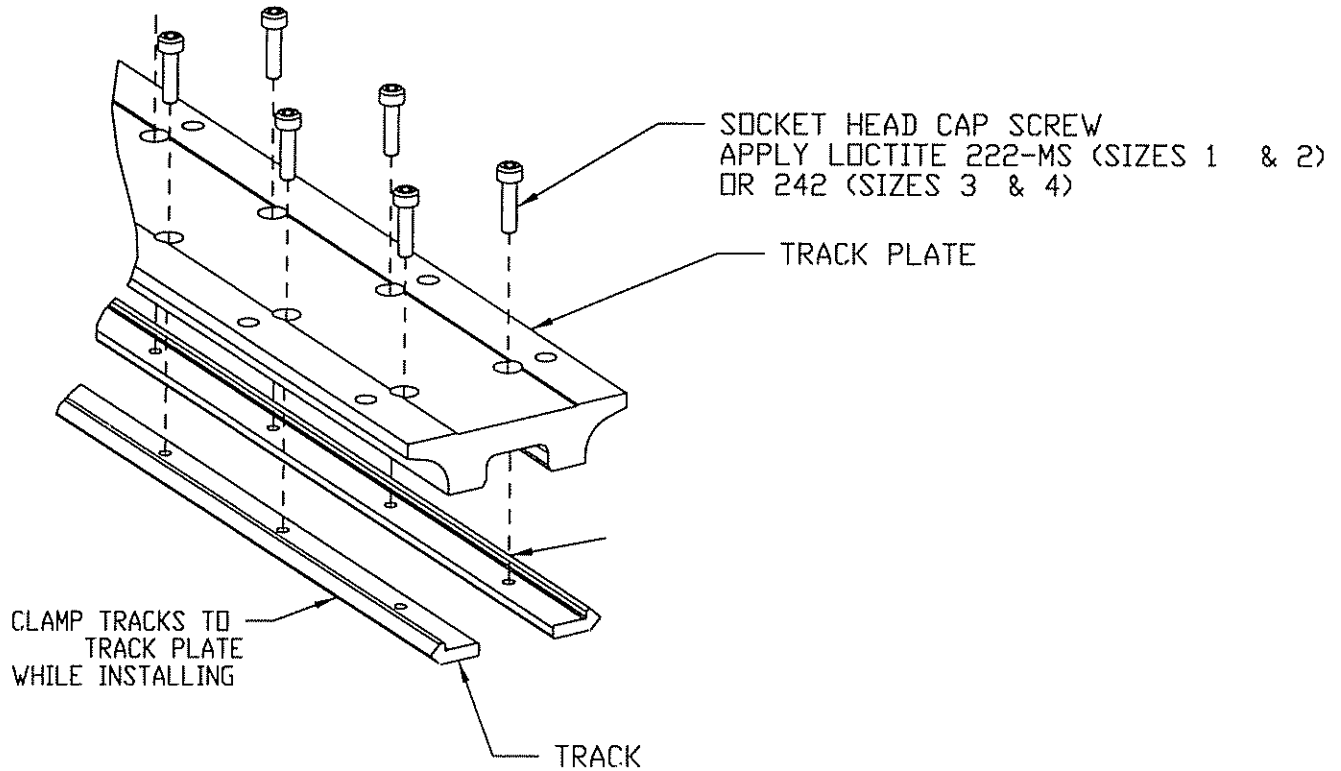
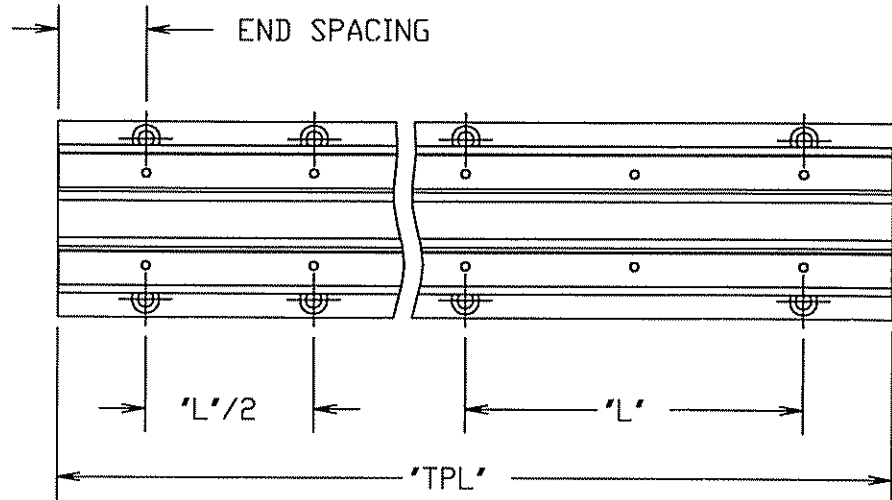
THE GUIDE WHEELS ARE FASTENED TO THE WHEEL PLATE WITH SPECIAL MOUNTING BOLTS. THESE BOLTS PASS THROUGH SHOULDERED BUSHINGS THAT ARE INSERTED INTO THE GUIDE WHEEL. THERE ARE TWO TYPES OF BUSHINGS; THE FIXED OR CONCENTRIC, AND THE ADJUSTABLE OR ECCENTRIC. THE ECCENTRIC BUSHING HAS HEXAGONAL WRENCH FLATS.

PRE-LOAD GUIDE WHEEL ADJUSTMENT:

1. CHECK CONCENTRIC GUIDE WHEEL MOUNTING BOLTS FOR TIGHTNESS.
2. LOOSEN THE ECCENTRIC GUIDE WHEEL MOUNTING BOLT JUST ENOUGH TO ALLOW ROTATION OF THE ECCENTRIC BUSHING. MAKE THE FOLLOWING ADJUSTMENTS IN SMALL INCREMENTS.
3. PLACE THE LoPro ECCENTRIC WRENCH ON THE ECCENTRIC BUSHING AND ROTATE THE HANDLE AWAY FROM THE CENTER OF THE WHEEL PLATE TO A POINT WHERE THE GUIDE WHEELS CONTACT THE TRACK.
4. HOLD THE GUIDE WHEEL FIRMLY BETWEEN YOUR FINGERS AND MOVE THE WHEEL PLATE ALONG THE TRACK. AT THE SAME TIME, ROTATE THE BUSHING TO A POINT WHERE THE GUIDE WHEEL DOES NOT SKID ON THE TRACK. TIGHTEN THE WHEELBOLT SNUGLY SO THAT THIS TEMPORARY ADJUSTMENT WILL HOLD.
5. REPEAT THIS PROCEDURE ON THE SECOND ECCENTRIC GUIDE WHEEL.
6. A PROPER ADJUSTMENT IS ACHIEVED BY REPEATING STEPS 4 AND 5 UNTIL A UNIFORM RESISTANCE TO MOTION IS ATTAINED BY 'FEEL' ALONG THE ENTIRE TRACK.
7. FULLY TIGHTEN THE ECCENTRIC WHEEL BOLTS TO FIX BOTH ADJUSTMENTS. NOTE THAT BOTH ECCENTRIC WHEELS NEED TO BE ADJUSTED PRIOR TO PERFORMING THIS FINAL TIGHTENING SO AS TO AVOID BINDING OF THE CARRIAGE.
8. APPLY WICKING THREAD LOCKER TO WHEEL BOLT THREADS FROM TOP OF WHEEL PLATE. USE LOCTITE 290 OR EQUIVALENT-ECCENTRIC SIDE ONLY.



LoPro® TRACK PLATE MAINTENANCE



TO DETERMINE HALF HOLE AND END SPACES:

TPL = TRACK PLATE LENGTH
 L = TRACK PLATE MOUNTING HOLE SPACING

$[(TPL \times 2) / L] - .36$ = INTEGER NUMBER AND DECIMAL VALUE
 INTEGER NUMBER/2 = NUMBER OF SPACES
 A VALUE WITH .5 REPRESENTS A HALF HOLE
 $[(DECIMAL VALUE + .36) \times L/2] / 2$ = END SPACES