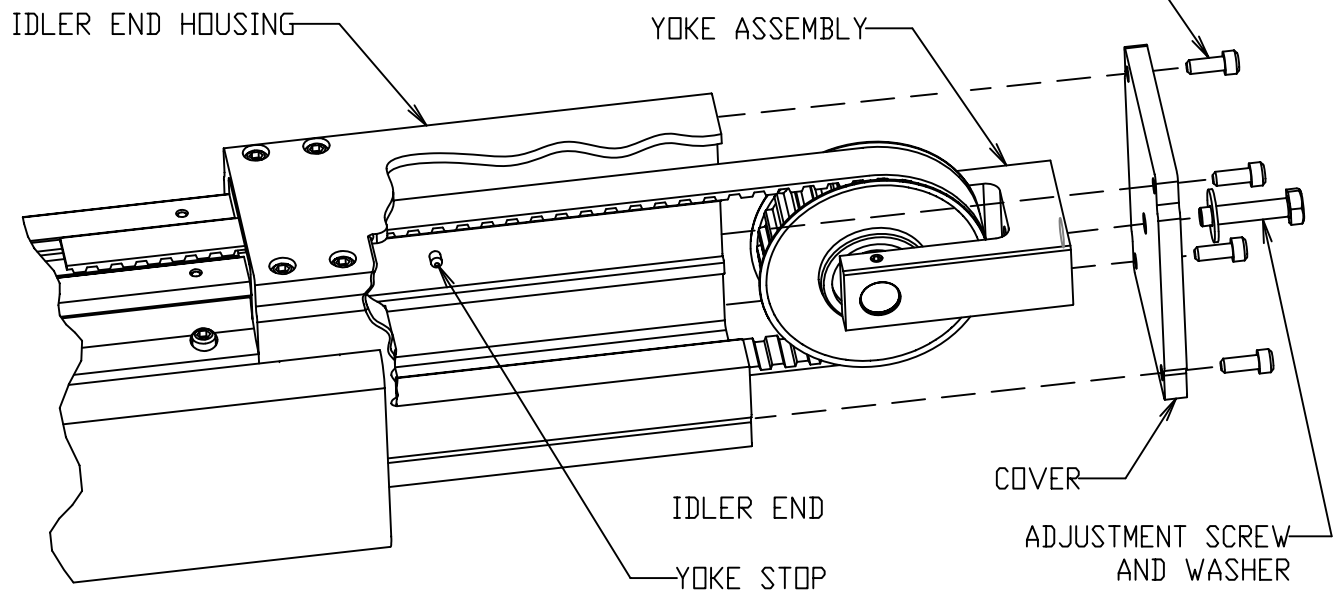


# LoPro® BELT INSTALLATION

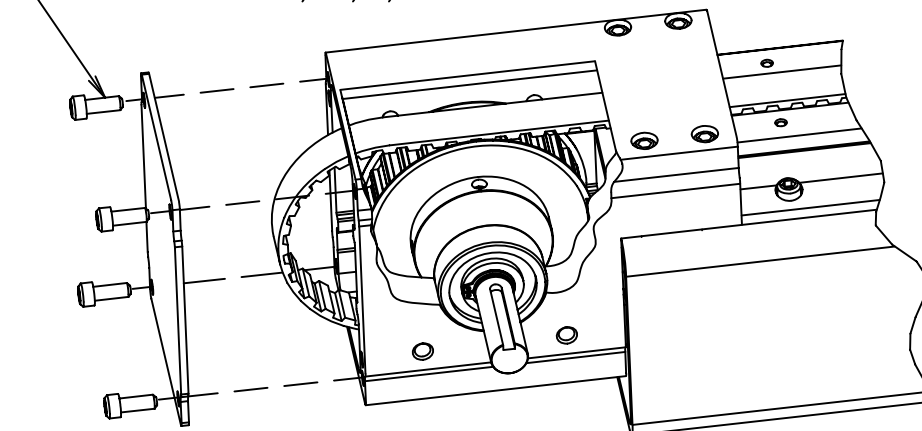
## INSTRUCTIONS:

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

4X APPLY LOCTITE 222-MS (SIZE 1)  
OR 242 (SIZES 2S, 2L, 3, & 4)



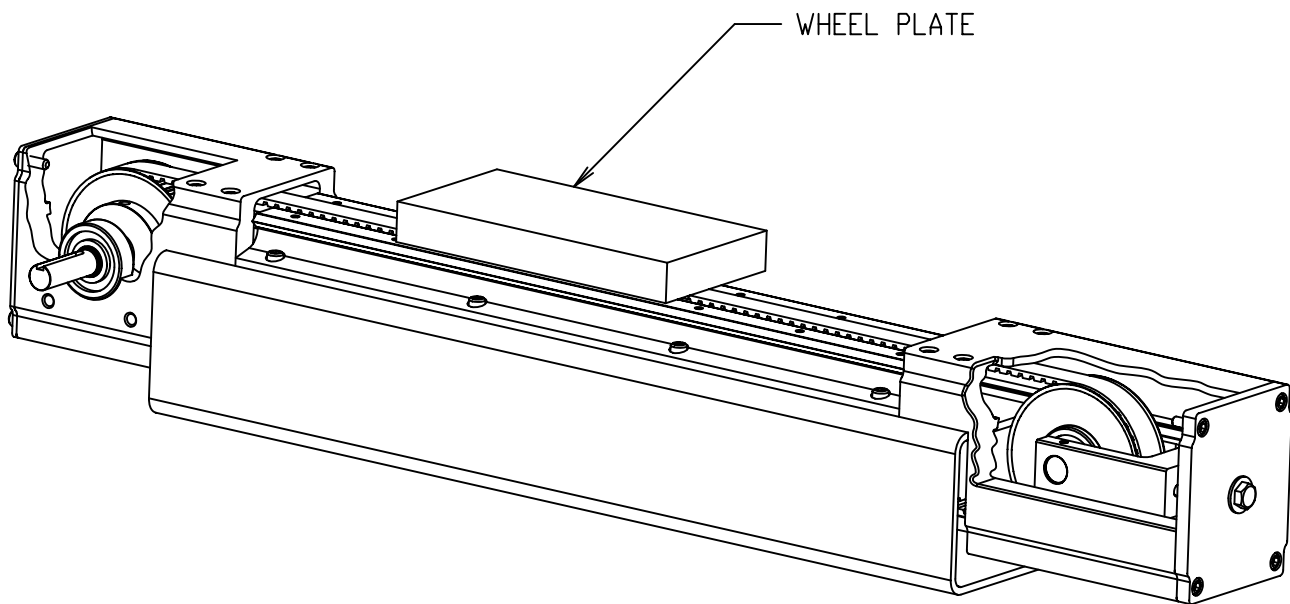
4X  
APPLY LOCTITE 222-MS (SIZE 1)  
OR 242 (SIZES 2S, 2L, 3, & 4)



DRIVE END

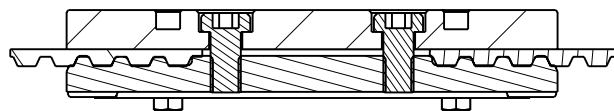
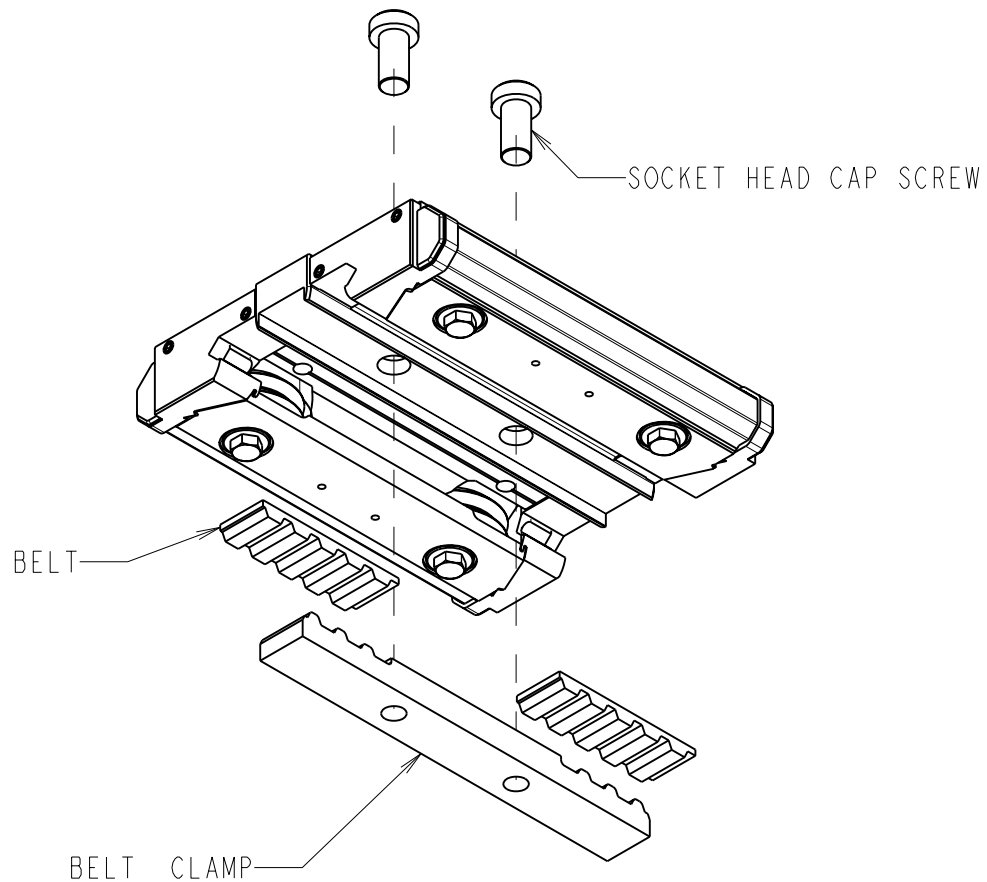
# LoPro® BELT INSTALLATION

BELT INSTALLED THROUGH DRIVE ENDS.  
SEE MANUAL LPWWPBAMAN OR LPBWPBAMAN  
FOR ATTACHING BELT TO WHEEL PLATE.



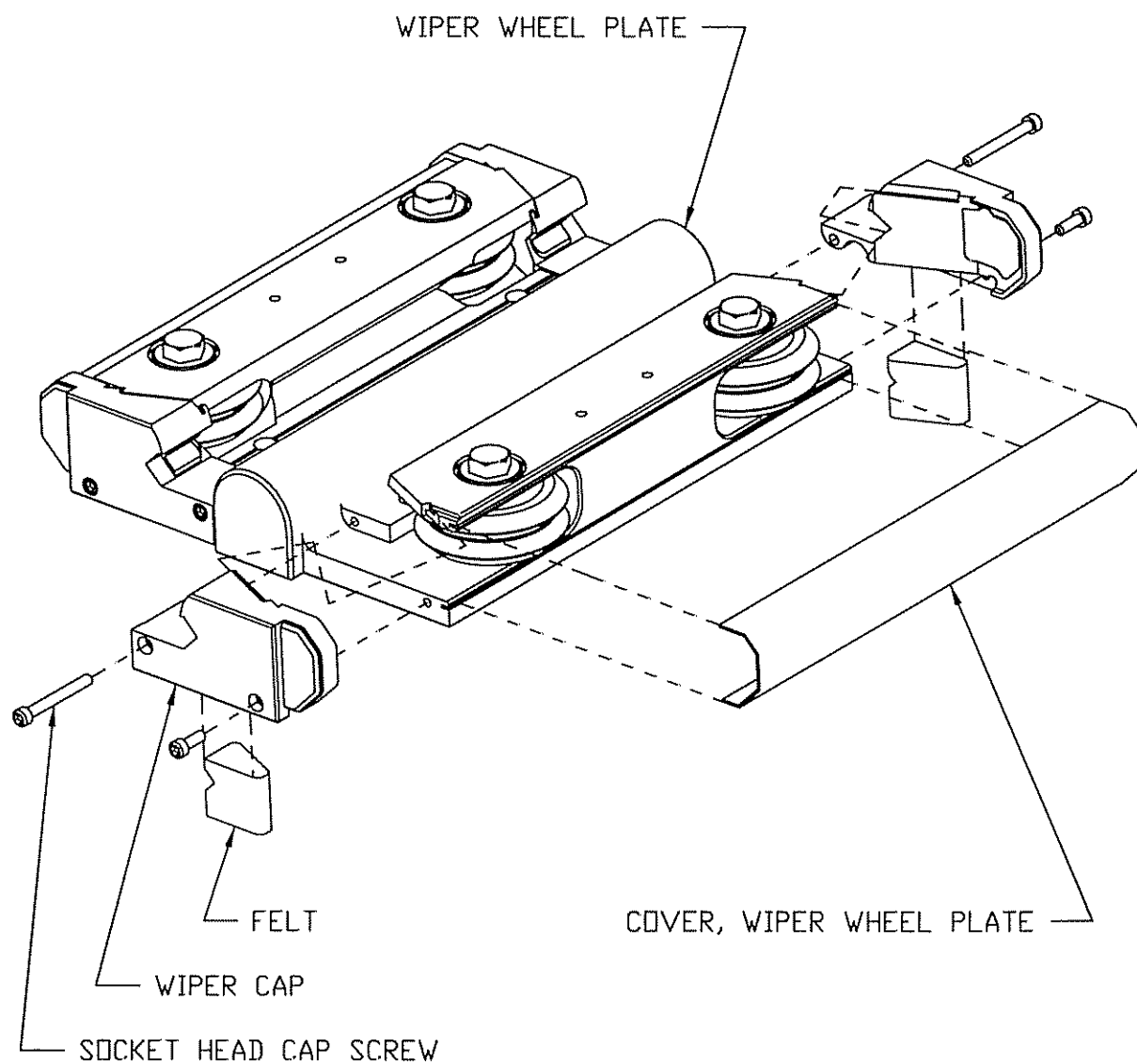
# LoPro® WIPER WHEEL PLATE BELT ATTACHMENT

PLACE THE ENDS OF THE BELT ON THE RIBBED SECTIONS OF THE BELT CLAMP. USE THE SOCKET HEAD CAP SCREWS TO SECURE THE CLAMP WITH THE BELT ENDS INTO THE SLOT ON THE UNDERSIDE OF THE WIPER WHEEL CARRIAGE.

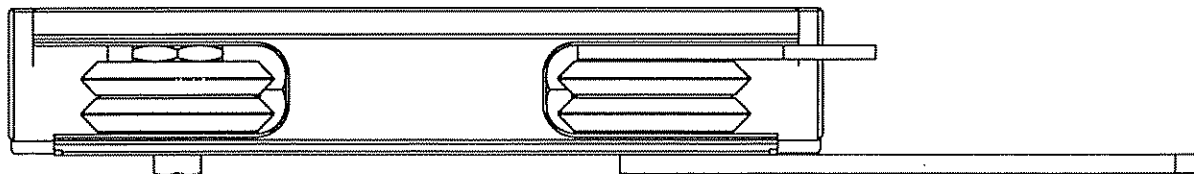
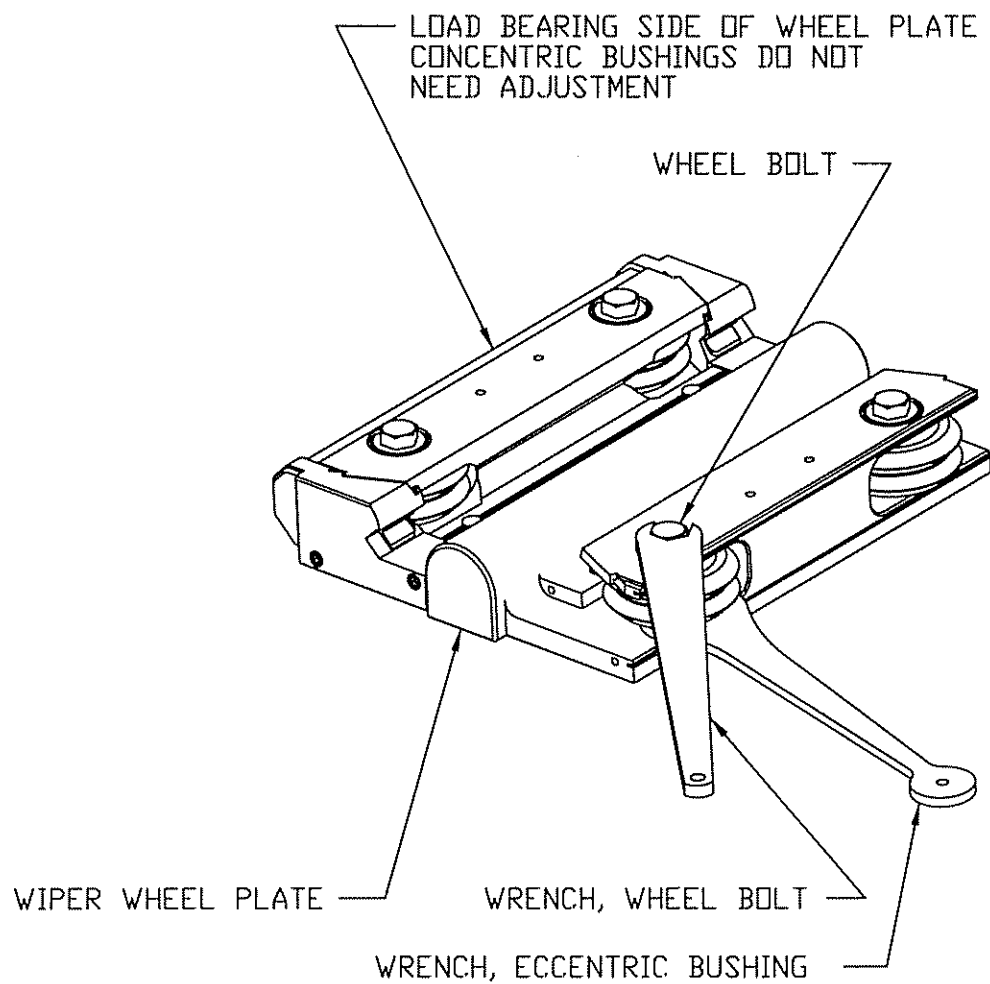


WHEEL PLATE CROSS SECTION

# LoPro® WIPER WHEEL PLATE MAINTENANCE

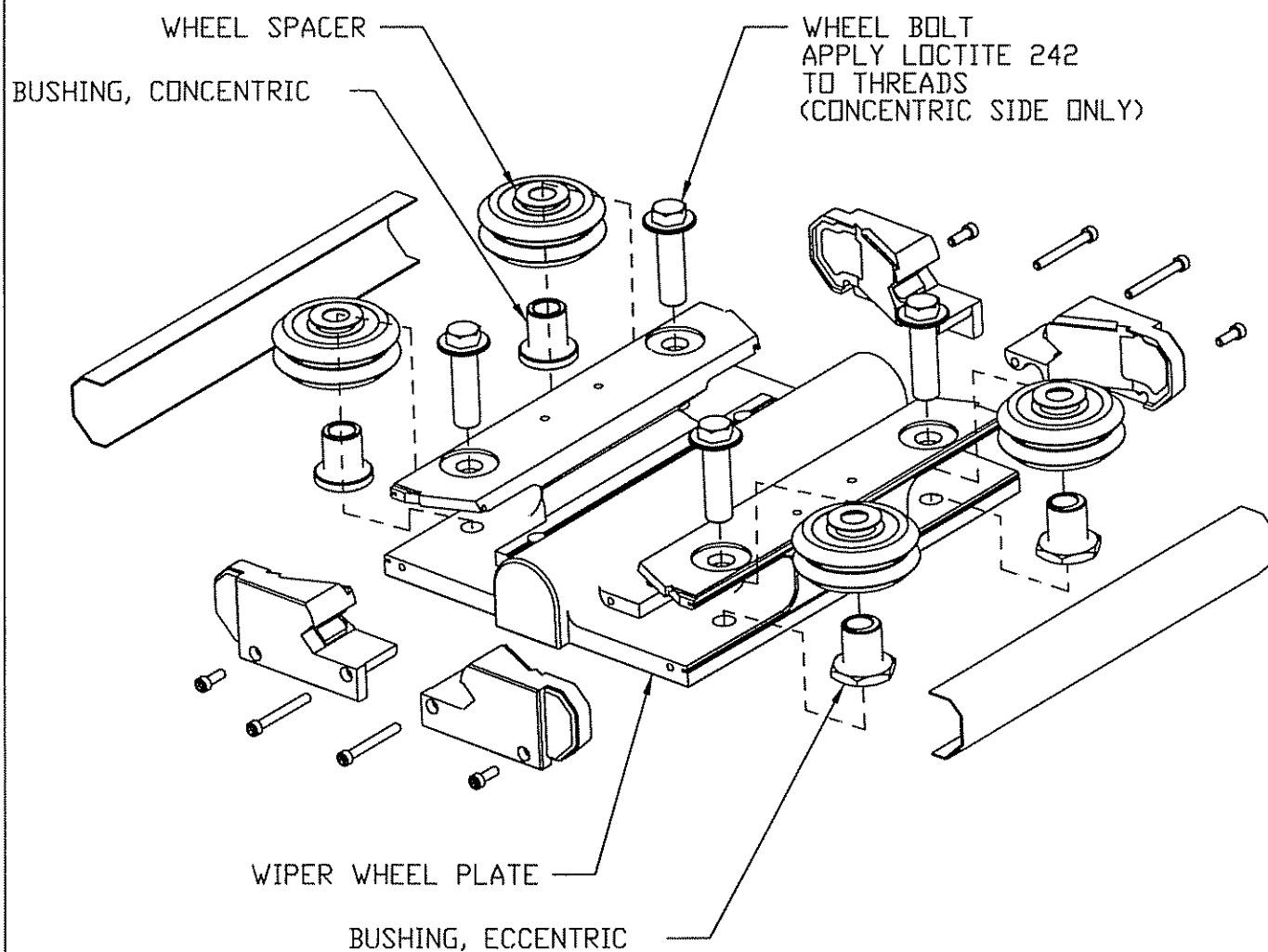


ECCENTRIC BUSHING ADJUSTMENT



# LoPro® WIPER WHEEL PLATE MAINTENANCE

## EXPLODED VIEW OF WHEEL PLATE SHOWING WHEEL REPLACEMENT



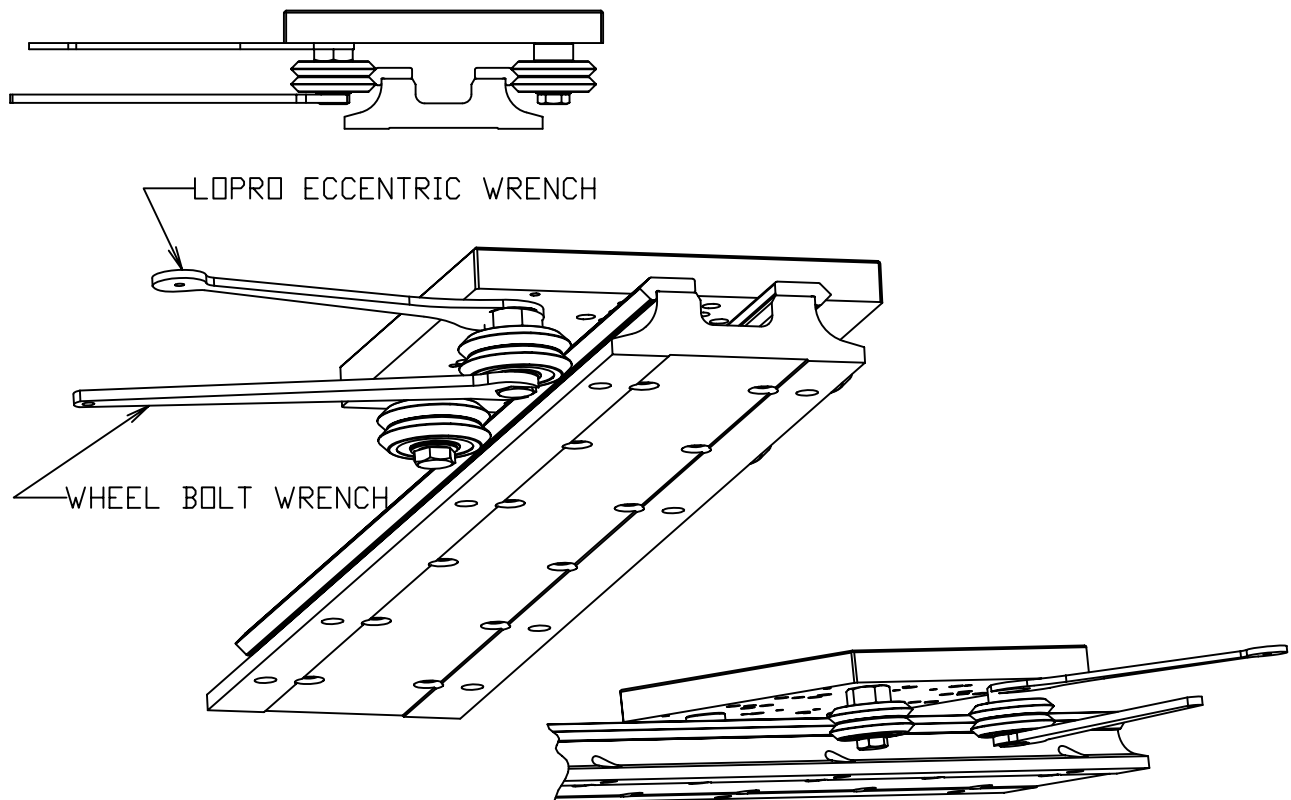
# LoPro® DUAL VEE® WHEEL FIT-UP

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.

## ADJUSTMENT OF PRELOAD FOR GUIDE WHEELS WITH BUSHINGS:

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.

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.



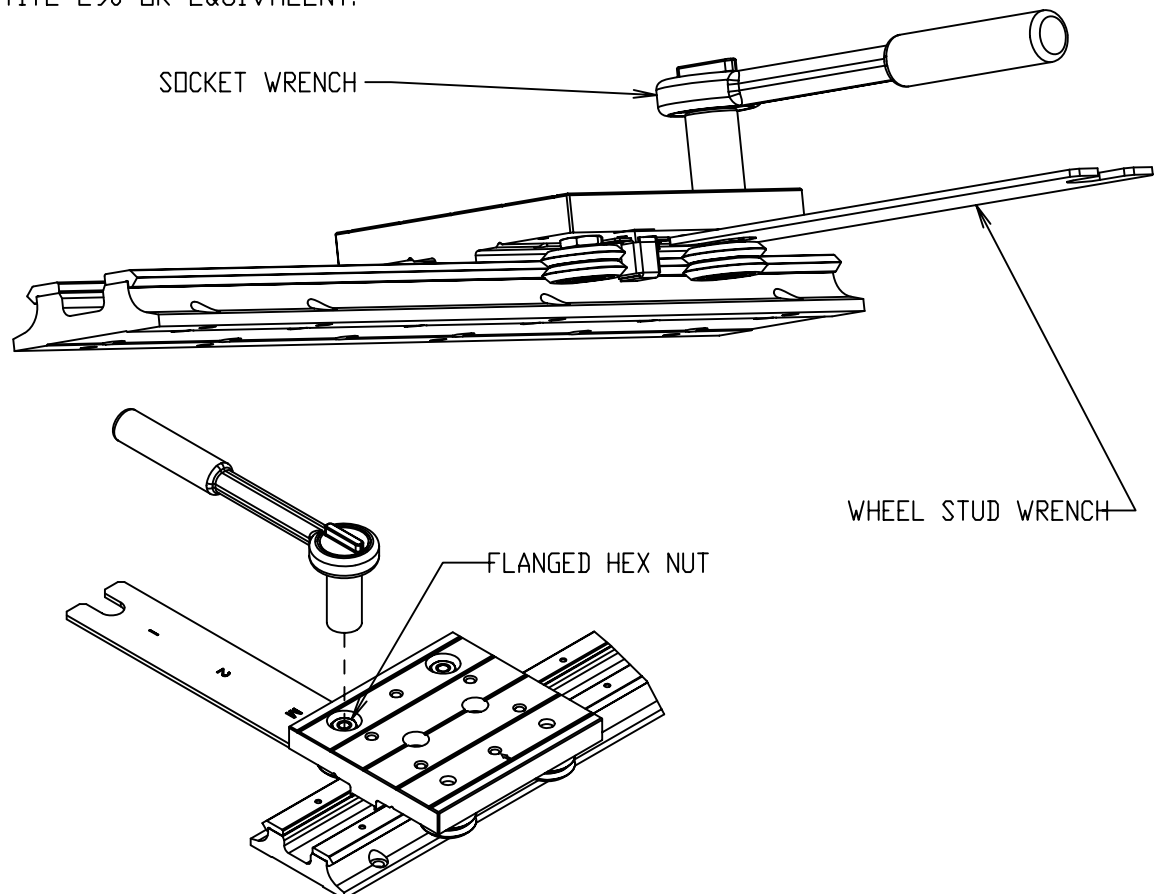
# LoPro® DUAL VEE® WHEEL FIT-UP

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.

## ADJUSTMENT OF PRELOAD FOR STUDDED GUIDE WHEELS:

THE GUIDE WHEELS HAVE INTEGRATED STUDS AND WRENCH FLATS ON THEIR INNER RACES. THE CONCENTRIC GUIDE WHEELS ATTACH DIRECTLY TO TAPPED HOLES ON THE WHEEL PLATE. THE ECCENTRIC GUIDE WHEEL STUDS PASS THROUGH CLEARANCE HOLES ON THE WHEEL PLATE AND ARE HELD TO THE WHEEL PLATE BY FLANGED HEX NUTS ON THE WHEEL PLATE'S TOP SIDE.

1. CHECK CONCENTRIC GUIDE WHEEL MOUNTING BOLTS FOR TIGHTNESS.
2. USE A SOCKET WRENCH TO LOOSEN THE ECCENTRIC GUIDE WHEEL'S FLANGED HEX NUT JUST ENOUGH TO ALLOW ROTATION OF THE ECCENTRIC WHEEL'S WRENCH FLAT. MAKE THE FOLLOWING ADJUSTMENTS IN SMALL INCREMENTS.
3. PLACE THE WHEEL STUD WRENCH ON THE ECCENTRIC WHEEL'S WRENCH FLAT 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 FLANGED HEX NUT 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.





# LoPro<sup>®</sup> 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.

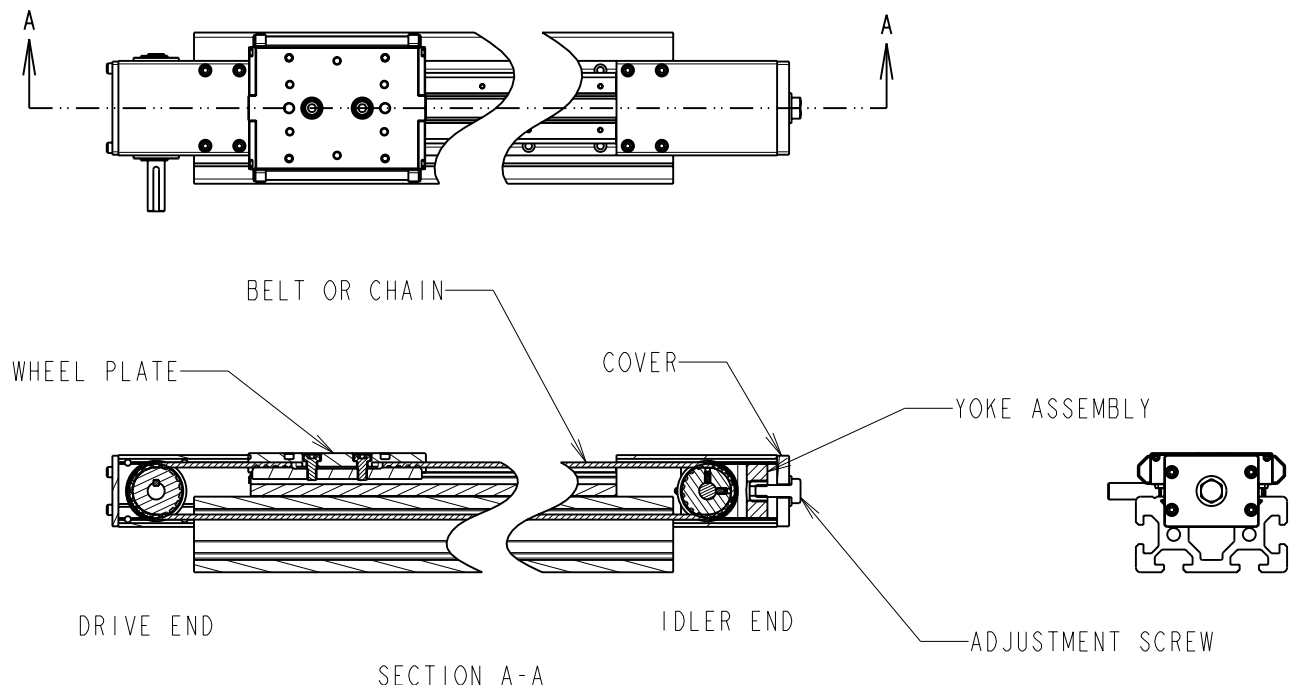
## BELT DRIVEN LoPro SYSTEMS

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 ACCELERATES OR DECELERATES THE LOAD. THE FORCE IS EQUAL TO THE LOAD MASS X ACCELERATION + FRICTION

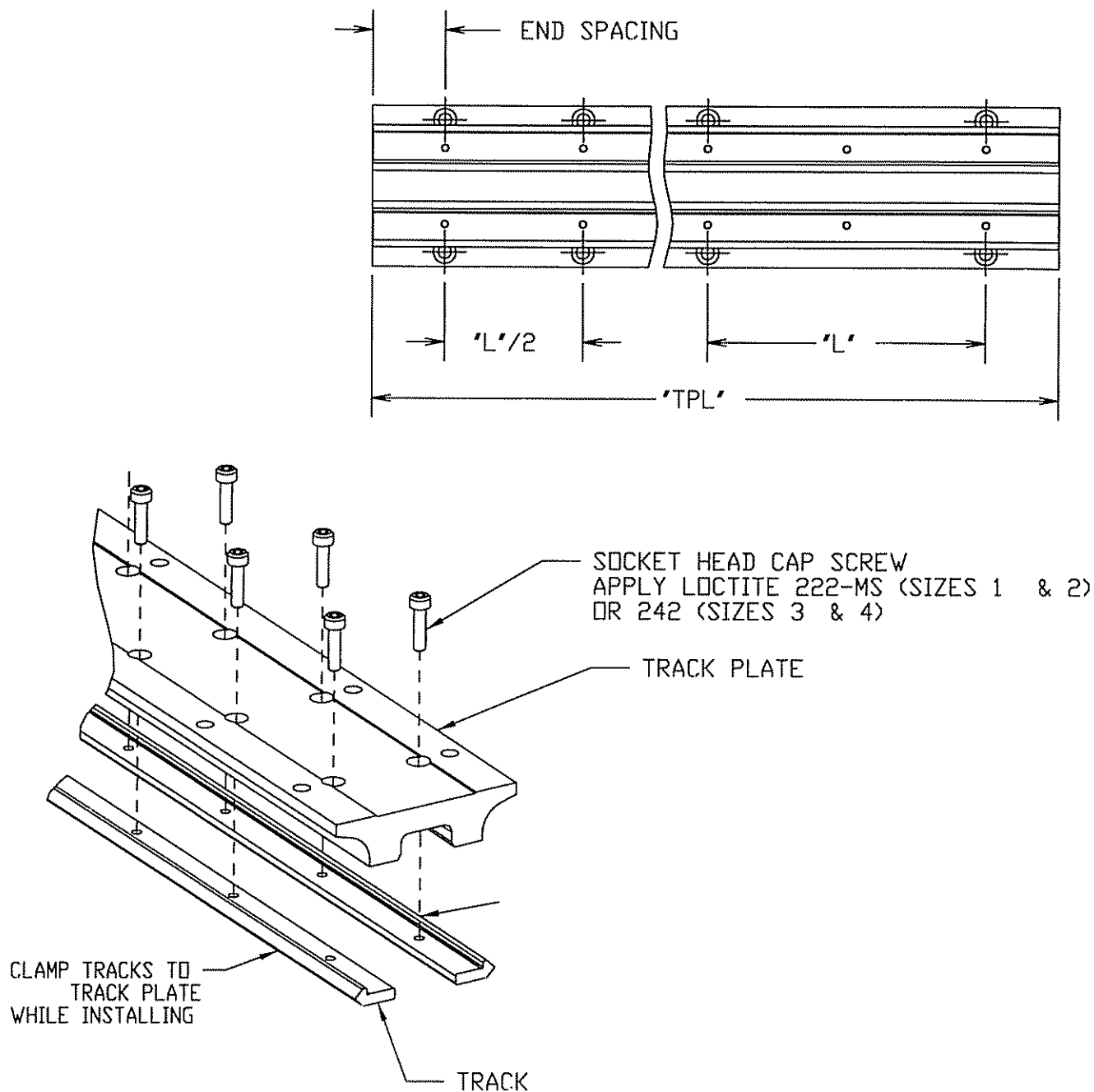
THE BELT TENSION CAN BE DIFFICULT TO ESTIMATE WHILE ADJUSTING YOUR LoPro SYSTEM. THE BELT SHOULD FEEL FIRM WHEN PRESSED UPON WITH A FINGER, BUT NEVER BE "GUITAR STRING" TIGHT WHEN TAPPED WITH A FINGER. THE BELT TENSION IS CORRECTLY SET WHEN THE SLACK SIDE OF THE BELT REMAINS TAUT UNDER MAXIMUM OPERATING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



TO DETERMINE HALF HOLE AND END SPACES:

$TPL$  = TRACK PLATE LENGTH

$L$  = TRACK PLATE MOUNTING HOLE SPACING

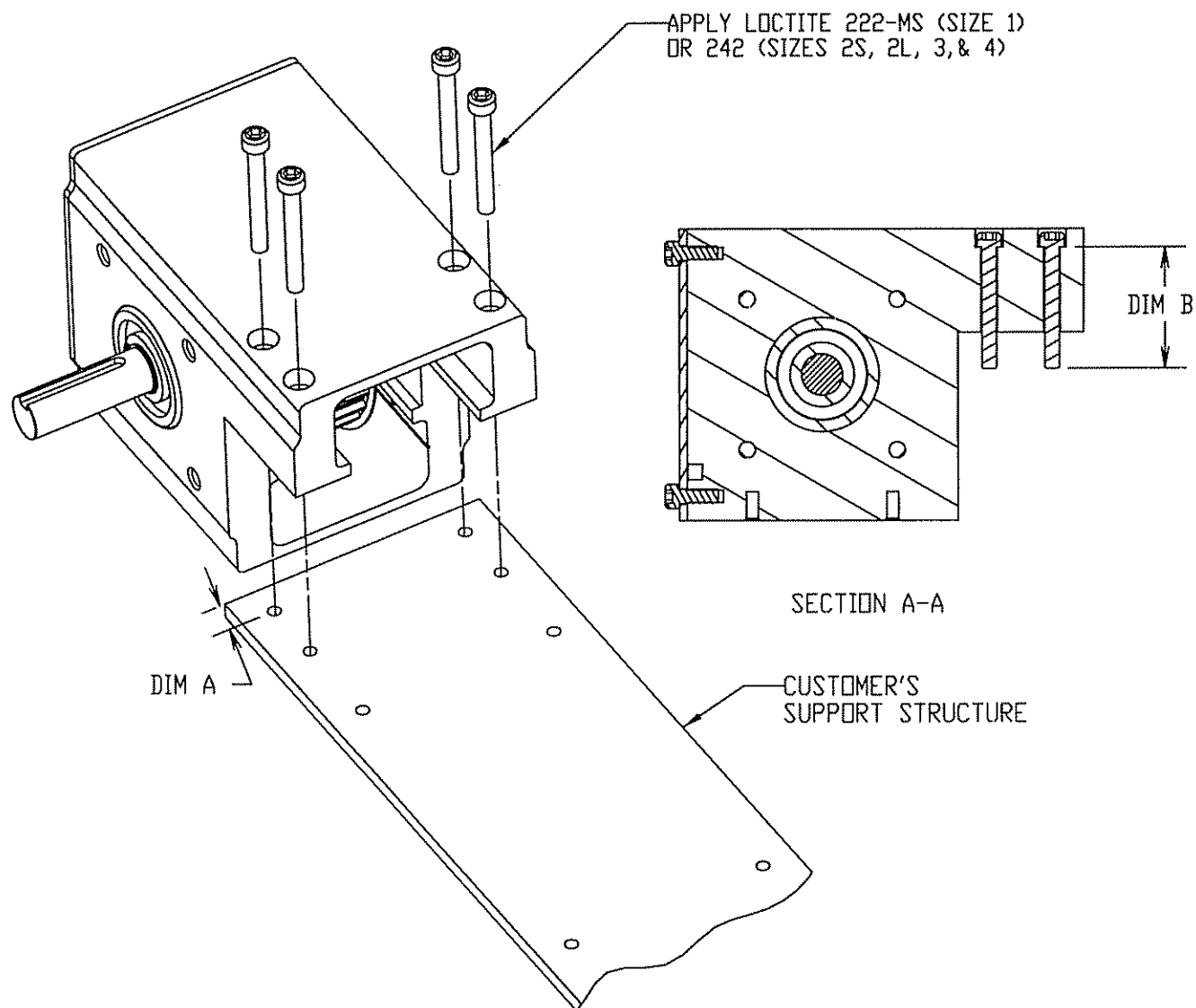
$[(TPL \times 2) / L] - .36$  = INTEGER NUMBER AND DECIMAL VALUE

INTEGER NUMBER/2 = NUMBER OF SPACES

A VALUE WITH .5 REPRESENTS A HALF HOLE

$[(DECIMAL \text{ VALUE} + .36) \times L/2]/2$  = END SPACES

# 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]