B	C	D	E	F	G	H
PART No.: F-19N1-MOD01	REMOVE ALL BURRS AND SHARP EDGES		THIRD ANGLE PROJECTION	DO NOT SCALE		IF IN DOUBT, ASK

REMOVE FOR ORIGINAL

CONVERTING AN OEM WELDED CROWNWHEEL & DIFFERENTIAL UNIT FOR ASSEMBLY ONTO A QUAIFE QDF19N ATB DIFFERENTIAL

STEP 1 - SHEET 2 - MACHINE A REGISTER ON THE CROWNWHEEL TEETH.
STEP 2 - SHEET 3 - MACHINE OFF THE WELD HOLDING THE DIFFERENTIAL AND CROWNWHEEL TOGETHER.
STEP 3 - SHEET 4 - MACHINE THE CROWNWHEEL TO THE CORRECT DEPTH FOR ASSEMBLY.
STEP 4 - SHEET 5 - DRILL AND TAP THE CROWNWHEEL.
STEP 5 - SHEET 6 - ASSEMBLE ONTO THE QUAIFE ATB DIFFERENTIAL.
STEP 6 - REFIT DIFFERENTIAL INTO DIFFERENTIAL HOUSING FOLLOWING MANUFACTURING INSTRUCTION.

THIS DRAWING IS PROVIDED AS A GUIDE AND R.T. QUAIFE ENGINEERING TAKE NO RESPONSIBILTY FOR ANY CONSEQUENCES INCURRED AS A RESULT OF THIS INSTRUCTION.
THIS CONVERSION SHOULD ONLY BE UNDERTAKEN BY EXPERIENCED MACHINISTS WITH A COMPREHENSIVE ARRAY OF WELL MAINTAINED TOOLING.

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GENERAL SURFACE FINISH: 1.6 ▽	ANGLES: ±0.25°
SHEET 1 OF 6	SCALE 1:2 U.O.S.
ISSUE: 01 DATE: 12/05/2015 RELEASE DATE:	
DRAWN BY: A.N.	CHECKED BY:
MATERIAL: BLANK SIZE:	
HEAT TREATMENT:	
FINISH:	
DESCRIPTION: DIFF ASSEMBLY	
PART No.: F-19N1-MOD01	

USED IN: BMW DIFF

A	B	C	D	E	F	G	

SOLIDWORKS

A3(M) SHEET

PART No.: F-19N1-MOD01	REMOVE ALL BURRS AND SHARP EDGES	THIRD ANGLE PROJECTION	DO NOT SCALE	IF IN DOUBT, ASK

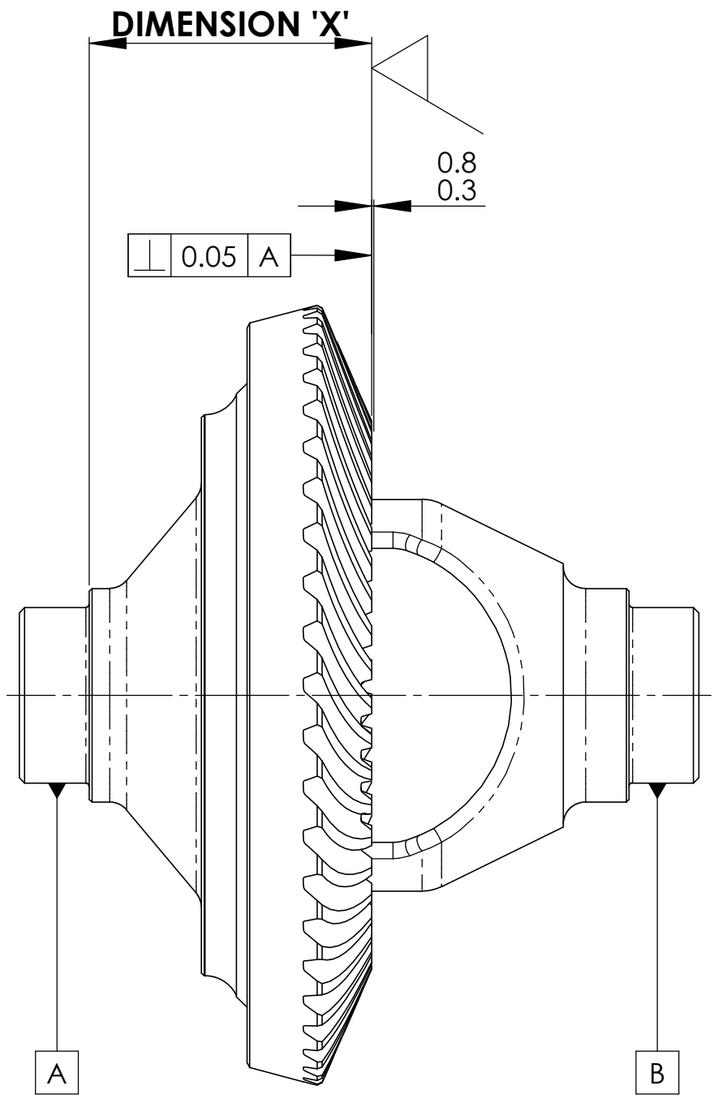
REMOVE FOR ORIGINAL

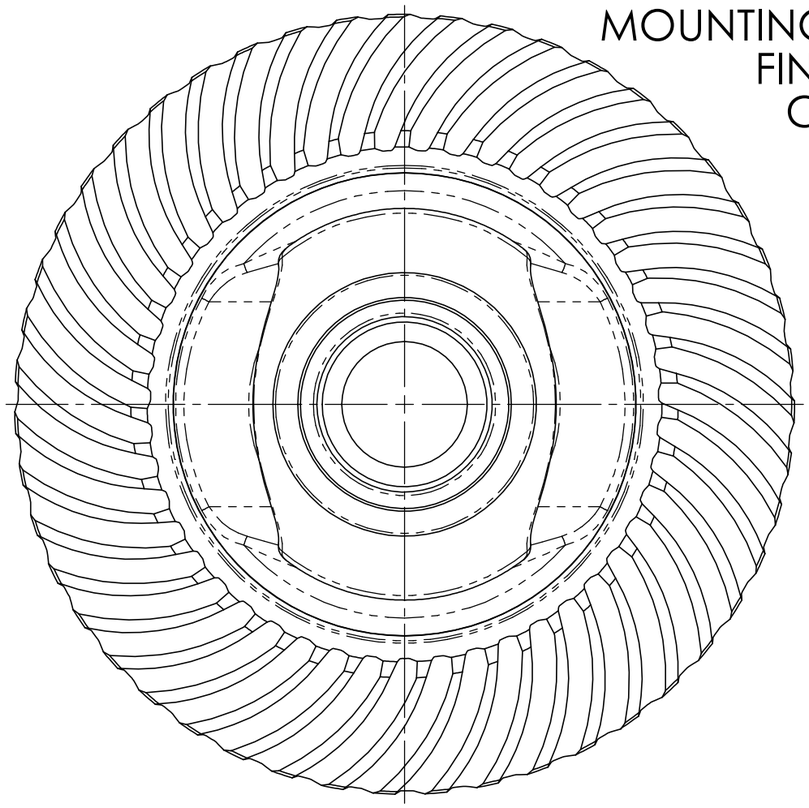
STEP 1

MACHINE A REGISTER ON THE HIGHEST PEAK OF THE CROWNWHEEL GEAR TEETH.

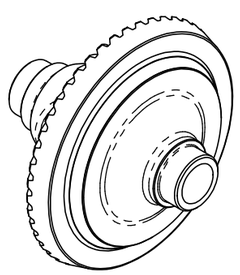
IMPORTANT TAKE NOTE OF DIMENSION 'X'

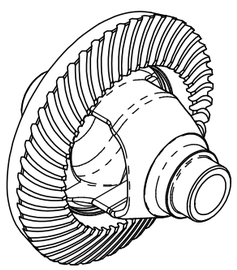
THIS IS TO ENABLE THE FINAL POSITION OF THE CROWNWHEEL TO BE CHECKED ONCE IT HAS BEEN MOUNTED ONTO THE QUAIFE ATB DIFFERENTIAL, AND TO ALLOW FOR MOUNTING FLAT ON A MACHINE BED FOR FINISHING OR ADJUSTMENT OF THE CROWNWHEEL MOUNTING FACE





WHEN MOUNTING THE DIFFERENTIAL INTO THE LATHE USE THE BEARING JOURNAL DIAMETERS (MARKED A&B) WITHIN THE CHUCK, DO NOT USE THE INTERNAL BORE.





USED IN: BMW DIFF

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GENERAL SURFACE FINISH: 1.6	DIMENSIONS: 0 PLACES: ±0.25; 1 PLACE: ±0.2; 2 PLACES: ±0.1
	ANGLES: ±0.25°
SHEET 2 OF 6	SCALE 1:1.75 U.O.S.

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DIFF ASSEMBLY

PART No.: F-19N1-MOD01

SOLIDWORKS A3(M) SHEET

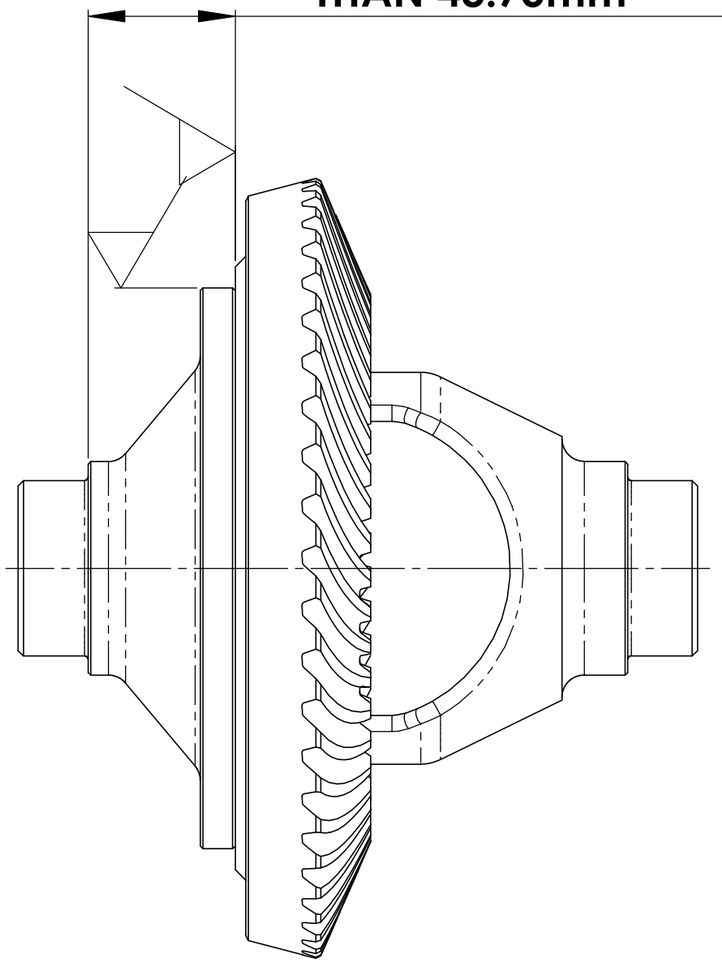
PART No.: F-19N1-MOD01	REMOVE ALL BURRS AND SHARP EDGES	THIRD ANGLE PROJECTION	DO NOT SCALE	IF IN DOUBT, ASK

REMOVE FOR ORIGINAL

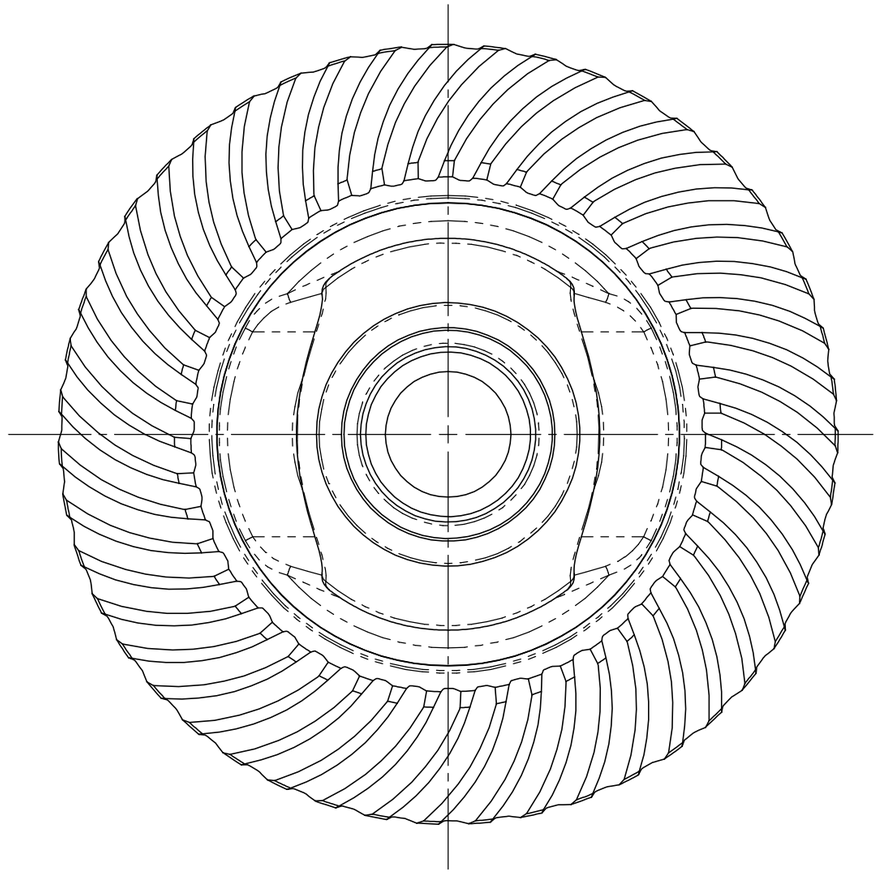
STEP 2

HARD TURN THE WELD TO FREE CROWNWHEEL FROM THE STANDARD DIFFERENTIAL.
SLOW CUTTING SPEED TO BE USED, AND A HARD TURNING INSERT LIKE KORLOY 4NU/CNGA 120408.
FEED CAN BE OPERATED MANUALLY

THIS MUST NOT BE GREATER THAN 43.75mm



ONCE REMOVED, CHECK THE INTERNAL DIAMETER OF THE CROWNWHEEL, THIS SHOULD BE AN INTERFERENCE FIT WITH THE QUAIFE QDF19N ATB DIFFERENTIAL. THE CROWNWHEEL SPIGOT DIAMETER OF THE QDF19N IS 132.032mm (5.1981")



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PART No.: F-19N1-MOD01

USED IN: BMW DIFF

SOLIDWORKS

A3(M) SHEET

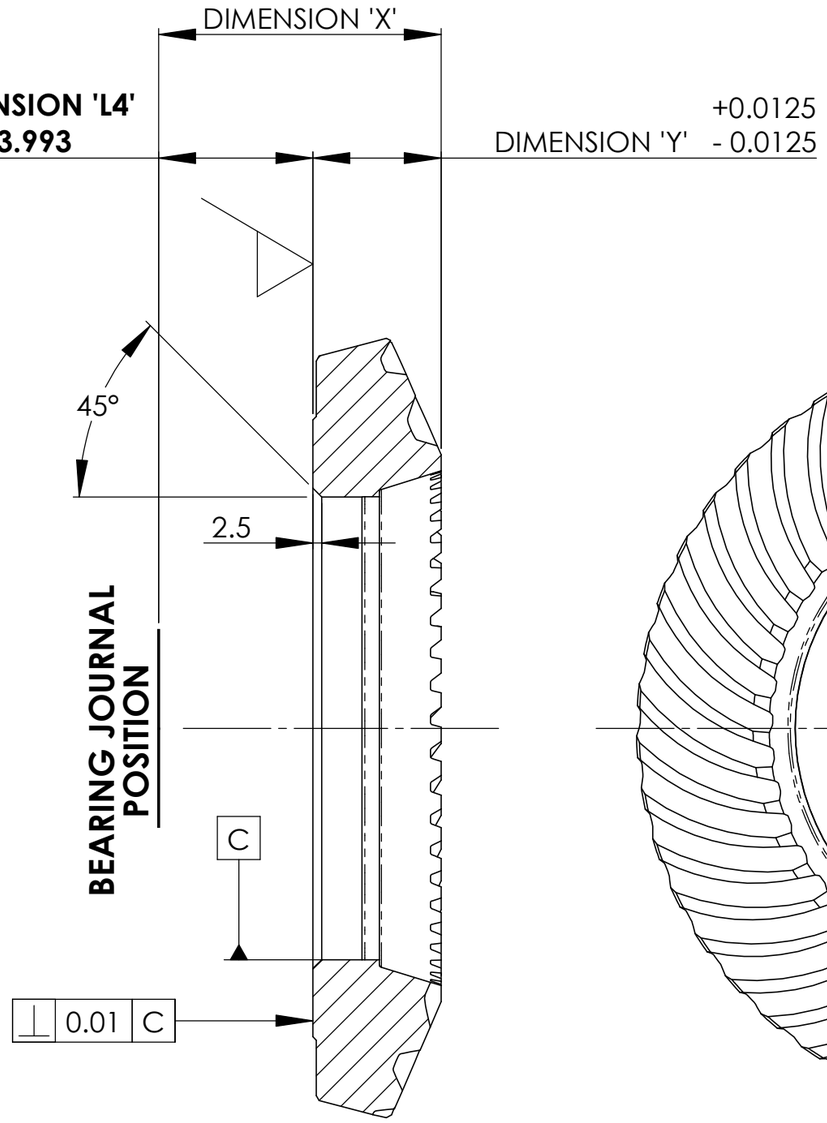
STEP 3

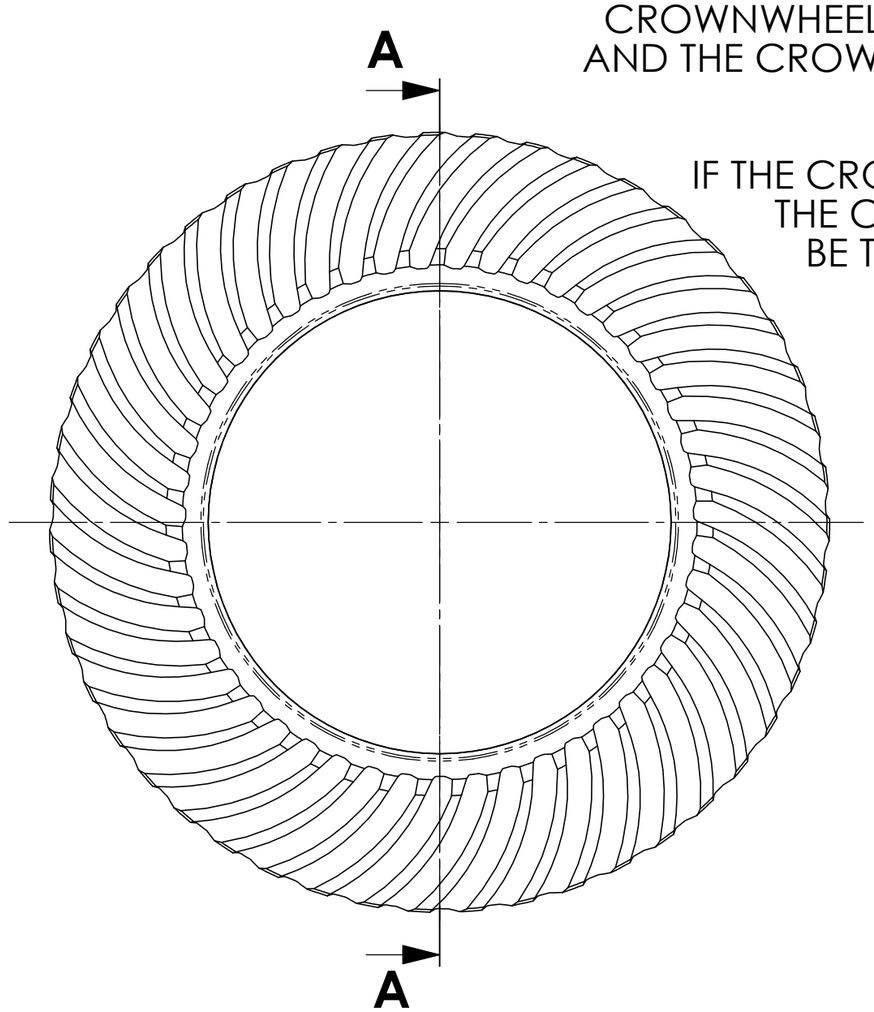
MACHINE THE BACK OF THE CROWNWHEEL AND CHAMFER INTERNAL BORE AS SHOWN
DIMENSION 'Y' = DIMENSION 'X' - 43.993

NOTE:- DIMENSION 'Y' IS CRITICAL

IF THE CROWNWHEEL IS MACHINED TOO THICK THEN THE CROWNWHEEL TO PINION BACKLASH WILL BE REDUCED AND THE CROWNWHEEL WILL HAVE TO BE RE-MACHINED TO RESTORE THE CORRECT BACKLASH.

IF THE CROWNWHEEL IS MACHINED TOO THIN THEN THE CROWNWHEEL TO PINION BACKLASH WILL BE TOO LARGE AND THE CROWNWHEEL WILL HAVE TO BE SHIMMED TO RESTORE THE CORRECT BACKLASH.





SECTION A-A

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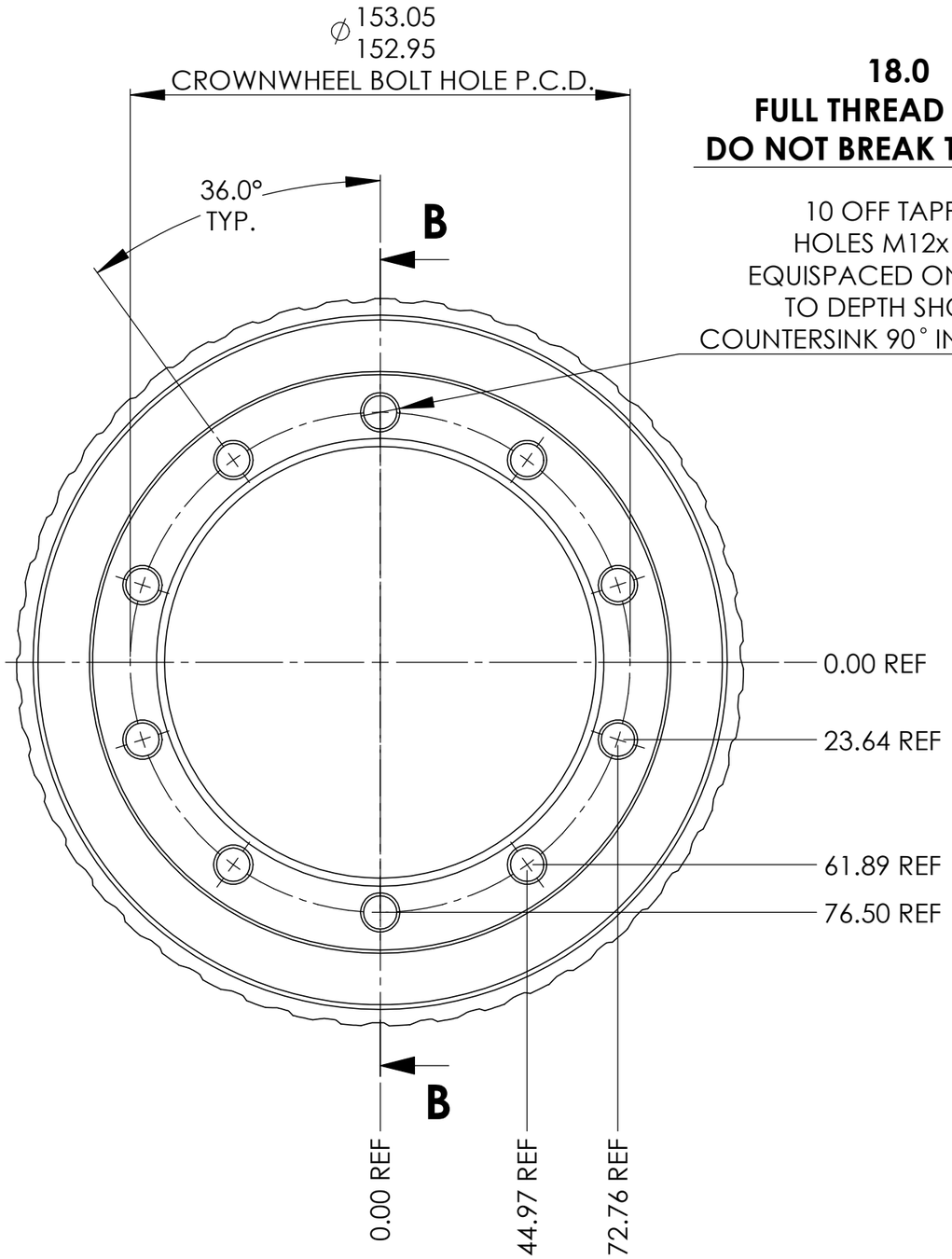
REMOVE FOR ORIGINAL

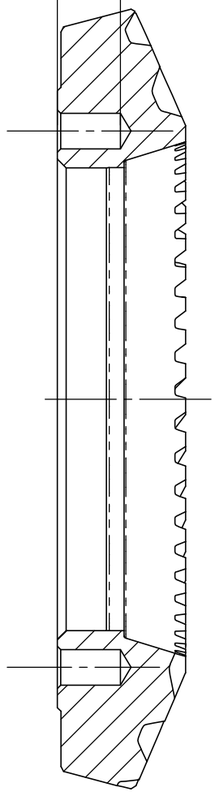
STEP 4

DRILL AND TAP 10 OFF CROWNWHEEL BOLT HOLES TO DEPTH AND IN POSITIONS SHOWN
IMPORTANT - DO NOT BREAK THROUGH



18.0
FULL THREAD DEPTH
DO NOT BREAK THROUGH

10 OFF TAPPED
HOLES M12x1.75
EQUISPACED ON P.C.D.
TO DEPTH SHOWN
COUNTERSINK 90° INC. TO ∅12



SECTION B-B

IF THERE IS A CLEAR RISK OF BREAKING THROUGH THEN THE END OF THE BOLTS MUST BE CHAMFERED TO ALLOW THE CLEARANCE INTO THE END OF A REDUCED DRILLING DEPTH.

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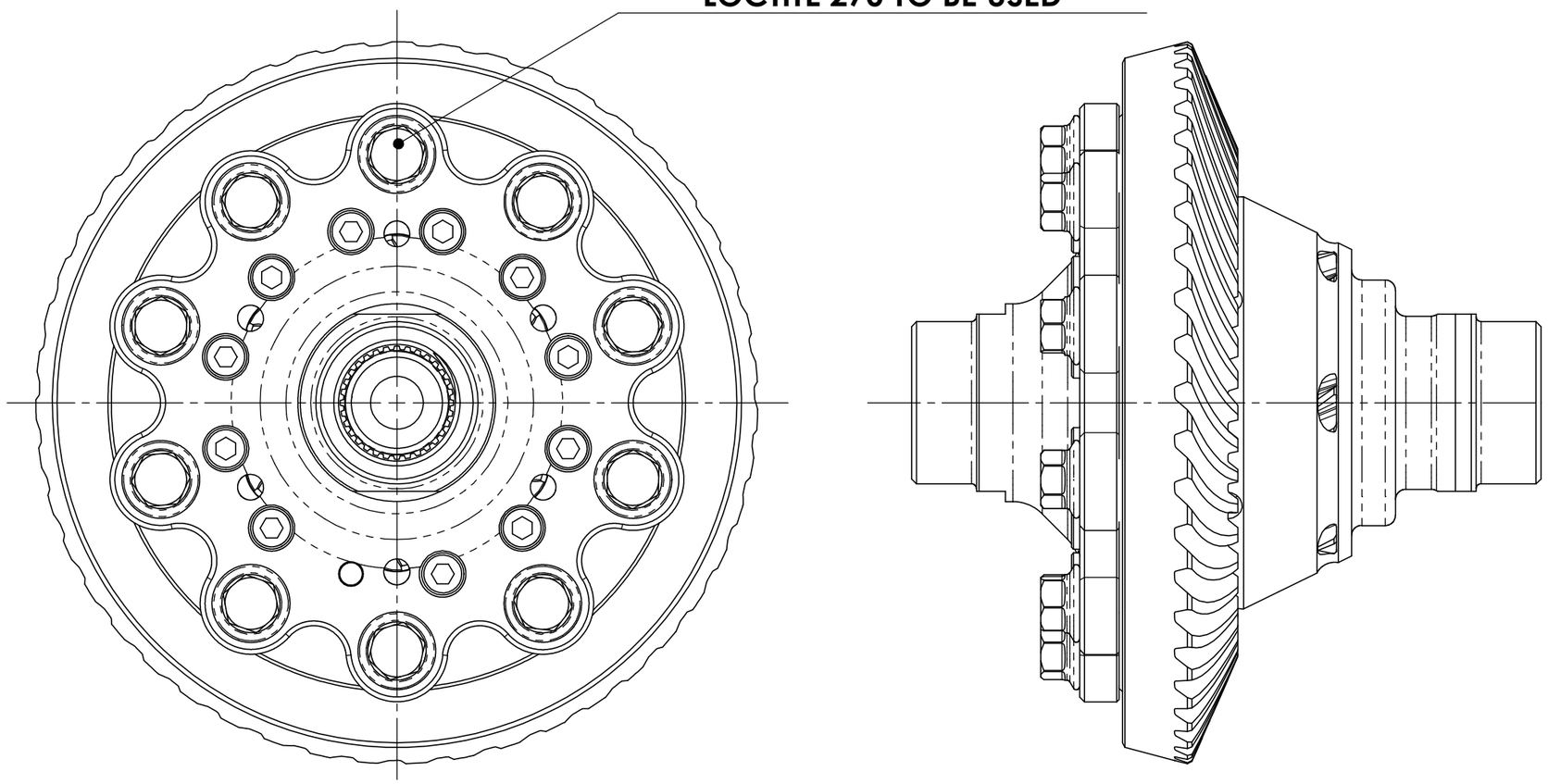
STEP 5

ASSEMBLE THE CROWNWHEEL ONTO THE QUAIFE ATB DIFFERENTIAL. FIT THE 10 OFF M12x1.75 SUPPLIED BOLTS. THESE SHOULD BE TIGHTENED TO 100-110Nm

10 OFF M12x1.75 BOLTS
TIGHTENING TORQUE IS 100+10Nm
TORQUE ANGLE IS +30°
LOCTITE 270 TO BE USED



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