

390-350 INSTRUCTIONS

ENGINE APPLICATION YEARS/CID:	FORD, MERCURY 332, 352, 360, 361, 390, 406, 410, 427, 428 1958-1976
TRANS APPLICATION YEAR/MODEL:	GM AUTO PG, TH350, 400, 700R4, CHEVY OR UNI-CASE BOLT PATTERN,

IMPORTANT: THIS IS A HIGH PERFORMANCE PART AND IMPROPER INSTALLATION COULD RESULT IN INJURY OR DEATH! NEVER WORK UNDER AN AUTOMOBILE THAT IS NOT PROPERLY SUPPORTED AND BLOCKED FROM ROLLING. ALWAYS INSTALL NEUTRAL SAFETY SWITCH. FAILURE TO DO SO CAN RESULT IN INJURY OR DEATH! IF AT ANYTIME YOU HAVE ANY QUESTIONS ABOUT THIS INSTALLATION, CONTACT WILCAP OR YOUR WILCAP DEALER IMMEDIATELY. THE INSTALLATION AND USE OF THIS PRODUCT IS DONE AT YOUR OWN RISK!

YOUR ADAPTER IS SUPPLIED WITH A NEUTRAL BALANCE FLEXPLATE. IF YOUR ENGINE IS EXTERNALLY BALANCED, THE FLEXPLATE MUST BE MATCH-BALANCED TO YOUR ENGINE.

YOUR WILCAP ADAPTER IS DESIGNED TO USE A MODIFIED MOPAR SMALL BLOCKGEAR REDUCTION "MINI" STARTER. THESE STARTERS ARE AVAILABLE FROM WILCAP OR YOUR LOCAL PARTS HOUSE SHOULD BE ABLE TO SUPPLY ONE USING THE FOLLOWING PART NUMBERS;

CHRYSLER P/N 53005984

NIPPONDENSO P/N 128000-781 OR 128000-7810

MOPAR PERFORMANCE P/N/ P5249644

POWERMASTER P/N 9300, 9512, OR 9613

TILTON P/N 54-10000

AUTOLITE PRO P/N 17466

BECK ARNLEY P/N 187-0436

TYPICAL APPLICATION OF THE STARTER WOULD BE A 1992 DODGE DAKOTA WITH THE 5.2L ENGINE.



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CHECK THAT ALL OF THE FOLLOWING PARTS ARE IN THE PACKAGE AND FREE OF DAMAGE;

1 ALUMINUM ADAPTER PLATE

1 FLEX PLATE

1 ALUMINUM HUB SPACER

2 - SPECIAL OFFSET BOLTS, NUTS, & LOCK WASHERS

4 - 3/8 -16 X 2 1/8 STUDS, NUTS, & LOCK WASHERS

4 - 7/16 -14 X 1" UNC SOCKET HEAD CAP SCREWS

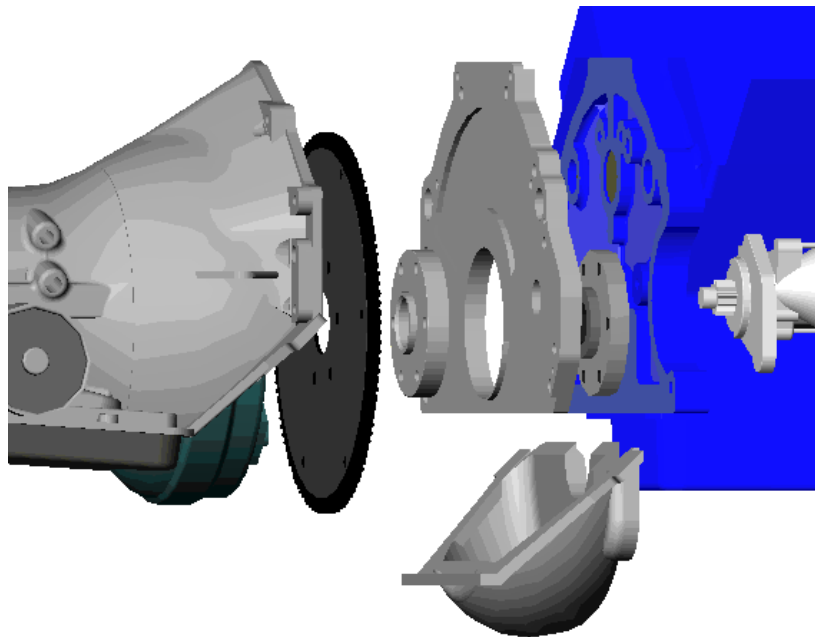
2 - 7/16 -14 X 1 1/2" UNC HEX HEAD CAP SCREWS & WASHERS

2 - 7/16- 14 X 1 1/4" STARTER BOLTS

6 - 7/16- 20 x 1 1/2" BOLTS AND WASHERS

TORQUE VALUES

ADAPTER PLATE TO ENGINE	7/16-14 SHCS 40-45 FTLBS 7/16-14 HEX HEAD BOLTS 45-50 FTLBS
CRANK SHAFT BOLTS	75-80 FTLBS
BELLHOUSING NUTS	30-40 FTLBS



CLEAN THE CRANKSHAFT FLANGE AND HUB USING SOLVENT AND A RAG AND INSPECT FOR BURRS, DINGS, NICKS, ETC. THIS IS CRITICAL! THE ALIGNMENT OF THE ENTIRE ROTATING ASSEMBLY RELIES ON THE FACE OF THE CRANKSHAFT AND THE HUB SPACER MATING EXACTLY. REMOVE ANY BURRS WITH A FINE PITCH FILE.

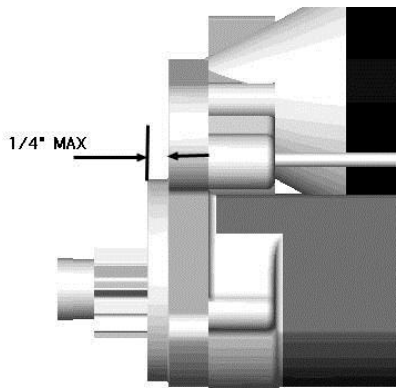
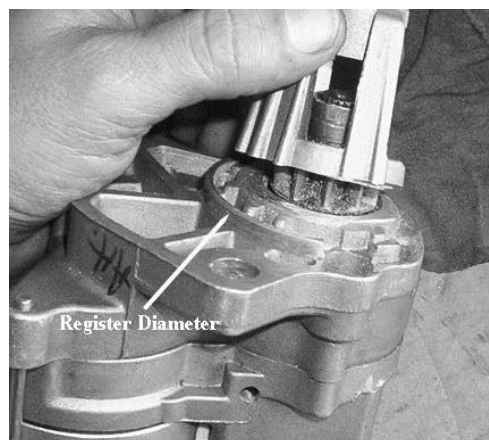
CLEAN AND INSPECT THE BLOCK MOUNTING SURFACE AND THE TRANSMISSION MOUNTING SURFACE AND REMOVE ANY BURRS. CHASE

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AND CLEAN ALL OF THE BLOCK TO BELL HOUSING BOLT HOLES AND REPAIR ANY DAMAGED THREADS.



BECAUSE OF CLEARANCE, FOR YOUR APPLICATION YOU MUST MODIFY THE STARTER. THE "NOSE" OF THE STARTER MUST BE REMOVED. THIS REQUIRES THE USE OF A LATHE, BANDSAW, OR HACK SAW. MOST ANY MACHINE SHOP CAN PERFORM THIS OPERATION SAFELY AT A REASONABLE COST. WILCAP ALSO HAS THE MODIFIED STARTER AVAILABLE.



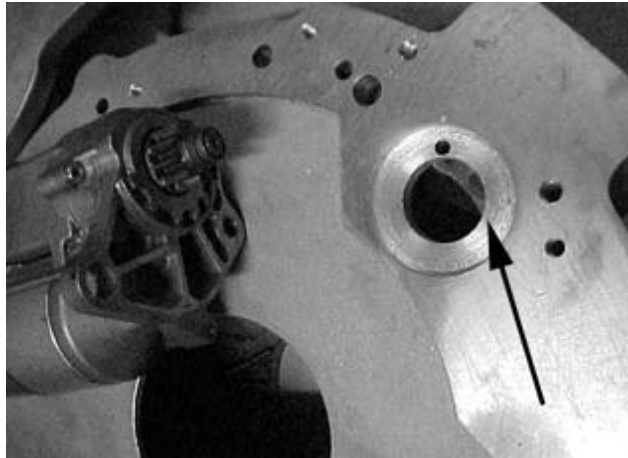
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TRIAL FIT THE PIECES BEFORE BEGINNING; CHECK TO SEE THAT THE HUB SPACER SLIPS OVER YOUR TORQUE CONVERTER HUB. IF THERE IS EXCESSIVE CLEARANCE STOP. CONTACT WILCAP BEFORE PROCEEDING. OPERATING THE ENGINE WITH EXCESSIVE CLEARANCE BETWEEN THE HUB SPACER AND THE NOSE OF THE TORQUE CONVERTER WILL RESULT IN DAMAGE TO THE FLEX PLATE AND THE TRANSMISSION. INSTALL THE HUB SPACER ONTO THE FLEX PLATE AND FIT IT OVER THE CONVERTER PILOT. THE FLEX PLATE SHOULD SIT FLAT ON THE BOLTING SURFACE OF THE CONVERTER.

THE BELLHOUSING WILL NEED TO BE MODIFIED TO ALLOW FOR CLEARANCE FOR THE MOPAR TYPE STARTER. THIS REQUIRES THE USE OF POWER TOOLS AND MEASURING INSTRUMENTS. IF YOU ARE NOT QUALIFIED TO PERFORM THIS MODIFICATION, SEEK ASSISTANCE FROM A LOCAL MACHINE SHOP. ALSO, BE AWARE THAT MODIFYING YOUR TRANSMISSION CASE MAY VOID ANY WARRANTY OR CERTIFICATIONS. THE MOPAR TYPE STARTER MUST ALSO BE MODIFIED. CONTACT WILCAP IF YOU NEED INSTRUCTIONS FOR MODIFYING THE STARTER

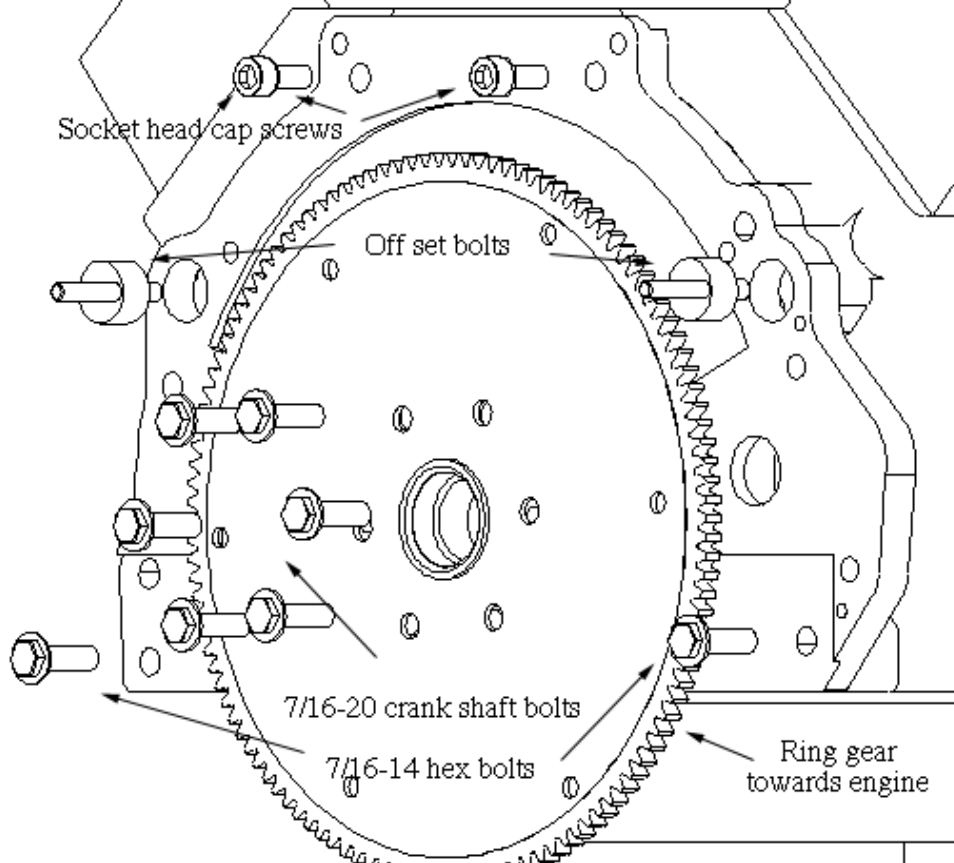
PLACE THE ADAPTER PLATE ONTO THE TRANSMISSION BELLHOUSING AND MARK THE AREA SHOWING THROUGH THE STARTER HOLE IN THE ADAPTER PLATE.



REMOVE THE ADAPTER PLATE AND MARK STRAIGHT OUT TO THE EDGE OF THE BELLHOUSING FROM THE EDGES OF THE CIRCLE.

MEASURE AND MARK 1 INCH (1") DOWN FROM THE SURFACE AND MARK A LINE PARALLEL TO THE SURFACE.

JOIN THE THREE LINES. THIS IS THE AREA THE MUST BE CUT FOR CLEARANCE.



THE PREFERRED METHOD IS TO MILL OUT THIS AREA USING A 1 5/8" END MILL. BY BOLTING THE ADAPTER PLATE TO THE BELLHOUSING, THE CENTER OF THE 1 5/8" DIAMETER CAN BE FOUND. ALTERNATIVELY, TWO SMALL DIAMETER HOLES CAN BE DRILLED AT THE INTERSECTION OF THE MARKS AND THE ENTIRE AREA CAN BE CUT AWAY USING A SAW OR A DIE GRINDER.

ONCE THE MATERIAL HAS BEEN REMOVED, INSTALL THE STARTER ONTO THE ADAPTER PLATE AND THE ADAPTER PLATE ONTO THE BELLHOUSING. PULL THE STARTER PINION SHAFT OUT TO ITS FULL TRAVEL LENGTH AND CHECK THAT THERE IS SUFFICIENT CLEARANCE.

INSTALL THE 2 SPECIAL OFFSET FASTENERS. SCREW THEM FLUSH WITH THE BLOCK USING THE 1/4" ALLEN SCREW. NOTE THAT THEY ARE MARKED "P" FOR PASSENGER SIDE AND "D" FOR DRIVERS SIDE

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PLACE THE ADAPTER PLATE ONTO THE ENGINE BLOCK. IF NECESSARY USE A RUBBER Mallet TO FIT THE PLATE UP TO THE BLOCK FLUSH. DO NOT USE THE CAP SCREWS TO FORCE THE PLATE ONTO THE BLOCK. IF THE PLATE WILL NOT SIT FLUSH TO THE BLOCK, CHECK THE DOWEL PINS ON THE BLOCK TO SEE IF THEY HAVE BEEN DAMAGED AND MAKE CERTAIN THE BLOCK PLUGS ARE NOT INTERFERING WITH THE ADAPTER PLATE.



**MAKE CERTAIN THAT
BLOCK PLUGS DON'T
INTERFERE WITH
ADAPTER PLATE
DURING INSTALLATION!**

ONCE THE ADAPTER PLATE IS FLUSH, ROTATE THE OFFSET FASTENERS TO LINE UP THE MARKS ON THE PLATE WITH THOSE ON THE FASTENERS.

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MARK THE PLATE FOR ANY ADDITIONAL TRIMMING OR CUTTING FOR CLEARANCE. IF THE PLATE WILL BE TRIMMED, BE CAREFUL NOT TO CUT TOO CLOSE TO ANY OF THE FASTENER HOLES AND REMOVE ANY BURRS LEFT FROM CUTTING.

AFTER ANY CUTTING OR TRIMMING HAS BEEN COMPLETED, INSTALL THE CAP SCREWS AND THE SOCKET HEAD CAP SCREWS WITH THREAD LOCKING COMPOUND AND TORQUE IN A CRISS-CROSS PATTERN TO THE PROPER VALUES. AFTER TORQUING THE BOLTS, CHECK TO MAKE CERTAIN THAT NONE OF THE BOLTS PROTRUDE FROM THE SURFACE OF THE ADAPTER PLATE. IF NEEDED, TRIM THE BOLT HEADS OR SHANKS SO THAT THEY ARE FLUSH OR BELOW THE SURFACE OF THE ADAPTER PLATE.

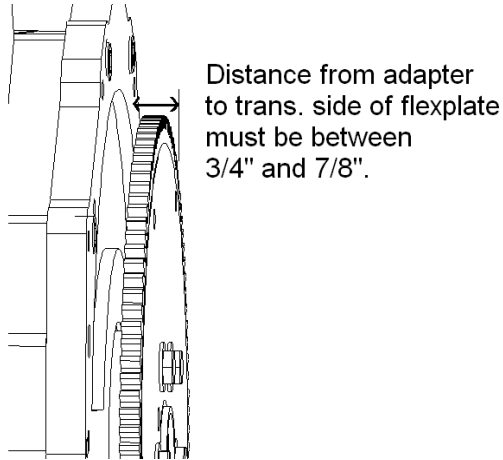
THE RING GEAR IS OFFSET TO THE ENGINE SIDE OF THE FLEX PLATE. FROM THIS SIDE, FIT THE HUB SPACER INTO THE FLEX PLATE AND ALIGN THE CRANKSHAFT BOLT HOLES. THIS SHOULD BE A SNUG FIT. IMPORTANT! ANY TIME THAT ANY FORCE IS APPLIED TO THE HUB SPACER USE ONLY A RUBBER Mallet OR WOODEN DOWEL.



CAREFULLY ALIGN THE HUB SPACER/FLEX PLATE AND THE CRANKSHAFT BOLT HOLES WHILE PLACING THE HUB SPACER ONTO THE CRANKSHAFT. THE HUB SPACER SHOULD BE A CLOSE FIT TO THE CRANKSHAFT. INSTALL

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THE CRANKSHAFT BOLTS WITH THREAD LOCKING COMPOUND AND TORQUE TO THE PROPER VALUE.



CHECK THE DISTANCE BETWEEN THE TRANSMISSION SIDE OF THE FLEXPATE AND THE ADAPTER. THIS SHOULD BE BETWEEN .750" AND .875". **DO NOT PROCEED WITH THE INSTALLATION IF THIS IS NOT CORRECT.** ASSEMBLING THE MOTOR TO THE TRANSMISSION WITH THIS DIMENSION NOT IN TOLERANCE COULD RESULT IN TRANSMISSION OR STARTER DAMAGE. CONTACT WILCAP IF YOU FIND THIS DIMENSION TO BE GREATER THAN 7/8" OR LESS THAN 3/4".

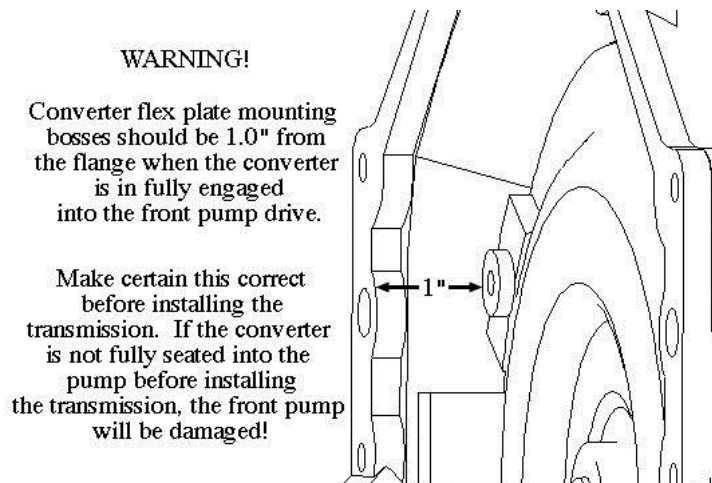
FIT UP THE STARTER MOTOR AND CHECK FOR PROPER RING GEAR TO PINION GEAR ENGAGEMENT. THE PINION GEAR OF THE STARTER SHOULD TRAVEL $\frac{1}{2}$ TO $\frac{2}{3}$ ACROSS THE FACE OF THE RING GEAR WHEN THE SOLENOID IS ACTUATED. PROPER ALIGNMENT OF THE STARTER TO RING GEAR IS OBTAINED WHEN THE REGISTER ON THE FRONT OF THE STARTER IS MATED TO THE OUTSIDE EDGE OF THE STARTER HOLE. TORQUE STARTER BOLTS TO PROPER VALUE.

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WHILE INSTALLING THE TRANSMISSION, REMEMBER THAT THE DOWEL PINS ARE FOR ALIGNMENT ONLY AND WILL NOT BEAR THE WEIGHT OF THE TRANSMISSION. IF THE ENTIRE WEIGHT OF THE TRANSMISSION IS PUT ONTO THE DOWELS THEY WILL BE PULLED FROM THE ADAPTER PLATE.

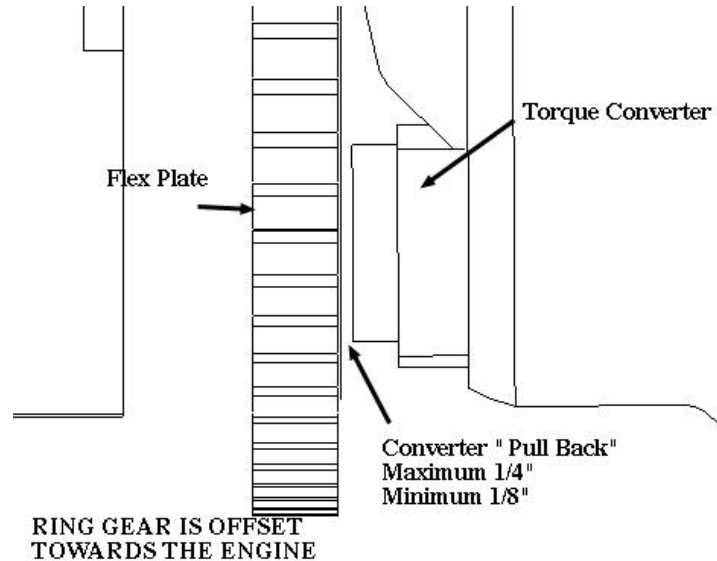
YOUR BELL HOUSING TO ADAPTER PLATE BOLTS SHOULD GO INTO THE ADAPTER PLATE A MINIMUM OF 1/2". YOUR BELL HOUSING BOLTS SHOULD ALLOW FOR 1/2" OF THREAD INTO THE ADAPTER PLATE. ALSO CHECK THAT THE BOLTS DO NOT REACH PAST THE ADAPTER PLATE AND HIT THE BLOCK. USE THREAD LOCKING COMPOUND ON THE ADAPTER TO BELL HOUSING BOLTS.



BEFORE INSTALLING THE TRANSMISSION, CHECK THAT THE TORQUE CONVERTER IS FULLY SEATED INTO THE FRONT PUMP OF THE TRANSMISSION. THE TORQUE CONVERTER MATING BOSSES SHOULD BE APPROXIMATELY 1" FROM THE BELLHOUSING FACE.

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PLEASE NOTE; WHILE INSTALLING THE TRANSMISSION, REMEMBER THAT THE DOWEL PINS ARE FOR ALIGNMENT ONLY AND WILL NOT BEAR THE WEIGHT OF THE TRANSMISSION. CHECK THAT THE CONVERTER IS SEATED INTO THE FRONT PUMP PRIOR TO INSTALLING THE TRANSMISSION.



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CHECK THE "PULLBACK" DISTANCE OF THE CONVERTER PRIOR TO INSTALLING THE CONVERTER TO FLEX PLATE BOLTS. YOUR WILCAP ADAPTER IS DESIGNED TO USE THE STOCK GM DUST COVER. DEPENDING ON THE ORIGINAL APPLICATION, THE DUST COVER MAY NEED TO BE MODIFIED SLIGHTLY. MAKE CERTAIN THAT THE COVER DOES NOT HIT THE RING GEAR, FLEXPLATE, OR CONVERTER. UNIVERSAL DUST COVERS ARE AVAILABLE FROM WILCAP.

ALIGN THE CONVERTER AND THE FLEXPLATE HOLES AND START EACH BOLT. ROTATE THE ENGINE AS YOU TORQUE THE CONVERTER BOLTS TO THEIR FINAL VALUE IN AT LEAST THREE STEPS.