

# TIME-SERT®

TIME FASTENER COMPANY  
5301 unit G Longley lane  
Reno Nevada 89511  
(800) 423-4070 (775) 829-1026

## M11x1.5 NORTH STAR 2000 REPAIR KIT

### - WARNING -

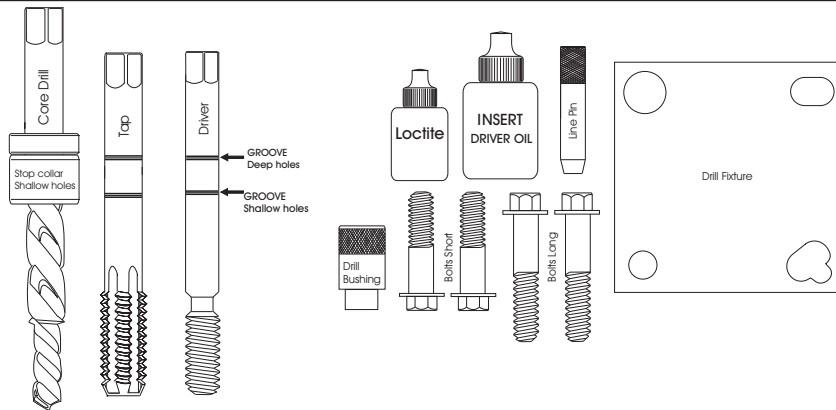
Cutting tools may shatter if broken. The wearing of safety glasses is required in the vicinity of their use.

### CUTTING FLUID

A Cutting fluid is necessary for drilling and tapping. (WD40)

### DRILL MOTOR

The use of a half inch drill motor is recommended for drilling.



Tools needed:	Qty	Part number
Drill fixture	1	56111
Drill bushing	1	J-42385-302
Alignment pin	1	J-42385-303
Bolts short	2	J-42385-503
Bolts Long	2	J-42385-604
Step drill	1	J-42385-2006
Tap	1	J-42385-2007
Insert driver	1	J-42385-2008
Stop Collar for shallow holes	1	J-42385-2017
loctite	1	6020
Driver oil	1	6010
Inserts M11x1.5	10	11155

## INSTRUCTIONS

The NorthStar 2000 has 2 depths of holes, shallow on the upper bank and deeper holes on the lower bank. Please check for the latest torque specifications before assembling the engine. Improper torque of the head can lead to thread failure.

### STOP

IF REPAIRING THE UPPER BANK OF THE ENGINE YOU WILL **USE** THE 2017 STOP COLLAR ON THE CORE DRILL. "SHALLOW HOLES"  
IF REPAIRING THE LOWER BANK OF THE ENGINE YOU WILL **REMOVE** THE 2017 COLLAR FORM THE CORE DRILL. "DEEP HOLES"

### STEP 1

PLACE LARGEST HOLE IN DRILL FIXTURE OVER THE HOLE TO BE REPAIRED. PLACE BUSHING IN FIXTURE, THEN PLACE LINE UP PIN IN BUSHING TO PICK UP HOLE. DO NOT FORCE PIN INTO HOLE. USE BOLTS AND TIGHTEN TO SECURE FIXTURE IN PLACE. REMOVE LINE PIN.

### STEP 2

USE A SUITABLE DRILL MOTOR AND STEP DRILL THE HOLE UNTIL THE STOP COLLAR ON THE DRILL LINES UP WITH THE TOP OF THE DRILL BUSHING. **Note:** USE THE 2017 STOP COLLAR FOR SHALLOW HOLES. THIS WILL REQUIRE REMOVING DRILL AND BUSHING SEVERAL TIMES TO CLEAR CHIPS. CLEAN OUT ALL CHIPS.

**NOTE:** If drill bushing turns while drilling hole, Remove drill and drill bushing, Clean out all chips.  
We recommend using a long air nozzle 6" or longer to blow out all chips.

### STEP 3

TAP THROUGH THE DRILL BUSHING UNTIL THE APPROPRIATE GROOVE ON THE TAP LINES UP WITH THE TOP OF THE DRILL BUSHING. THIS WILL REQUIRE REMOVING THE TAP AND BUSHING SEVERAL TIMES TO CLEAR CHIPS. CLEAN ALL CHIPS USING BRAKE OR CONTACT CLEANER THAT WILL NOT LEAVE AN OILY RESIDUE, e.g Break or Contact cleaner THE HOLE MUST BE CLEAN AND DRY. USE A FLASHLIGHT TO INSPECT THE HOLE FOR CHIPS AND CLEANLINESS. REMOVE BUSHING AND DRILL FIXTURE.

### STEP 4

**USE INSERT DRIVER OIL (DO NOT USE WD40.)**

**OIL THE THREADS OF THE INSERT DRIVER.** SCREW AN INSERT ONTO THE DRIVER, APPLY A SMALL AMOUNT OF LOCTITE ON THE BOTTOM OUTSIDE THREADS OF THE INSERT AND SCREW THE INSERT INTO THE PREPARED HOLE. WHEN THE HEAD OF THE INSERT IS SEATED THE DRIVER WILL TIGHTEN UP, USE A LITTLE MORE POWER TO SCREW THE DRIVER THROUGH THE INSERT, UNTIL THE APPROPRIATE GROOVE OF THE DRIVER LINES UP WITH THE TOP OF ENGINE BLOCK. REMOVE INSERT DRIVER, REPAIR IS COMPLETE.

Note: Depth of first thread on NorthStar 2000 should be approximately 34mm deep.

Depth of lower bank holes on Northstar 2000 should be approximately 51mm deep.