

Inter Company Correspondence

Telephone 8-869-7745 Date 7-9-92

To--Name & Department

CIMS Number

M. SCALES AREA MGR./ DEPT.86 MOUND ROAD ENGINE 446-10-00

From--Name & Department

CIMS Number

TOM PIETRAS TOOL ENGINEERING MOUND ROAD ENGINE 446-10-00

Subject: TEST RESULTS FOR TREATED HOBS IN DEPT. 86, DIST. DRIVE GEARS 1323368-T-20 (86-500-0003)

IN FEBRUARY, 1992 I BEGAN TESTING TREATED HOBS IN DEPT. 86, OP.40. TWO DIFFERENT SURFACE TREATMENTS WERE TESTED AND EVALUATED. THESE TREATMENTS AND THE SUPPLYING VENDORS ARE:

- 1) DYNA-BLUE ( DYNAMIC METAL TREATING )
2) TITANIUM NITRITE ( MULTI-ARC SCIENTIFIC COATINGS )

THE RESULTS OF MY TESTS ARE AS FOLLOWS:

DYNA-BLUE TREATED HOBS

THESE HOBS AVERAGED 868 PIECES RUN (700 PCS. TO 1452 PCS.) BEFORE HAVING TO CHANGE TOOLS FOR ONE OF THE FOLLOWING REASONS: BURRS OR DRIVE CURVE. THE HOBS WERE THEN RESHARPENED, WITH AN AVERAGE STOCK REMOVAL OF .015 - .020. THESE HOBS WERE NOT RETREATED UNTIL AFTER THE 4TH REGRIND. AFTER THEY WERE RETREATED WE WERE ABLE TO REGRIND THEM AN ADDITIONAL (8) TIMES WHILE STILL ACHIEVING THE ABOVE MENTIONED AVERAGE OF 868 PIECES EACH TIME THE HOBS WERE USED. PLEASE SEE TOOL PERFORMANCE REPORT # 1 FOR A MORE IN DEPTH ANALYSIS OF DYNA-BLUE TREATED HOBS VS. NORMAL HOBS.

TITANIUM NITRITE TREATED HOBS

THESE HOBS AVERAGED 642 PIECES RUN (219 PCS. TO 910 PCS.) BEFORE TOOL CHANGE. THE MAJOR REASON FOR CHANGING TOOLS WAS BURRS. THEY WERE THEN RESHARPENED, AVERAGE STOCK REMOVAL OF .015 - .020, AND SENT BACK TO THE VENDOR FOR RETREATING (RECOATING). PLEASE SEE TOOL PERFORMANCE REPORT # 2 FOR AN IN DEPTH ANALYSIS OF TITANIUM NITRITE COATED HOBS VS. NORMAL HOBS.

WHILE BOTH TYPES OF TREATED HOBS OUT PERFORMED OUR NORMAL HOB, THE DYNA-BLUE TREATED HOBS CONSISTENTLY PRODUCED MORE PIECES THAN THE TITANIUM NITRITE TREATED HOBS (868 PCS. VS.642 PCS.). ANOTHER MAJOR CONSIDERATION IS THAT THE DYNA-BLUE TREATED HOBS DID NOT REQUIRE RETREATING EACH TIME THEY WERE RESHARPENED, WHILE THE TITANIUM NITRITE COATED HOBS REQUIRED RETREATING EACH TIME THAT THEY WERE RESHARPENED. TOOL PERFORMANCE REPORT # 3 COMPARES THE RESULTS OF REPORT # 1 VS. REPORT # 2.



**TOOL PERFORMANCE REPORT # 3**

DEPT. - 86

OPERATION - 40 - GEAR HOBBERS

TEST TITANIUM NITRITE TREATED  
TOOL REPORT # 2 - 1323368-T-20

CODE NO. 86-500-0003

TEST DYNA-BLUE TREATED  
TOOL REPORT # 1 - 1323368-T-20

TOOL TYPE - GEAR HOB

PART NAME - DIST. DRIVE GEAR

MATERIAL - CAST IRON - MS 891

RPM - UNKNOWN

SFM - UNKNOWN

IPM - UNKNOWN

TOOL PERFORMANCE	TIT.NITRITE	DYNA-BLUE
A. AVERAGE NO. PIECES PER GRIND/INDEX	642	868
B. NO. OF GRINDS/INDEXES PER TOOL	12	12
C. TOTAL PIECES PER TOOL (A x B)	7704	10416
D. REQUIRED PARTS ( DRIVE GEARS ) PER YEAR	216000	216000
E. REQUIRED TOOLS PER YEAR (D / C)	28	20.74
<b>CUTTER GRIND COSTS</b>		
F. LABOR RATE (\$ / HR.)	\$26.09	\$26.09
G. TIME TO REGRIND (1 TOOL)	0.5	0.5
H. TOTAL SHARPENING/LABOR HOURS (B x G)	6	6
I. TOTAL LABOR COST (F x H)	\$156.54	\$156.54
<b>TOOL COSTS</b>		
J. PRICE OF (1) TOOL	\$176.60	\$165.85
K. COST TO RETREAT (RECOAT)	\$27.00	\$16.25
L. ADDITIONAL TREATMENTS REQUIRED	12	1
M. TOTAL COST PER TOOL (I + J + K x L)	\$657.14	\$338.64
N. COST PER PIECE (DRIVE GEARS) (M / C)	\$0.0853	\$0.0325

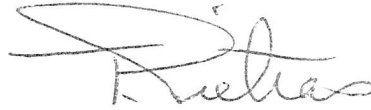
CHRYSLER CORPORATION

TOTAL TOOL COST PER YEAR	\$18,424.49	\$7,022.49
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TOOL SAVINGS PER YEAR	\$11,402.00
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PERCENT OF SAVINGS	61.9%
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BASED ON THESE FINDINGS I STRONGLY RECOMMEND THAT WE NOW DYNA-BLUE TREAT TOOL 1618667-T-14 (86-500-0002). I WILL MAKE THE NECESSARY CHANGES TO THE BLUE PRINT AND SEND OUT ALL OF OUR EXISTING HOBS TO BE DYNA-BLUED. THE OPERATION SHEETS SHOULD BE CHANGED TO REFLECT A 900 PIECE TOOL CHANGE FREQUENCY. ALSO, IN ORDER TO PROPERLY TRACK EACH HOB, CUTTER GRIND SHOULD MARK EACH TOOL AFTER EVERY REGRIND. THIS WILL AID IN IDENTIFYING A HOB THAT HAS REACHED THE END OF IT'S USABLE TOOL LIFE.



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