

CIRCLE PERFORMANCE
69 Locust Street
Berkley MA 02779
PH 1-508-580-5844

CUSTOMER	Kevin Wenzel
ADDRESS	11835 Sir Galahad Drive Colorado Springs, CO 80908
DISCRIPTION	944 S LONG BLOCK
TOTAL PARTS	\$ 8,898.40
TOTAL LABOR	\$ 6,712.50
TOTAL SHIPPING	\$ 138.34
TOTAL SUBLET	\$ 1,780.90
TAX	SHIPPED OUT OF STATE TO COLORADO
GRAND TOTAL	\$17,530.14
DEPOSIT, \$5000.00	\$ (5,000.00)
BALANCE DUE	\$12,530.14

NOTES:

- 1) Intake valve = 38mm X 128.9mm X 7mm x 17.6mm T.O.G (radius type). 1.6mm Margine
- 2) Exhaust valve = 33mm x 127.1mm x 7mm x 15.4 T.O.G (radius type) 1.6mm Margine
- 3) Valve material is 21-4N stainless with chrome stems, intake and exhaust.
- 4) Target exhaust tip heights = 56.71mm
- 5) Target intake tip heights = 57.76mm
- 6) Valve spring is Ferrea S-10027
- 7) Installed spring height target is 38mm
- 8) Seat preshure intake and exhaust = 68#
- 9) Open preshure intake = 187#, exhaust = 191#
- 10) Gross valve lift intake = .449, exhaust = .461
- 11) Valve train engineered based on 33.4 camshaft base circle

BLOCK LABOR:	TIME/PN	LABOR	PARTS	SHIPP	SUBLET
REMOVE 2 OIL GALLY PLUGS		LABOR # 1			
SPRAY WASH ENGINE BLOCK		LABOR # 1			
VISUAL INSPECTION, BLOCK		LABOR # 1			
HEAT AND REMOVE ALL HEAD STUDS		LABOR # 1			
BREAK OUT ALL REMAINING LOCTITE FROM HEAD STUD HOLES		LABOR # 1			
CHASE ALL HEAD STUD HOLES WITH THREAD CHASER		LABOR # 1			
INSPECT HEAD STUD HOLES AND SPRAY WASH AGAIN.		LABOR # 1			
INSTALL ARP HEAD STUDS, LOCTITE IN PLACE WITH DECK PLATE		LABOR # 1			
INSTALL FRONT AND REAR OIL GALLEY PLUGS		LABOR # 1			
TOTAL HOURS LABOR # 1	5.0 HOURS	\$	550.00		
INSTALL MAIN GIRDLE AND TORQUE UP		LABOR # 2			
INSTALL HEAD STUDS AND MOUNT DECK PLATE		LABOR # 2			
BORE CYLINDERS SEMI		LABOR # 2			
INSTALL IN CYLINDER HONE		LABOR # 2			
HONE AND EXPOSE SILICON		LABOR # 2			
LIGHTLY CHAMFEER BORES		LABOR # 2			
SPRAY WASH AFTER HONNING		LABOR # 2			
INSTALL MAIN OIL GALLEY PLUGS		LABOR # 2			
TOTAL HOURS LABOR # 2	5.5 HOURS	\$	605.00		
INDEX AND DECK BLOCK MINIMUM		\$	175.00		
SELECT BEST FIT RING STACK FOR NEW BORE		LABOR # 3			
ENGINEER PISTON FOR 12.0:1 CR AND BIG VALVES		LABOR # 3			
ORDER PISTONS FROM MAHLE MS		LABOR # 3			
ORDER RINGS FROM TOTAL SEAL		LABOR # 3			
TOTAL HOURS LABOR # 3	1.5 HOURS	\$	157.50		
BALANCE RODS AND PISTONS	ALL ARE WITHIN .5 g				
INSTALL CRANK ON BALLABNCER & CHECK	CHECKS LESS THAN 1g @ 3 inch R				
VERIFY BALANCE IS GOOD		\$	150.00		
DRILL AND TAP OIL AND WATER HOLES	ELIMINATE BALANCE SHAFTS				
MACHINE BLOCK FOR PRIORITY OIL INLET FEED	ELIMINATE BALANCE SHAFTS				
HAND RADIUS OIL INLET INTO GALLEY	ELIMINATE BALANCE SHAFTS				
WELD MISCILAIIOUS PLACES ON BLOCK	ELIMINATE BALANCE SHAFTS				
EPOXY VARIOUS PLACES ON BLOCK	ELIMINATE BALANCE SHAFTS				
INSTALL MAISCILANIOUS OIL AND WATER PLUGS	ELIMINATE BALANCE SHAFTS				
TOTAL HOURS ELIMINATE BALANCE SHAFTS	8 HOURS	\$	880.00		

INSTALL MAIN BEARINGS AND CHECK OIL CLEARANCE	LABOR # 5
INSTALL CRANK, TORQUE UP, SEAL OIL PASSAGE WITH 574	LABOR # 5
INSTALL PISTONS ON RODS	LABOR # 5
GRIND PISTON RING END GAPS	LABOR # 5
INSTALL PISTON RINGS	LABOR # 5
TORQUE UP ROD INSERT IN ROD, CHECL CLEARANCE	LABOR # 5
INSTALL PISTONS AND RODS, TORQUE UP	LABOR # 5

TOTAL HOURS LABOR PACKAGE # 5	4.5 HOURS	\$ 495.00
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DISMANTLE OIL PUMP	TIMING BELT AND FRONT
SODA BLAST HOUSING AND BODY	TIMING BELT AND FRONT
SPRAY WASH ALL OIL PUMP PARTS	TIMING BELT AND FRONT
DELETE PUMP GEARS	TIMING BELT AND FRONT
ASSEMBLE PUMP	TIMING BELT AND FRONT
INSTALL ON BLOCK WITH 574 LOCTITE	TIMING BELT AND FRONT
INSTALL WATER PUMP	TIMING BELT AND FRONT
INSTALL TIMING COMPONENTS	TIMING BELT AND FRONT
INSTALL DEGREE WHEEL AND DEGREE IN EX CAM	TIMING BELT AND FRONT
VERIFY INTAKE CAM TIMING, IS GOOD	TIMING BELT AND FRONT

TOTAL HOURS TIMING BELT AND FRONT	5.5 HOURS	\$ 605.00
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REMOVE 2 HELI COILS, INSTALED IMPROPERLY, TENSIONER BOSS	REPAIR BOSS
MACHINE FOR XTRA DEEP TIMESERTS, TENSIONER BOSS	REPAIR BOSS
GREEN LOCTITE IN PLACE AND BROACH	REPAIR BOSS
TEST FIT FASTNERS	REPAIR BOSS

REPAIR CHAIN ADJUSTER BOSS	\$ 40.00
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CYLINDER HEAD LABOR	TIME/PN	LABOR	PARTS	SHIPP	SUBLET
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REMOVE 6 OIL GALLEY PLUGS FROM HEAD	CLEAN HEAD
SPRAY WASH HEAD	CLEAN HEAD
SODA BLAST CYLINDER HEAD & RINSE	CLEAN HEAD

TOTAL CLEAN HEAD	1.5 HOURS	\$ 165.00
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PACKAGE AND SHIP CAMS TO WEB CAMS	UPS	\$ 26.43
WELD AND RE-GRIND 2 CAMS TO CPM SPECIFICATIONS	WEB CAMS INVOICE	\$1,066.47
SHIPPING & INSURANCE FROM WEB CAMS	BILLED TO CIRCLE PM ACCOUNT	\$ 47.62

SELECT BEST SIZE VALVES FOR APPLICATION	ENGINEER VALVE TRAIN
SELECT SUITABLE SPRING FOR APPLICATION	ENGINEER VALVE TRAIN
CALCULATE MAX BASE CIRCLE ALLOWABLE AND SPECIFY	ENGINEER VALVE TRAIN
ENGINEER VALVES FOR SOLID CONVERSION	ENGINEER VALVE TRAIN

ENGINEERE VALVE TRAIN	3.0 HOURS	\$ 330.00
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REMOVE AND REPLACE 16 GUIDES		\$	160.00
REEM AND FINISH HONE 16 GUIDES TO SIZE		\$	160.00
RUFF MACHINE INTAKE VALVE SEATS FOR 38mm		\$	80.00
RUFF MACHINE EXHAUST VALVE SEATS FOR 33mm		\$	80.00
PORT CYLINDER HEAD, RACE QUALITY	PKG PRICE	\$	1,000.00
FINISH VALVE JOB AND HAND BLEND INTO PORTS		\$	220.00

VERIFY CAM LINE BORE	IS FINE	SET LASH	
INSTALL CAMS, BUCKETS ETC. FOR VALVE LASH		SET LASH	
MOCK UP HEAD , GRIND ALL TIP HIGHTS FOR LASH		SET LASH	
VERIFY ALL INSTALLED SPRING HEIGHTS ARE ON TARGET		SET LASH	
ASSEMBLE HEAD		SET LASH	
CHECK ALL VALVE LASH, FINE ADJUST AS NECESSARY		SET LASH	
TOTAL HOURS SET LASH	7.0 HOURS	\$	770.00
RESURFACE CYLINDER HEAD MINIMUM		\$	90.00

CYLINDER HEAD PARTS	TIME/PN	LABOR	PARTS	SHIPP	SUBLET
8 INTAKE VALVE BLANKS	FERREA		\$ 203.04		
MACHINE HEAD, MARGINE O.L. AND GROVE, 8PC.	FERREA				\$288.00
8 CUSTOM EXHAUST VALVES	FERREA		\$ 228.43		
MACHINE HEAD, MARGINE, O.L. AND GROVE, 8PC.	FERREA				\$288.00
SHIPPING ON VALVES	UPS			\$ 17.25	
8 INTAKE VALVE GUIDES, MANGANESE BRONZE	WEN IND		\$ 50.40		
8 EXHAUST VALVE GUIDES, MANGANESE BRONZE	WEN IND		\$ 50.40		
16 VALVE STEM SEALS	NOK		\$ 42.88		
16 VALVE SPRINGS, FERREA	S-10027		\$ 417.60		
16 TITANIUM RETAINERS	FERREA		\$ 288.43		
32 VALVE LOCKS, SINGLE GROVE COLLET TYPE	FERREA		\$ 90.32		
16 LIFTER BUCKETS, SOLID LIGHT WEIGHT	ARROW PRECISION		\$ 553.28		
6 OIL GALLEY PLUGS FOR CYLINDER HEAD	OE PORSCHE		\$ 20.16		

BLOCK PARTS	TIME/PN	LABOR	PARTS	SHIPP	SUBLET
PISTON SET, CUSTOM	MAHLE MOTOR SPORTS		\$ 1,041.55		
CRANKSHAFT, CUSTOM LIGHT WEIGHT	DE \ MC		\$ 3,428.00		
CONNECTING RODS, maxi-lite-4 SERIES	CROWER		\$ 1,178.00		
PISTON RING SET, TOTAL SEAL WITH PVD COATING AND NAPIER			\$ 238.72		
CYLINDER HEAD STUD KIT	ARP		\$ 194.20		
SHIPPING FROM ARP	FED-EX			\$ 16.34	
REAR MAIN OIL SEAL	999-113-426-41		\$ 27.69		
FRONT CRANK \ OIL PUMP SEAL	999-113-331-40		\$ 19.52		
NEW HARDWARE FOR OIL PUMP, ALL 10.9 WITH SS WASHERS			\$ 10.00		
ROD BEARINGS	928-103-143-15		\$ 86.76		
MAIN BEARINGS	944-101-901-00		\$ 242.40		
SHIP MAINS AND ROD BEARINGS FOR COATING	UPS			\$ 12.43	
COAT ROD AND MAIN BEARINGS	CALICO				\$ 138.43
SHIPPING & INS. FROM CALICO	UPS COLLECT BILL			\$ 18.27	
CYLINDER HEAD GASKET, MULTI LAYER STEEL	COMETIC		\$ 126.32		
DEVCON ALUMINUM EPOXY FOR BALANCE SHAFT ELIMINATOR, 1 pt.			\$ 78.43		
OIL INLET FITTING BACKER	FAB ON SITE		\$ 20.00		
OIL INLET FITTING, -12 MALE X 3/4 NPT			\$ 16.54		
OIL GALLEY CAP PLUGS, FRONT AND REAR			\$ 8.00		
TIMING BELT ROLLER	944-105-241-02		\$ 43.55		
TIMING BELT	SSF INVOICE				
UPPER TIMING BELT ROLLER	SSF INVOICE				
FRONT CAM SEAL	SSF INVOICE				
3 CAM PLUGS	SSF INVOICE				
3 RETAINING ARM BRACKETS FOR PLUGS	SSF INVOICE				
TIMING CHAIN, HEAVY DUTY RACING FROM IWIS	SSF INVOICE				
GUIDE PLATE NUT, 2 PC.	SSF INVOICE				
GUIDE PLATE	SSF INVOICE				
CAM BOLT	SSF INVOICE				
TOTAL SSF INVOICE, 11-25-15	# 77285212		\$ 193.78		

