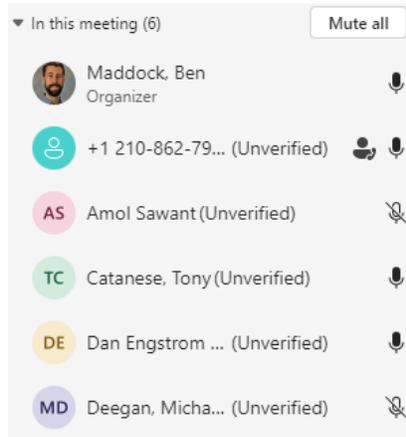


**Sequence VH O&H Panel Meeting
March 5th, 2024 3PM EST via Teams**

Attendees:



- Overview:**
1. Fuel Analysis
 2. Cam Bearings
 3. Build Workshop
 4. Hardware
 5. Other

Topics:

1. Fuel Analysis

- a. Afton, LZ, SWRI conducting separate analysis via Saybolt
 - i. Afton's data arrived, need to organize and share
 - ii. LZ's data arrived, need to organize and share
 1. Tony conducted brief review with Lubrizol's Fuel Expert and identified differences in gums values that could indicate degradation
 - iii. SwRI's data arrived, need to organize and share
 1. Dan confirmed Tony's findings
 - iv. Ben plans to collect all three labs and discuss on 3/12 call

2. Cam Bearing Update

- a. References with King cam bearings
 - i. IAR complete – 181566 – AES Yi -0.9298
 - ii. SwRI complete – 182247 – AES Yi +0.6
 - iii. Afton – 180285 - expected SOT 3/6/24

e-ballot Motion (Al Lopez/2nd: Dan Engstrom): To accept King as an alternative supplier of cam bearings

- b. Al plans to discuss with Dan Lanctot on batch size and turnaround time for purchasing more
- c. Dan presented SwRI's Bearing Characterization. See Appendix.
 - i. Bearings from batch 3-2023, 2018-2021 and King were compared using SEM/EDS, hardness testing, and visual inspection

- ii. The 3-2023 batch indicated the greatest difference in elemental composition, most notably lacking Si

3. Build Workshop Date

- a. **When:** April 16th and 17th
- b. **Where:** San Antonio, TX
- c. **Who:** Five test labs + Ford + TMC
 - i. Afton: 2 build technicians + 1 engineer
 - ii. Intertek: 1 build technician + 1 engineer
 - iii. Lubrizol: 2 build technicians + 1 engineer
 - iv. SWRI: 2 build technicians + 1 engineer
 - v. Valvoline: 1 build technician + 1 engineer
 - vi. Ford: Mike Deegan
 - vii. TMC: Rich Grundza
- d. **What:** Have each lab actively participate in cleaning, prep, honing and engine assembly best practices with staged material at the independent labs
 - i. Section 7.5 Special Engine Measurement and Assembly Equipment
 - ii. Section 7.6 Miscellaneous Engine Components—Preparation
 - iii. Section 7.7 Solvents and Cleaners Required
 - iv. Section 7.8 Assembling the Test Engine—Preparations
 - v. Section 7.9 Assembling the Test Engine—Installations
- e. **Hotel:** Around Cinema Ridge
- f. **Itinerary:**
 - i. Monday, 4/15
 - 1. Arrive in SAT
 - ii. Tuesday, 4/16
 - 1. Intertek till noon with dirty engine through clean & prep process (7.5, 7.6, 7.7)
 - 2. Lunch somewhere
 - 3. SWRI till end of day with rough/fine hone and short block assembly (7.8, 7.9)
 - iii. Wednesday, 4/17
 - 1. SWRI - O&H Panel and closing discussion till noon
 - 2. After lunch fly back home
- g. **Output:** Table of differences and list of best practices
 - i. Topics of interest: Ring gaps, cleaning practices, surface finish, strokes vs load in rough and fine, stones, honing machine, ring grinder, piston to bore, taper

4. Hardware

- a. Pistons
 - i. Al is leading this effort with Mike pursuing a new supplier through his Ford network
 - ii. Initially it appears only 0.5mm is available, Mike is pursuing additional sizes (0.125, 0.25, 0.375mm)
 - iii. Ford still remans 4.6Ls
- b. Oil Pans

- i. No longer an issue according to OHT
 - ii. Re-plating existing pans is a valid path forward if damage occurs
 - c. FCS Order
 - i. Labs to begin the process of scoping a larger part order through FCS. Initially requesting pistons but will evolve into blocks and small parts eventually.
 - d. Part Numbers
 - i. Afton identified difference in Sunnen honing stone part numbers (JHU-725 vs JHU-623). More details to follow on 3/12 call
- 5. Other
 - a. Lambda sensor options
 - i. Horiba sensor price increased to ~\$1300
 - ii. Is there a better alternative?

Appendix:
SwRI Bearing Characterization.ppt

Bearing Characterization

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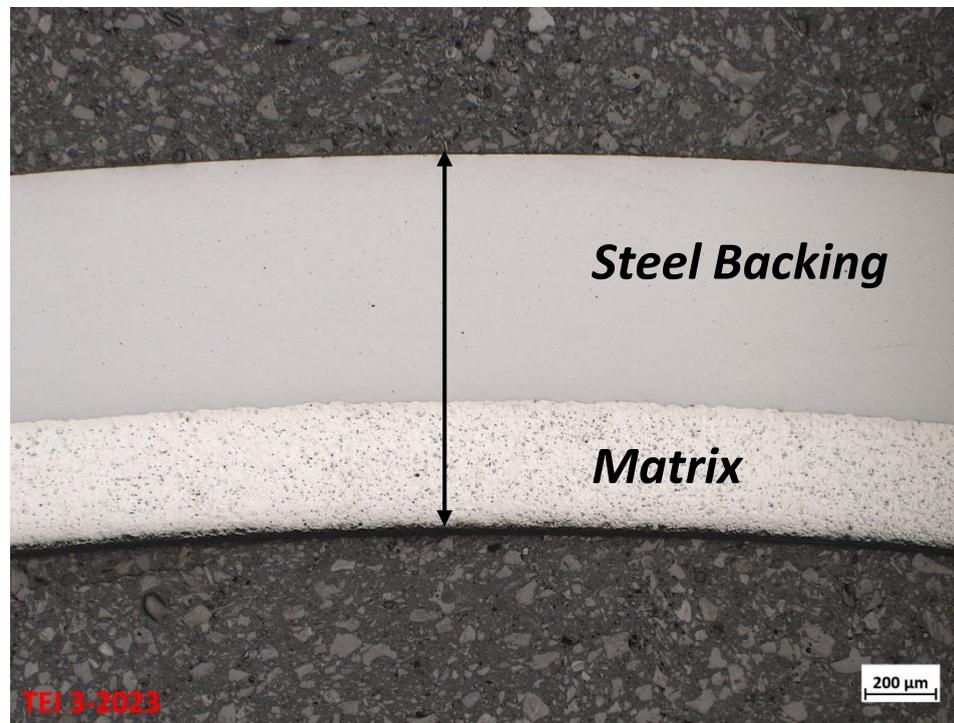
Revised 5Mar2024

Metallographic Examination

- Bearing cross-section was examined for three different brands
- Thickness was measured for the entire cross-section, the steel backing, and the bearing matrix
- King bearing exhibited a rough interface between the steel backing and bearing matrix

Bearing	Thickness (inch)		
	Overall	Steel Backing	Matrix
TEI-3-2023	0.043 (1081 μm)	0.028 (717 μm)	0.014 (368 μm)
TEI 2018-2021	0.043 (1089 μm)	0.028 (714 μm)	0.015 (383 μm)
King	0.042 (1078 μm)	0.030 (764 μm)	0.012 (314 μm)

TEI 3-2023



TEI 2018-2021



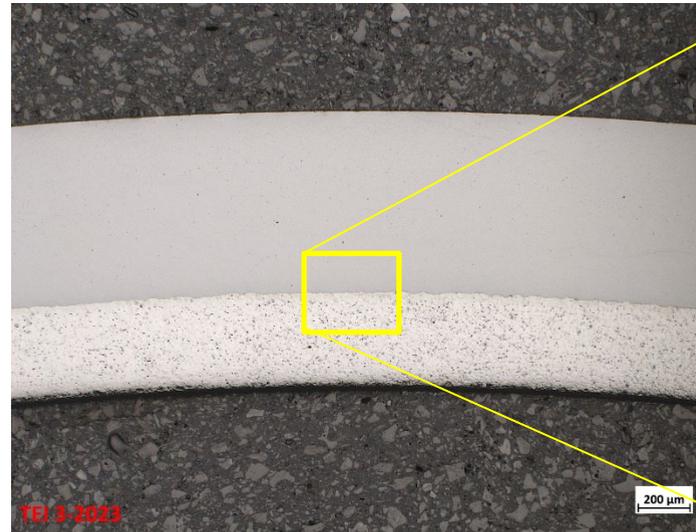
King



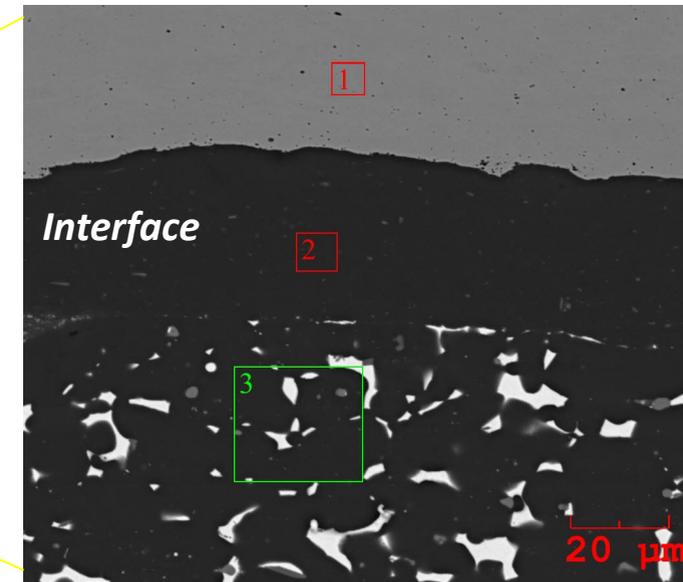
TEI 3-2023

- Bearing cross-section was examined with a scanning electron microscope (SEM)
- Compositional measurements were obtained via energy dispersive X-ray spectroscopy (EDS)
- EDS results demonstrated the backing to be primarily iron or a plain carbon steel
 - **Note:** Plain carbon steels exhibit C as the major alloying element; EDS analysis is a semi-quantitative technique. The EDS detection limits for C and O are not as comprehensive as the limits for atomic numbers greater than 11
- The bearing matrix exhibited an interface of thickness 0.0013 inch (32 μm); the interface composition was primarily Al
- The bearing exhibited Al with ~8 wt.% Sn

Reference cross-section



SEM areas examined

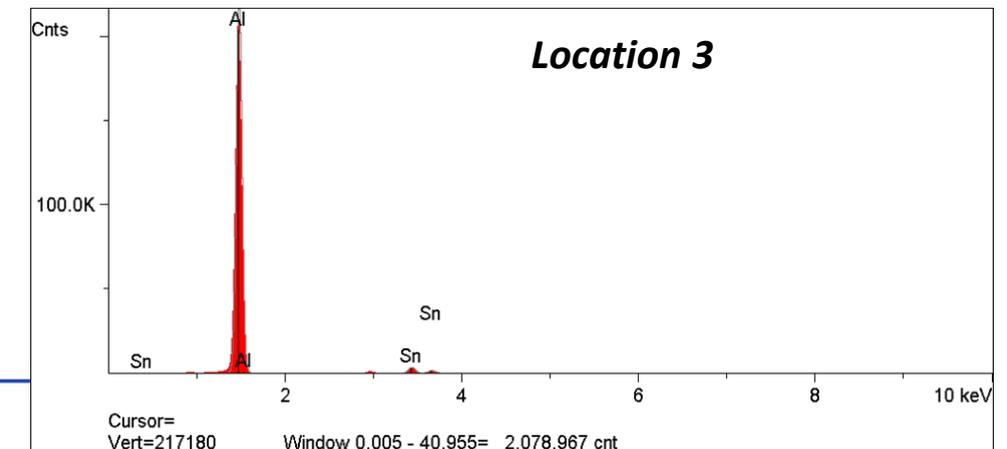
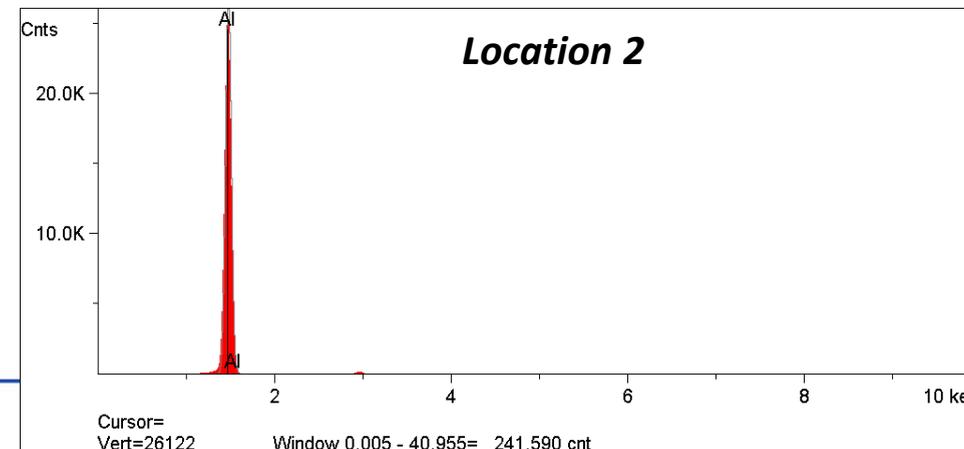
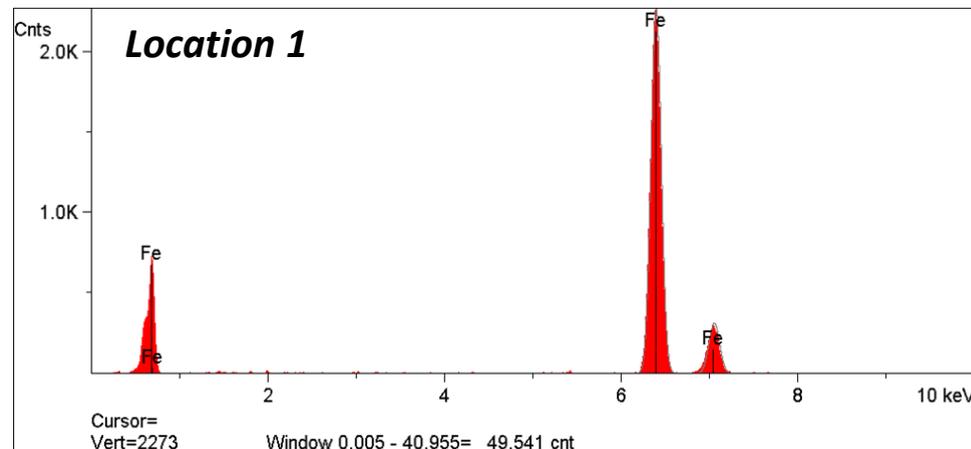


Bearing

EDS results:

- Semi-quantitative composition
- Resulting spectra

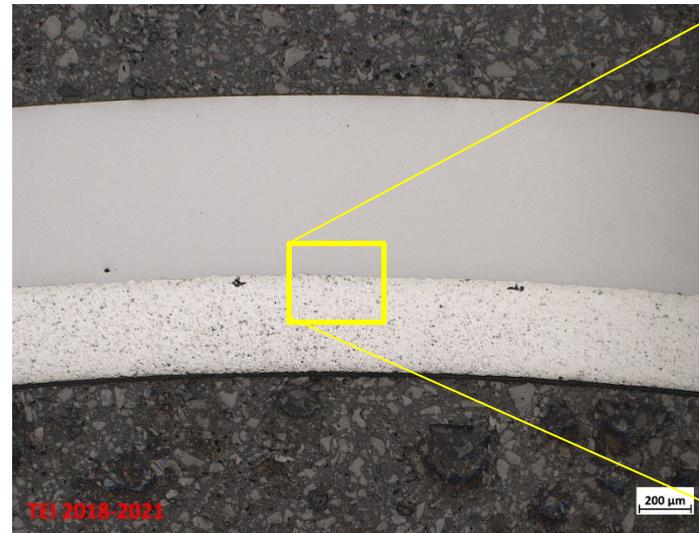
	<i>Steel Backing</i>		<i>Interface</i>		<i>Bearing Matrix</i>	
	<i>Location 1</i>		<i>Location 2</i>		<i>Location 3</i>	
Element	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %
Fe	100.00	100.00				
Al			100.00	100.00	98.18	92.48
Sn					1.82	7.52



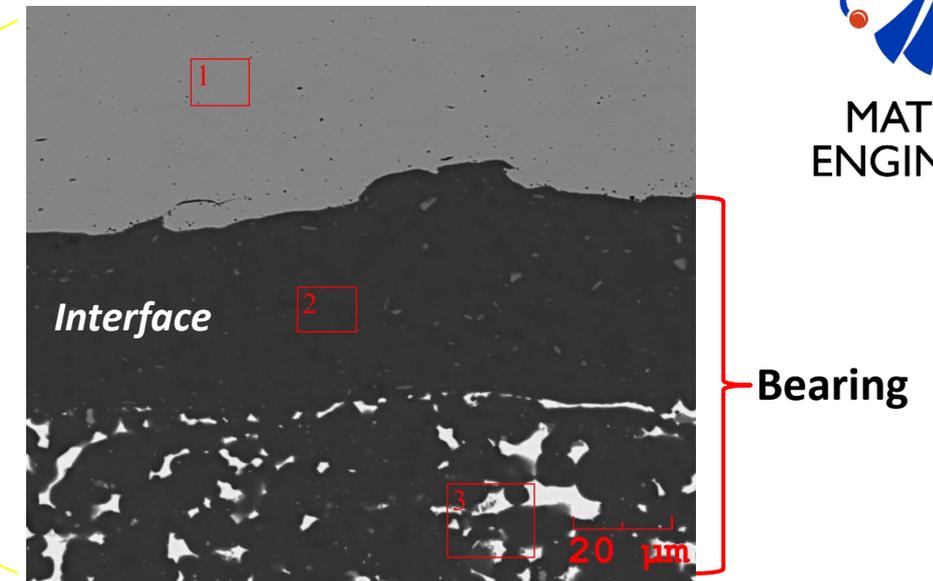
TEI 2018-2021

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- The bearing matrix was primarily Al with alloying additions of Sn and Si; less than 1 wt.% of Cu and Fe was resolved

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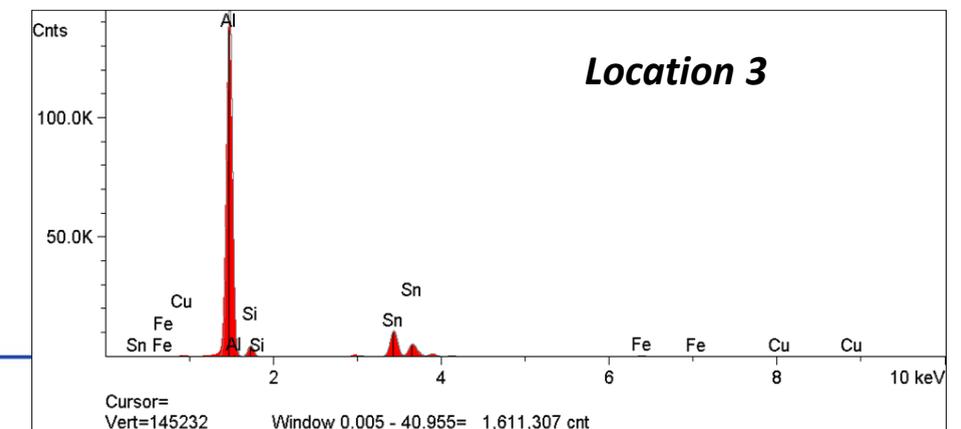
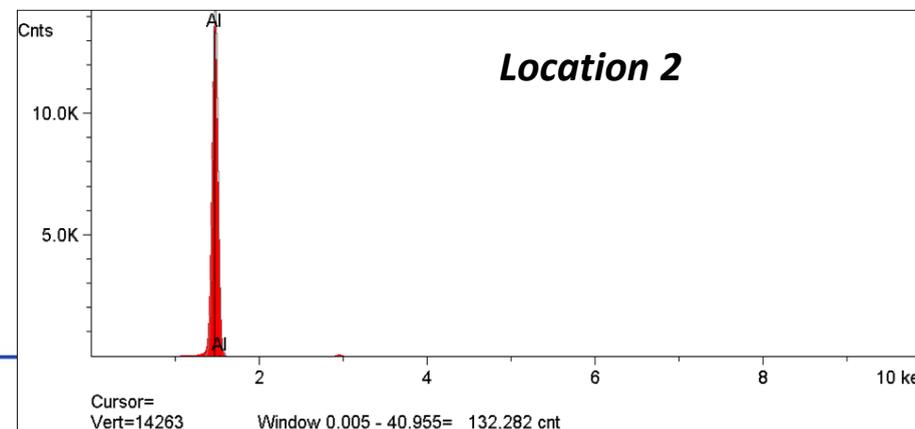
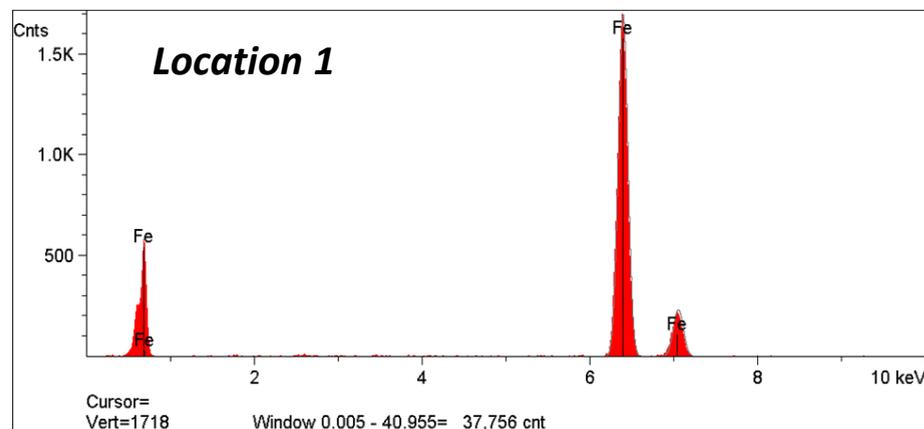
SEM areas examined



EDS results:

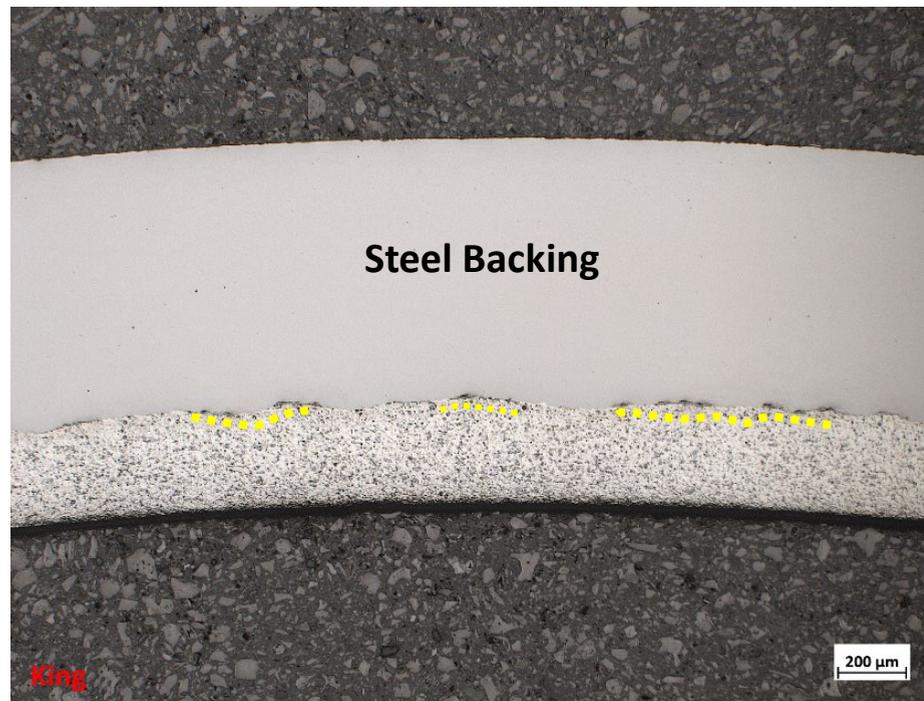
- Semi-quantitative composition
- Resulting spectra

	Steel Backing		Interface		Bearing Matrix	
	Location 1		Location 2		Location 3	
Element	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %
Al			100.00	100.00	87.53	72.85
Si					6.07	5.26
Fe	100.00	100.00			0.52	0.89
Cu					0.32	0.62
Sn					5.56	20.38



- Bearing cross-section was examined with an SEM and compositional measurements were obtained via EDS
- EDS results for the backing are presented separately, and demonstrate a composition consistent with a plain carbon steel
- King bearing exhibited a discontinuous thin layer (outlined by yellow dashed lines) with a thickness varying between 6-10 μm (0.0002 inch 0.0004 inch)
 - The layer was located at the interface between the backing and the bearing
 - SEM imaging demonstrated the appearance of an oxide; the discontinuous behavior is consistent with poor surface preparation
- EDS results for the bearing, interface, and thin-discontinuous layer are presented in the next slide

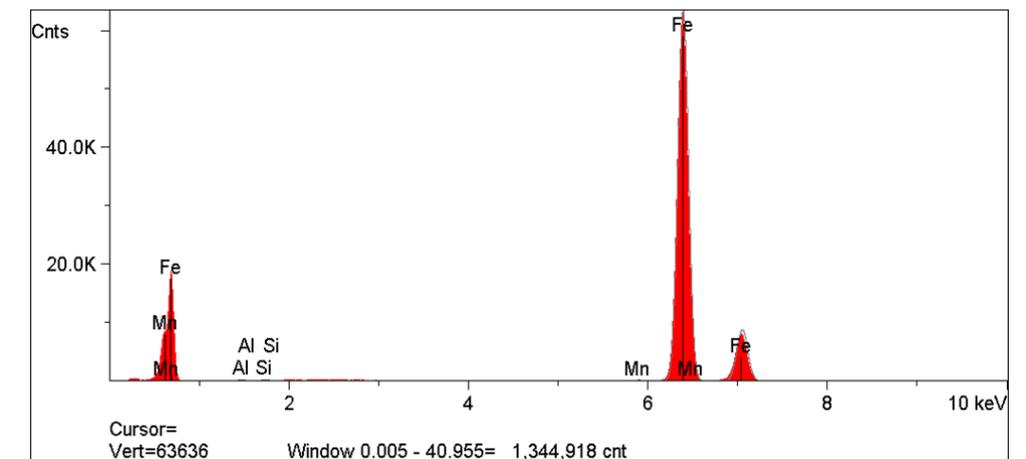
Reference cross-section



EDS results for backing:

- Semi-quantitative composition
- Resulting spectrum

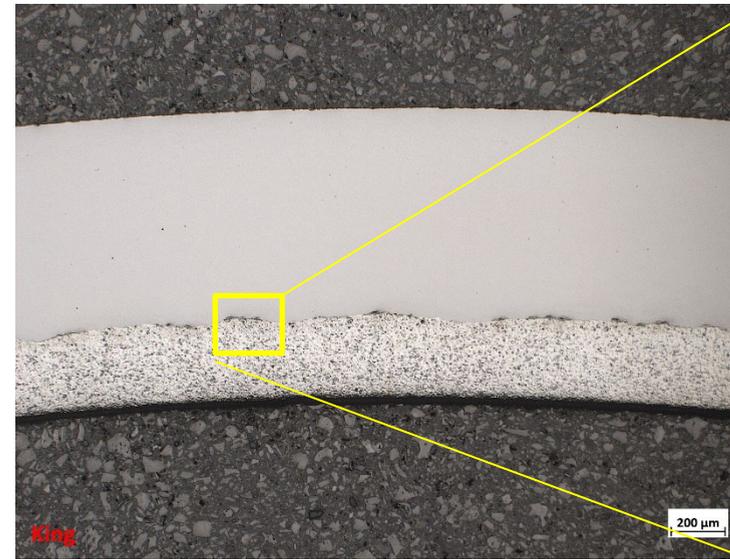
	Steel Backing	
Element	Atomic %	Weight %
Al	0.48	0.23
Si	0.42	0.21
Mn	0.19	0.18
Fe	98.91	99.37



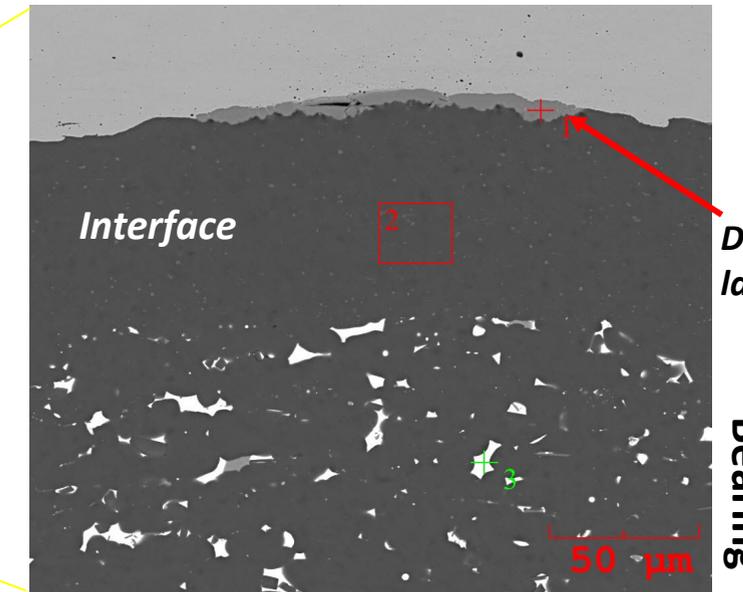
Dashed yellow lines outline discontinuous layer at interface

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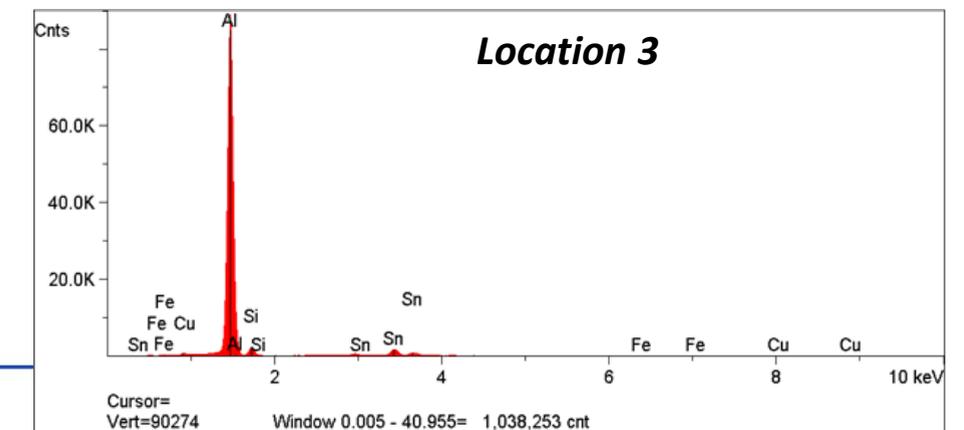
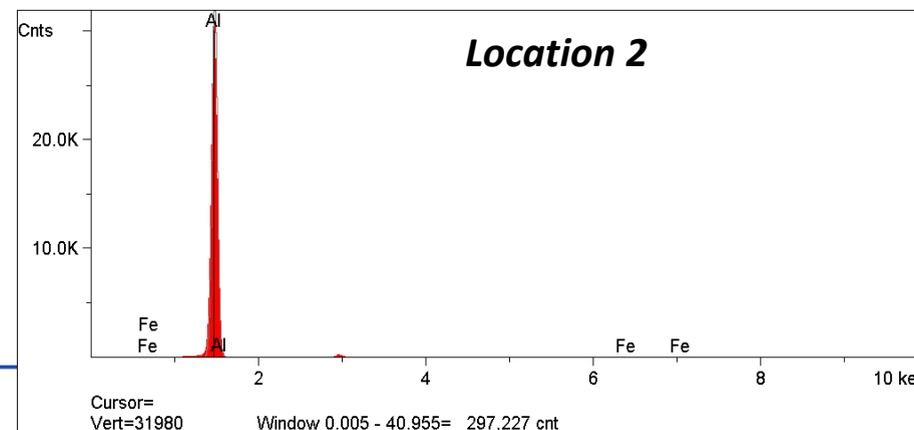
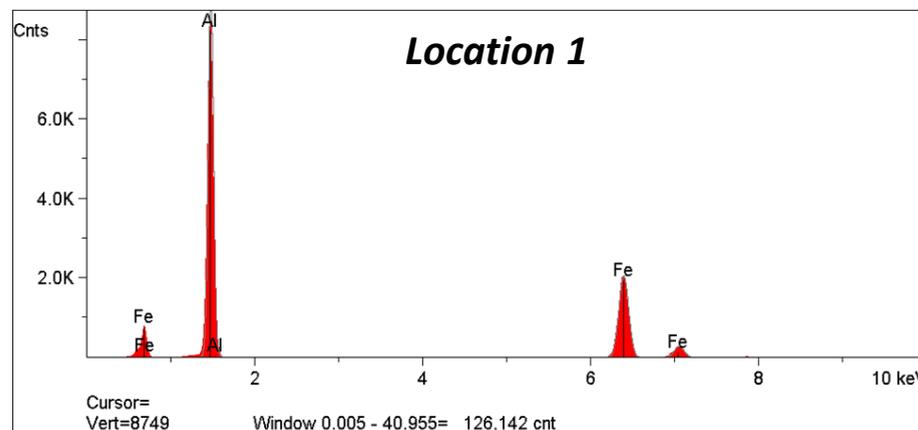
SEM areas examined



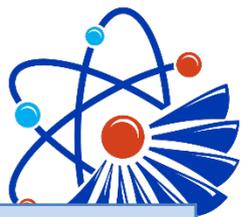
EDS results:

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Element	Oxide		Interface		Bearing	
	Location 1	Weight %	Location 2	Weight %	Location 3	Weight %
Al	75.79	60.20	99.77	99.52	91.87	86.14
Si					5.94	5.80
Fe	24.21	39.80	0.23	0.48	0.13	0.25
Cu					0.36	0.81
Sn					1.70	7.00



Hardness



Bearing

- Microhardness measurements were obtained in the Vickers scale using a 100g load force
- Values are presented in the HV_{100g} scale; conversion to Rockwell Hardness Scale was not performed because results were too soft for Rockwell hardness values
- Results demonstrate bearing material to be significantly soft; these values serve as a qualitative comparison but should not be used to conform material

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- Microhardness measurements were obtained in the Vickers scale using a 500g load force
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Bearing						
	Hardness Drop (HV _{100g})					
	1	2	3	4	5	Average
TEI 3-2023	40	38	39	37	37	38.2
TEI 2018-2021	46	47	48	48	49	47.6
King	45	49	50	51	48	48.6

Steel Backing						
	Hardness Drop (HRB)					
	1	2	3	4	5	Average
TEI 3-2023	90.9	93.9	92.6	90.5	92.8	92.1
TEI 2018-2021	93.0	91.8	93.9	92.0	93.2	92.8
King	92.8	90.7	93.7	92.8	92.4	92.5

TEI 3-2023

TEI 2018-2021

King



Bearing Characterization

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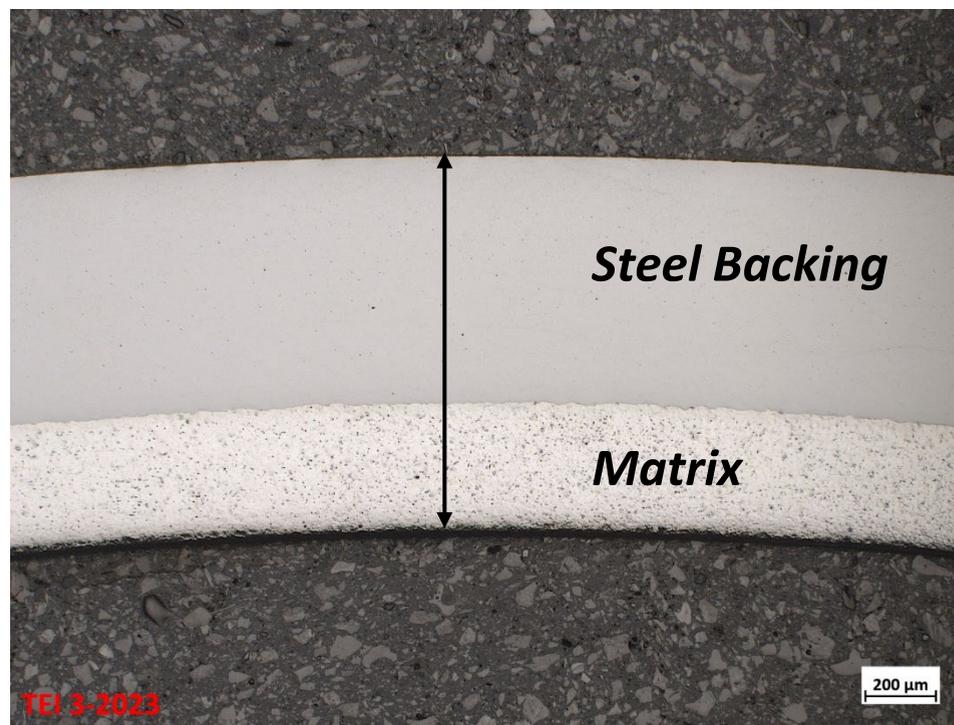
Revised 5Mar2024

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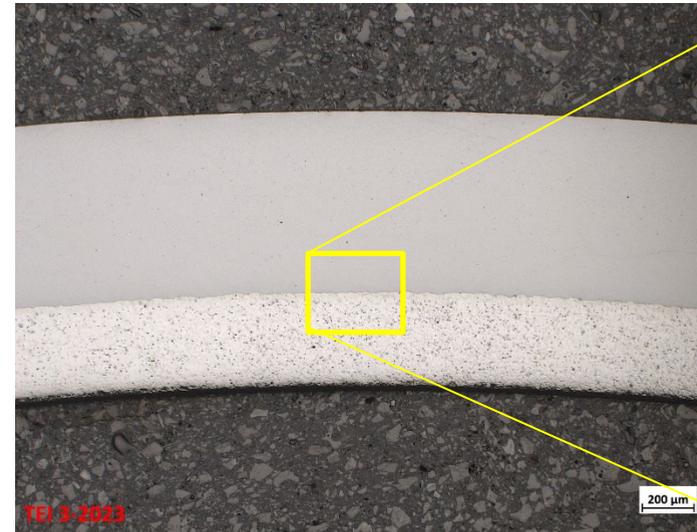
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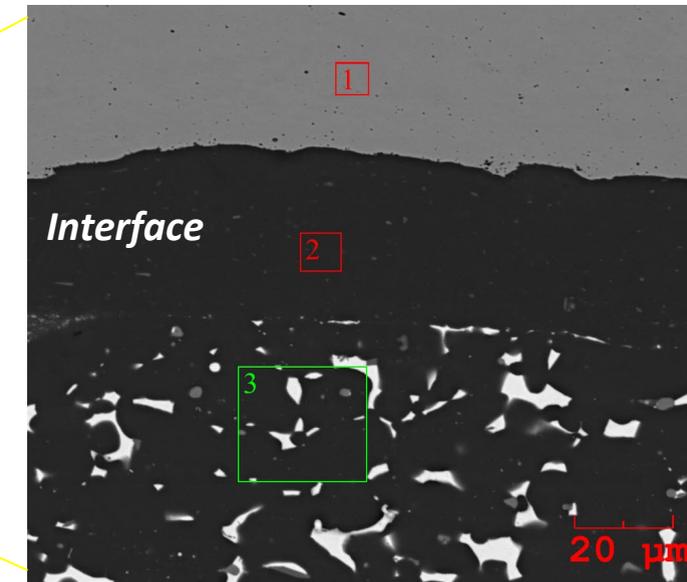
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Reference cross-section



SEM areas examined

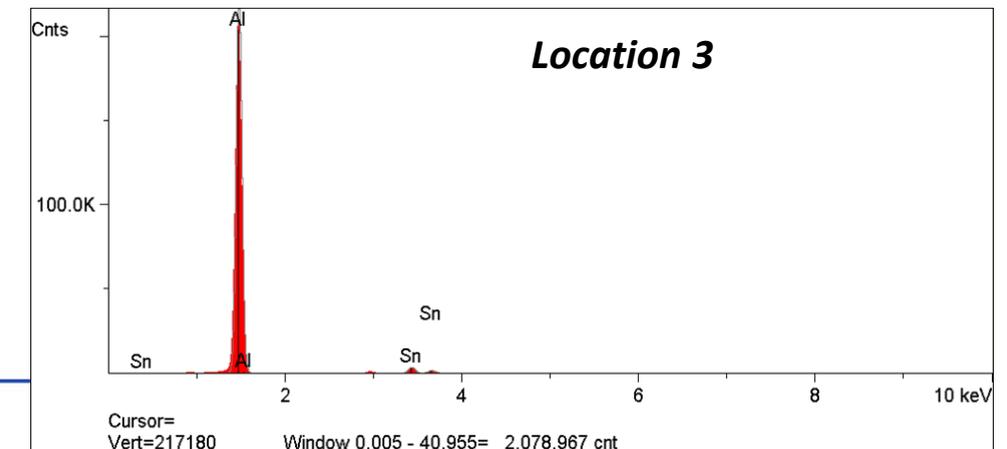
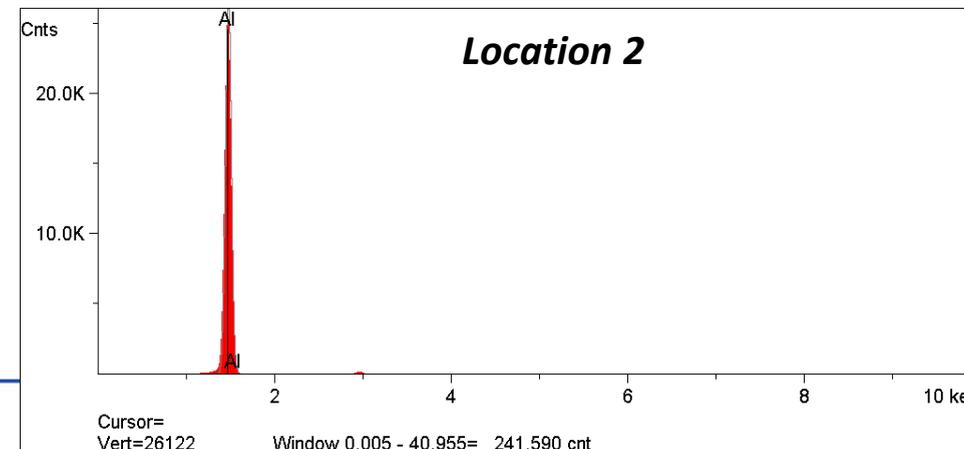
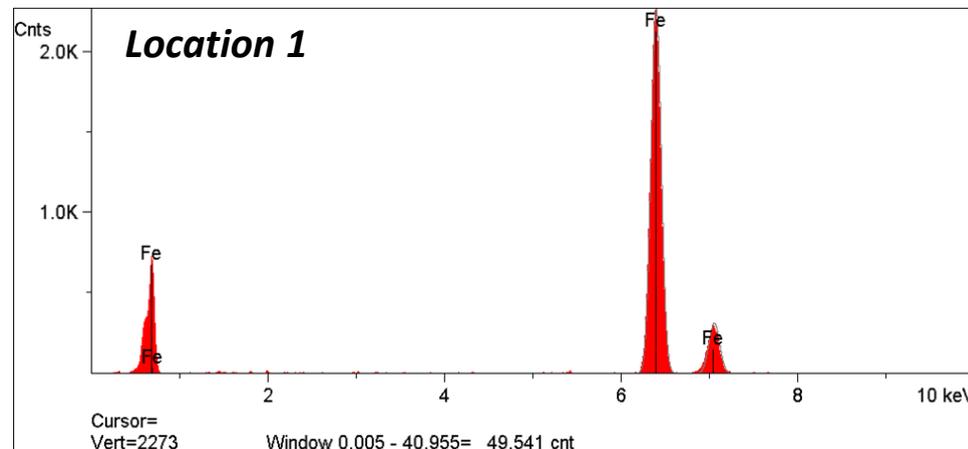


Bearing

EDS results:

- Semi-quantitative composition
- Resulting spectra

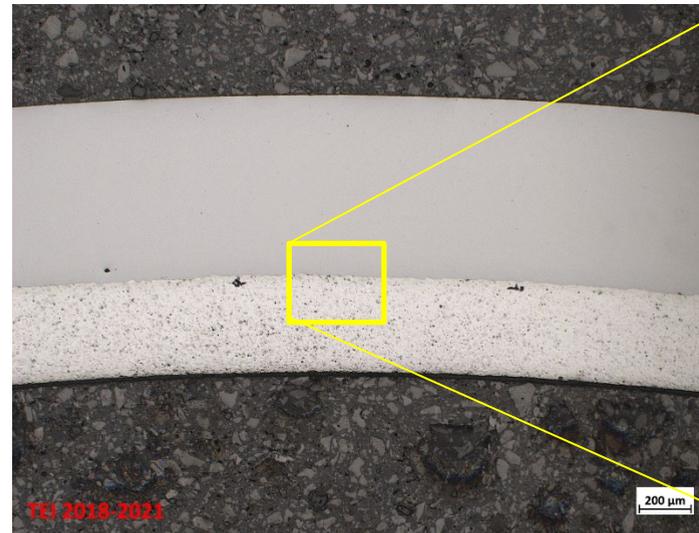
	<i>Steel Backing</i>		<i>Interface</i>		<i>Bearing Matrix</i>	
	<i>Location 1</i>		<i>Location 2</i>		<i>Location 3</i>	
Element	Atomic %	Weight %	Atomic %	Weight %	Atomic %	Weight %
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Sn					1.82	7.52



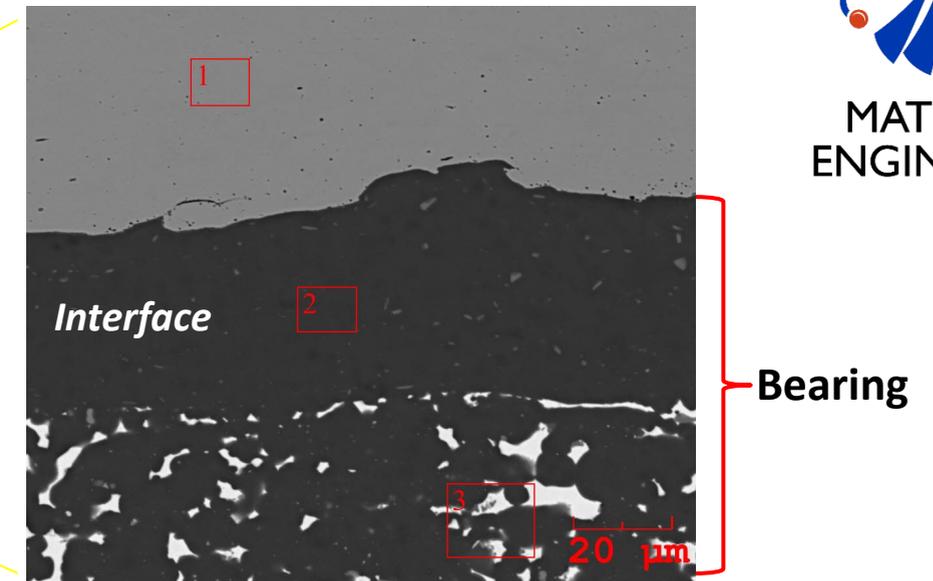
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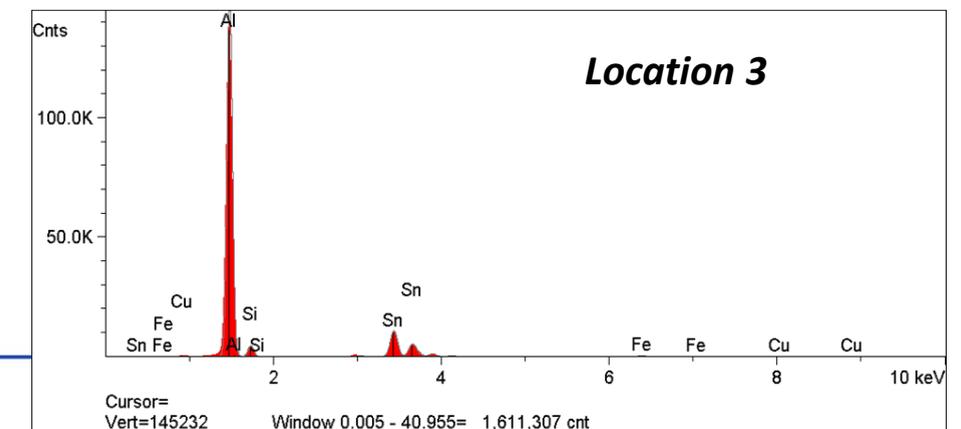
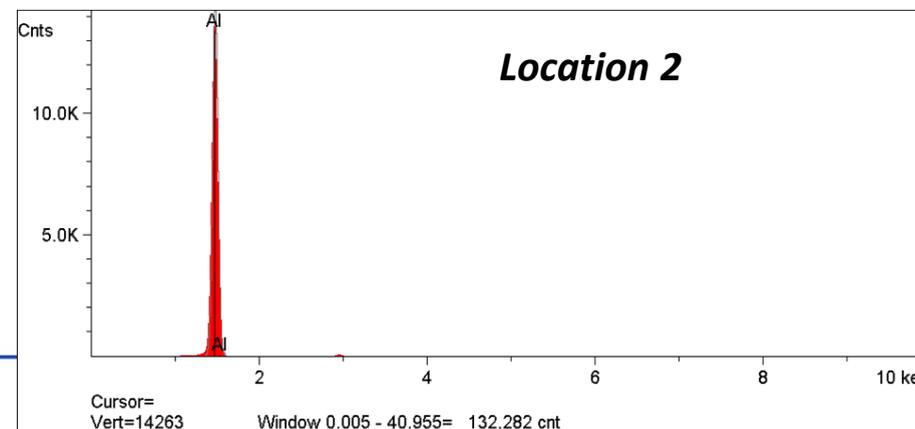
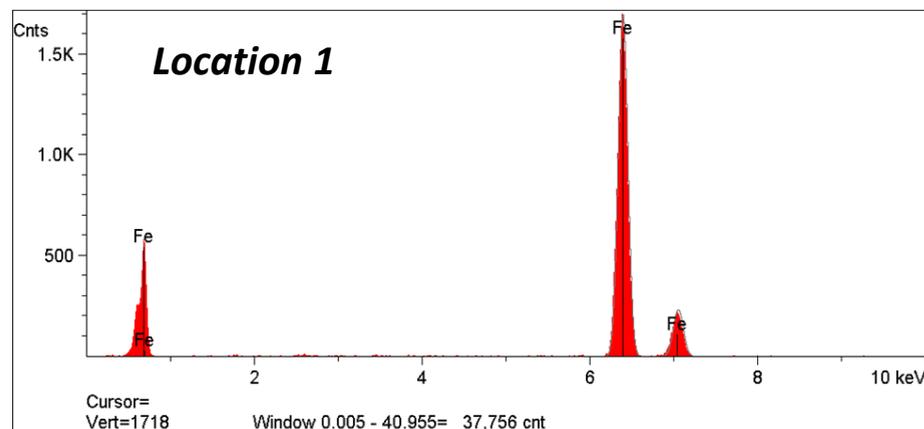
SEM areas examined



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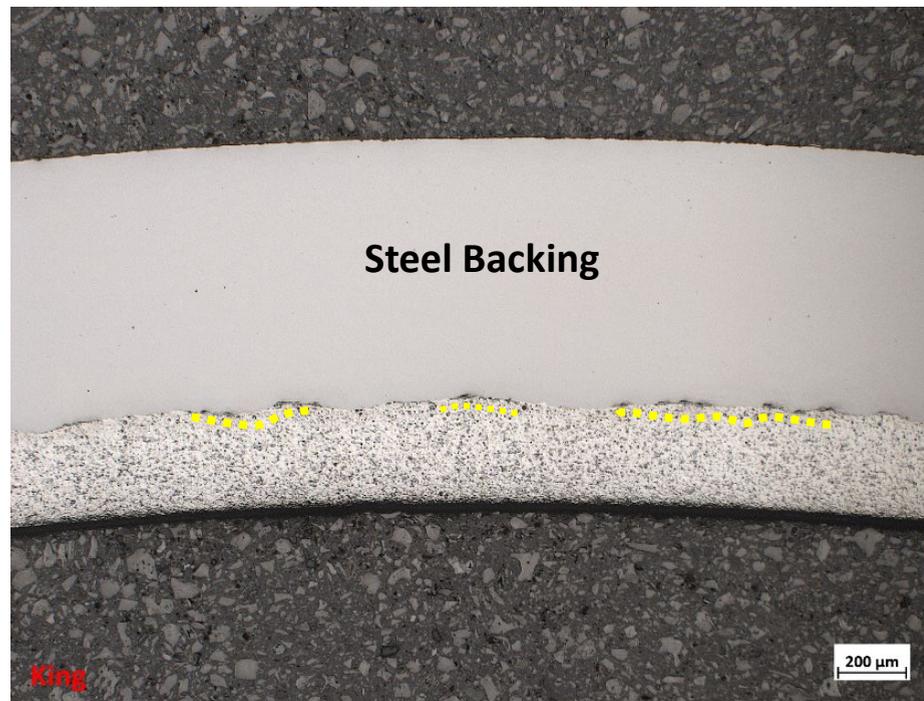
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	<i>Steel Backing</i>		<i>Interface</i>		<i>Bearing Matrix</i>	
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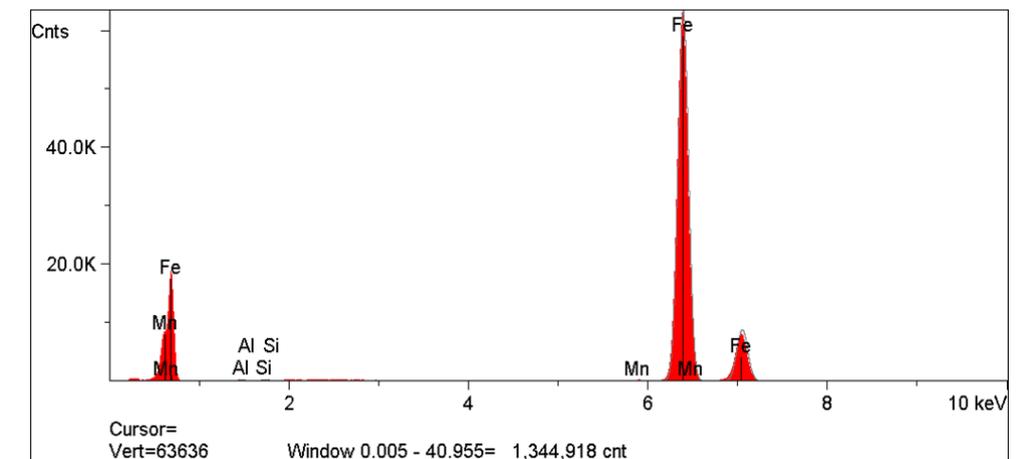
Reference cross-section



EDS results for backing:

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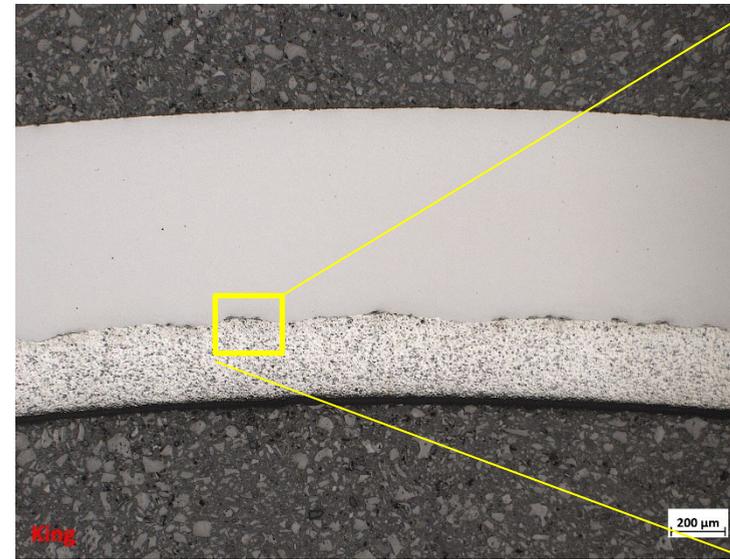
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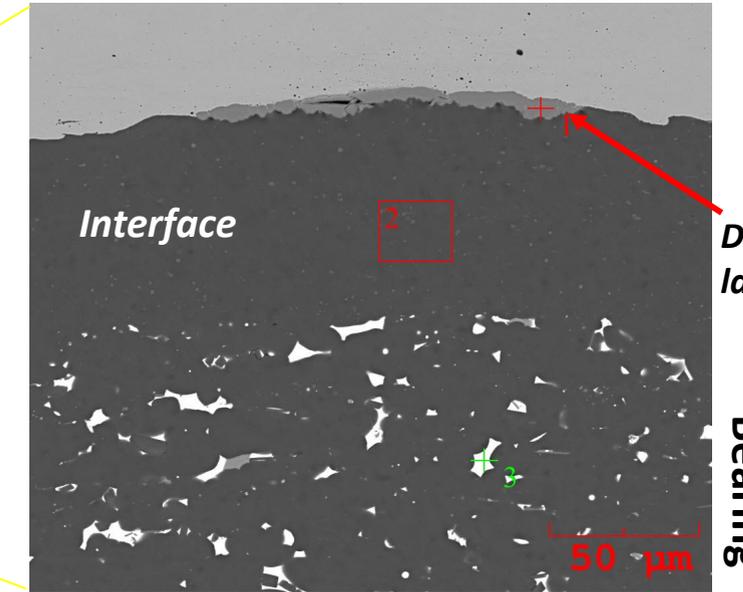
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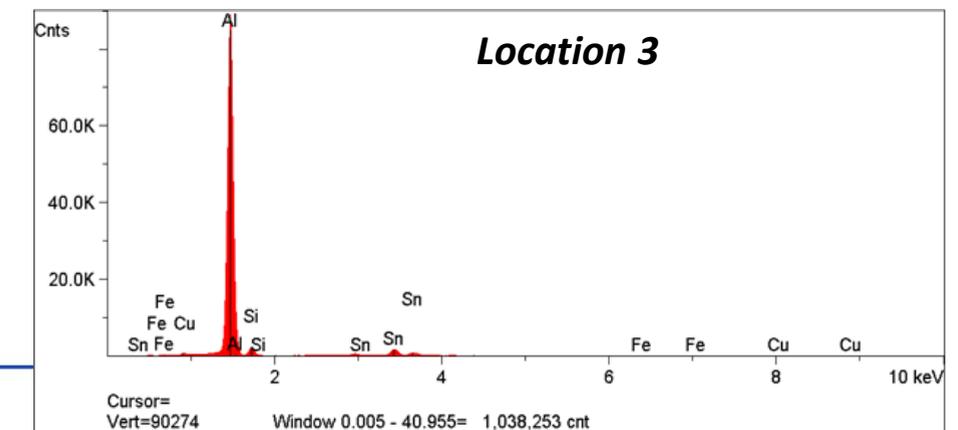
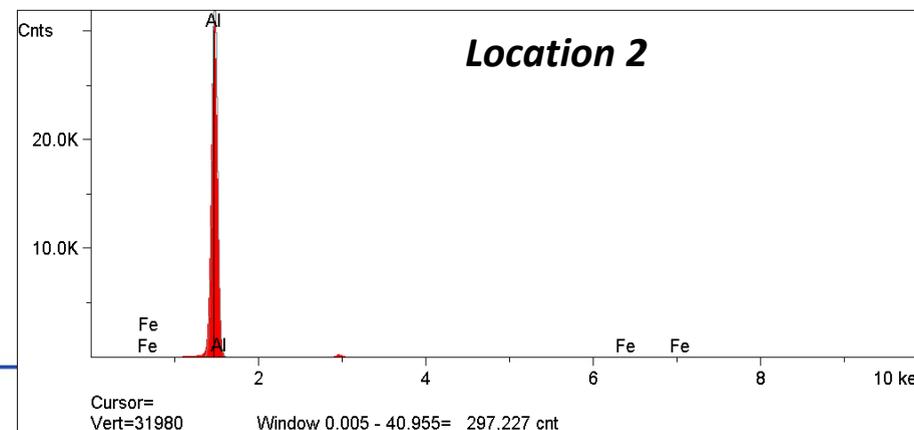
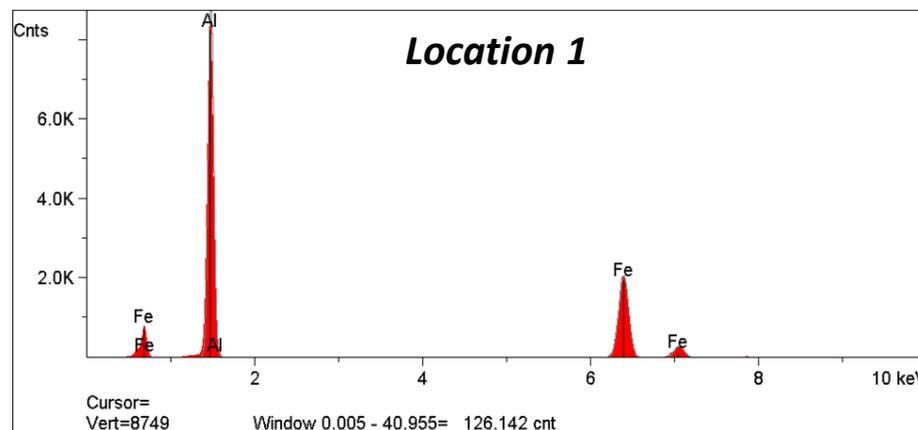
SEM areas examined



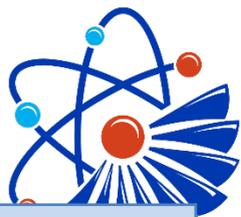
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Hardness



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TEI 3-2023

TEI 2018-2021

King



VH PARTS LIST
 4.6L ENGINE
 Existing Inventory Gap



Ford Component Sale

Current Ford Service Part Number	Current Ford Engineering Part Number	Description	Price	Minimum Order Quantity	Order Quantity Multiple	Lead Time (Business Days)	Lead Time (Calendar Days)
		PISTON, 0.125 mm					
		PISTON, 0.25 mm					
		PISTON, 0.375 mm					
		PISTON, 0.50 mm					

* Additional small parts will be added to this list at a later date

Additional Inventory need to 2028

Current Ford Service Part Number	Current Ford Engineering Part Number	Description	Price	Minimum Order Quantity	Order Quantity Multiple	Lead Time (Business Days)	Lead Time (Calendar Days)
		Block					

* Supporting hardware will be added to this list at a later date

es, LLC

Ship Location	Country of Origin	Afton	Intertek	Lubrizol	SwRI	Valvoline

Ship Location	Country of Origin	Afton	Intertek	Lubrizol	SwRI	Valvoline



VGO PRICE LIST
ENGINE

4.6L
MARCH 20,
2014

Ford Component Sale

Current Ford Service Part Number	Current Ford Engineering Part Number	Description	Price	Minimum Order Quantity	Order Quantity Multiple	Lead Time (Business Days)	Lead Time (Calendar Days)
1L2Z6250AA	1L2E6250DA	CAMSHAFT	\$ 128.75	200	200	28	39
1L2Z6250DA	1L2E6A274CA	CAMSHAFT	\$ 118.59	240	240	28	39
1L2Z6L253AA	1L2E6L253AA	ARM - TENSIONER	\$ 16.25	150	150	28	39
1L2Z6L253BA	1L2E6L253BA	ARM - TENSIONER	\$ 16.25	150	150	28	39
1L2Z8678AB	1L2E19A216AC	PULLEY	\$ 27.74	24	24	33	46
1L3Z6L266AA	1L3E6L266AG	TENSIONER - TIMING CHAIN	\$ 36.72	250	250	38	54
1W7Z6312AA	1W7E6316AK	PULLEY - CRANKSHAFT	\$ 52.48	24	24	28	39
1W7Z6B288AB	1W7E6B288AB	SENSOR ASY	\$ 23.22	24	24	48	68
1W7Z6C315AB	1W7E6C315AA	SENSOR - CRANKSHAFT POSITION - CPS	\$ 25.08	24	24	38	53
2L3Z6B209CA	2L3E6B209AB	TENSIONER	\$ 49.68	360	360	43	61
391186S101	391186S101	PLUG - ENGINE	\$ 1.80	183	183	28	39
3L2Z6345AA	3L2E6K258AA	STUD	\$ 6.26	200	200	49	69
3L2Z6345AAA	3L2E6345AA	BOLT - BEARING CAP - HEX. HEAD	\$ 8.02	600	600	38	54
3L3Z6710AA	3L3E6710AB	GASKET - OIL PAN	\$ 26.99	60	60	38	54
3W7Z6625AA	3W7E6625A3A	GASKET	\$ 3.01	72	24	28	39
3W7Z6E078AA	3W7E6G050AA	KIT - GASKET	\$ 48.76	24	24	38	54
4C2Z9439CC	4C2E9439CC	GASKET - INTAKE MANIFOLD	\$ 37.04	24	24	28	39
4R3Z6B274BA	4R3E6B274BB	GUIDE	\$ 19.41	150	150	28	39
4R3Z6M256CC	4R3E6M256CC	GUIDE	\$ 18.38	150	150	38	54
4W7Z9430AA	4W7E9430AB	MANIFOLD ASY - EXHAUST	\$ 61.08	24	24	63	89
4W7Z9431AA	4W7E9431AB	MANIFOLD ASY - EXHAUST	\$ 64.12	24	24	63	89
4W7Z9B659CA	4W739R530AA	HOSE - AIR	\$ 42.43	24	24	38	54
5C2Z9E936BA	5C2E9E930CA	SPACER	\$ 9.97	24	24	28	39
5C3Z6211AB	5C3E6211BB	BEARING - CONNECTING ROD	\$ 10.32	24	24	38	54
5L3Z6600AA	5L3E6621AA	PUMP ASY - OIL	\$ 62.98	24	24	28	39
5R3Z6065AA	5R3E6065AA	BOLT - HEX.HEAD	\$ 24.61	90	90	49	69
5W7Z6268AA	5W7E6268AA	CHAIN - TIMING	\$ 44.10	324	324	38	54
5W7Z8501AA	9W7E8501AA	PUMP ASY - WATER	\$ 59.91	56	56	65	91
5W7Z8C387AA	5W7E8C387AA	GASKET	\$ 3.24	1500	1500	28	39
5W7Z8C388AA	5W7E8C388AA	GASKET	\$ 3.24	1500	1500	28	39
5W7Z9F792AC	5W7E9F792AD	MANIFOLD ASY - FUEL SUPPLY	\$ 194.09	24	24	38	54
6L3E6148DA	6L3E6148DA	PISTON RING	\$ 63.78	12	12	27	38
6L3E6148EA	6L3E6148EA	PISTON RING	\$ 63.78	12	12	27	38
6L3E6148FA	6L3E6148FA	PISTON RING	\$ 63.78	12	12	27	38
6L3E6148GA	6L3E6148GA	PISTON RING	\$ 63.78	12	12	27	38
6L3Z6K301AA	6L3E6K318AB	RETAINER - CRANKSHAFT OIL SEAL	\$ 24.08	24	24	38	53
6U5Z9278D	6U5T9278DB	SWITCH ASY - OIL PRESSURE	\$ 19.42	275	275	28	39
6W7Z6019AA	6W7E6C086AA	COVER - CYLINDER FRONT	\$ 133.52	28	28	28	39
6W7Z6505BA	6W7E6505BA	VALVE - EXHAUST	\$ 9.80	24	24	38	54
7U2Z12029B	7U2J12029AB	COIL ASY - IGNITION	\$ 58.99	12	12	85	119
9L3Z8592B	9L3E8594BA	CONNECTION - WATER OUTLET	\$ 7.05	48	24	106	149
9W7Z6051A	9W7E6051AB	GASKET - CYLINDER HEAD	\$ 44.14	24	24	28	39
9W7Z6051B	9W7E6083AB	GASKET - CYLINDER HEAD	\$ 49.04	24	24	28	39
9W7Z6079A	9W7E6079AA	KIT - GASKET #1	\$ 222.36	24	24	49	69
9W7Z8509A	9W7E8A528AA	PULLEY - FAN	\$ 17.36	24	24	43	61
9W7Z9424A	9W7E9424AA	MANIFOLD ASY - INLET	\$ 202.28	24	24	49	69
AGSF22FM1	YL3E12405BB	SPARK PLUG	\$ 2.89	96	96	28	39
AGSF32PM	BU2J12405AA	SPARK PLUG	\$ 2.55	96	96	28	39
BL2Z6D309A	BL2E6D309AA	BEARING - CRANKSHAFT MAIN	\$ 3.58	72	24	38	54
BL2Z6D309B	BL2E6D309BA	BEARING - CRANKSHAFT MAIN	\$ 5.43	48	24	38	54
BL3Z6026A	W715986S900	PLUG - ENGINE	\$ 1.07	192	24	28	39
BR3Z6A341A	BR3E6A341BA	WASHER - CRANKSHAFT MAIN BRG THRUST	\$ 5.62	48	24	28	39
DC2Z10346A	DC2T10300AA	ALTERNATOR ASY	\$ 114.33	24	24	17	24
F1AZ6020A	F1AE6D081AD	GASKET	\$ 5.83	1200	1200	38	54
F1AZ6278A	N806164S	WASHER - FLAT	\$ 4.92	48	24	28	39
F1AZ6378A	N806165S2	WASHER	\$ 6.11	280	280	28	39
F1AZ6518A	F1AE6518BA	KEY	\$ 2.57	12000	12000	28	39
F1S29F472A	F0SF9F472AA	SENSOR ASY	\$ 33.27	100	100	49	69
F1VY8255A	N806807S	SEAL - THERMOSTAT	\$ 4.37	206	206	28	39

F1VY8507A	391108S	GASKET - WATER PUMP	\$ 14.25	780	780	48	68
F2AZ6397A	N807198S	SLEEVE - GUIDE	\$ 6.93	800	800	28	39
F3AZ6200A	F3AE6200AA	ROD - CONNECTING	\$ 23.18	24	24	28	39
F3AZ6265A	F4AE6265AA	SPACER	\$ 7.97	48	24	38	54
F3LY6214A	F2LE6214BA	BOLT - CONNECTING ROD	\$ 6.47	156	156	28	39
F4AZ6571A	F4AE6A517AA	SEAL - VALVE STEM	\$ 15.91	24	12	38	54
F4AZ6701A	F3AE6701BA	SEAL ASY - CRANKSHAFT OIL	\$ 12.75	234	234	28	39
F5AZ6700A	F3AE6700AC	SEAL ASY - CRANKSHAFT OIL - FRONT	\$ 7.61	464	464	28	39
F5TZ6A785A	F57E6A785AC	SEPERATOR ASY- OIL	\$ 39.99	100	100	49	69
F65Z6310A	F65E6310AB	SLINGER	\$ 6.83	468	468	28	39
F65Z6840A	F65E6A636CA	GASKET	\$ 8.85	424	424	28	39
F6AZ6514AC	F6LE6514AC	RETAINER - VALVE SPRING	\$ 5.71	48	24	28	39
F6AZ6584AA	F6AE6584BA	GASKET - VALVE ROCKER ARM COVER	\$ 17.09	100	100	38	54
F6AZ6584BA	F6AE6A559EA	GASKET - VALVE ROCKER ARM COVER	\$ 17.09	100	100	38	54
F6DZ6C501A	F65E6C501AA	TAPPET - VALVE	\$ 8.64	241	241	28	39
F8AZ6256AA	F8AE6256AA	SPROCKET - CAMSHAFT	\$ 18.14	320	320	31	44
F8AZ6256BA	F8AE6256BA	SPROCKET - CAMSHAFT	\$ 20.44	320	320	31	44
F8AZ6564AA	F6TE6529AB	ARM ASY - VALVE ROCKER	\$ 11.93	160	160	38	54
F8AZ6A008AA	W704594S300	DOWEL - PIN	\$ 4.65	463	463	28	39
F8PZ12259LA	F8PE12259LA	KIT	\$ 55.43	6	6	48	68
FOTZ9F593DA	FOTE9F593D9B	INJECTOR ASY	\$ 75.14	10	10	74	104
N606527S2	N606527S2	BOLT - FLANGED HEX.	\$ 1.93	470	470	28	39
N804958S8	N804958S2	SCR&WSHR M6X1.0X22.5 HEX HD PIL 9	\$ 1.80	405	405	28	39
N806040S	N806040S	DOWEL	\$ 12.29	72	72	28	39
N806154S437	N806154S437	SCREW	\$ 1.93	845	845	28	39
N806155S437	N806155S437	SCREW	\$ 1.93	1333	1333	28	39
N806177S437	N806177S437	BOLT - HEX. HEAD - FLANGED	\$ 5.30	450	450	28	39
N806183S437	N806183S437	BOLT	\$ 4.34	855	855	28	39
N806300S431	N806300S440	STUD	\$ 7.70	48	24	28	39
N808586S309	N808586S437	STUD & WASHER M8 X 1.25 / M6 X 1 X	\$ 3.86	255	255	28	39
W503279S437	W503279S437	BOLT AND WASHER ASY - HEX.HEAD	\$ 1.80	375	375	28	39
W503301S437	W503301S437	BOLT	\$ 3.86	411	411	28	39
W506102S437	W506102S437	BOLT	\$ 1.85	120	24	28	39
W701228S300	W701228S300	DOWEL	\$ 8.20	175	175	28	39
W701512S301	W701512S301	BOLT - FLANGED HEX.	\$ 7.70	48	24	38	54
W701605S437	W701605S437	BOLT	\$ 7.70	1860	1860	28	39
W701706S2	W701706S2	NUT - HEX - RH THREAD	\$ 6.75	849	849	28	39
W704693S437	W704693S437	BOLT	\$ 3.70	72	24	28	39
W705128S437	W705128S437	BOLT	\$ 1.85	608	608	28	39
W706508S437	W706508S437	STUD	\$ 3.70	366	366	28	39
W707747S437	W707747S437	STUD	\$ 1.85	120	24	28	39
W711563S437	W711563S437	SCREW AND WASHER ASY	\$ 1.85	120	24	28	39
XL1Z6L266AA	1L3E6M269AG	TENSIONER - TIMING CHAIN	\$ 35.06	250	250	38	54
XL3Z6306AA	XL3E6306AB	GEAR - CRANKSHAFT	\$ 23.40	150	150	38	54
XL3Z6507AA	XL3E6507AC	VALVE - INLET	\$ 7.45	160	160	28	39
XL3Z6513AA	XL3E6513AC	SPRING - VALVE	\$ 6.80	48	24	49	69
XR3Z9L437BA	XR3E9L437BA	GASKET	\$ 5.67	1300	1300	28	39
XW1Z12A227AC	XW1E12A227AC	RING	\$ 14.82	30	30	38	54
XW7Z6345AA	XW7E6C357AB	BOLT - BEARING CAP - HEX. HEAD	\$ 9.02	24	24	49	69
YC2Z9448A	YC2E9Y431AD	GASKET	\$ 16.45	24	24	28	39
YF7Z6279AA	N811085S2	BOLT	\$ 6.26	225	225	28	39
YU1L6110AB	YU1L6110AB	PISTON	\$ 58.45	12	12	27	38
YU1L6110BB	YU1L6110BB	PISTON	\$ 58.45	12	12	27	38
YU1L6110BC	YU1L6110BC	PISTON	\$ 58.45	12	12	27	38
YU1L6110CC	YU1L6110CC	PISTON	\$ 58.45	12	12	27	38

Other Conditions:

- Product sold by FCS will be "as-is" with no warranty liability except as specified by FCS
- MOQ's and Lead Time is TBD
- Terms for this sale will be Cash in Advance (CIA) and FOB plant/supplier
- Please forward all purchase orders to: fcsorders.com with copies to:
wjakubi1@ford.com, fcsorder@ford.com

es, LLC

Ship Location	Country of Origin
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	US
DEARBORN MI	US
DEARBORN MI	CA
DEARBORN MI	US
DEARBORN MI	US
DEARBORN MI	MX
DEARBORN MI	MX
DEARBORN MI	CA
DEARBORN MI	US
DEARBORN MI	US
CLEVELAND OH	US
PARIS TN	US
DEARBORN MI	CN
DEARBORN MI	CN
DEARBORN MI	US
DEARBORN MI	US
DEARBORN MI	US
ADRIAN MI	US
WARREN MI	US
DEARBORN MI	US
ADRIAN MI	CA
Lynchburg, VA	US
Lynchburg, VA	US
LIGONIER IN	US
ADRIAN MI	MX
DEARBORN MI	US
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	CN
ADRIAN MI	CN
DEARBORN MI	US
DEARBORN MI	US
ADRIAN MI	US
ADRIAN MI	CA
DEARBORN MI	US
MEXICALI BAJA CALIFO	US
DEARBORN MI	US
ADRIAN MI	US
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	US
ADRIAN MI	US
PARIS TN	US
Redford MI	US
Redford MI	US
MILWAUKEE WI	US
DEARBORN MI	US
DEARBORN MI	US

Batch Purchase

UPPER

MISSISSAUGA ON	MX
ADRIAN MI	US
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	US
MILAN OH	US
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	US
ADRIAN MI	US
Lynchburg, VA	US
ADRIAN MI	US
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	US
DEARBORN MI	US
DEARBORN MI	US
DEARBORN MI	US
DEARBORN MI	US
ADRIAN MI	US
DEARBORN MI	MX
DEARBORN MI	ES
Redford MI	US
ADRIAN MI	US
Redford MI	US
DEARBORN MI	US
Redford MI	US
ADRIAN MI	US
ADRIAN MI	US
ADRIAN MI	US
Redford MI	US
Redford MI	US
ADRIAN MI	US
Redford MI	US
Redford MI	US
ADRIAN MI	US
ADRIAN MI	US
DEARBORN MI	US
DEARBORN MI	US
ADRIAN MI	US
DEARBORN MI	US
Lynchburg, VA	US
AVON OH	US
ADRIAN MI	US
DEARBORN MI	US
ADRIAN MI	US
ADRIAN MI	MX

NA Keep all VG rods

Batch Purchase