

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
1	<b>Establish oil consumption limit for test.</b>	<b>Fri 5/11/18</b>			<b>Procedure</b>	<b>Introduced on 07/26/2017.</b>
2	Make recommendation to Task Force.	Tue 5/15/18	Intertek		Procedure	
3	<b>Compile a "lessons learned" report to the ACC regarding Precision Matrix #1.</b>				<b>Documentation</b>	<b>Introduced on 07/26/2017.</b>
4	TBD					
5	<b>Decide on the Metrology data that will be included in IVB Data Dictionary.</b>				<b>Metrology</b>	<b>Introduced on 08/15/2017.</b>
6	TBD					
7	<b>Update procedure with guidance regarding how lifter grades are to be selected based on valve clearance.</b>	<b>Fri 5/11/18</b>		<b>Tue 5/22/18</b>	<b>Procedure</b>	<b>Introduced on 08/15/2017.</b>
8	Make recommendation to Task Force.	Fri 5/11/18	Lubrizol	Tue 5/22/18	Procedure	Final procedure is in minutes from 05-22-2018 meeting.
9	<b>Update procedure with instructions for adding a new fuel batch over an existing fuel batch.</b>	<b>Fri 5/11/18</b>		<b>Tue 5/22/18</b>	<b>Procedure</b>	<b>Introduced on 10/03/2017.</b>
10	Make recommendation to Task Force.	Tue 5/15/18	Southwest	Tue 5/22/18	Procedure	Details about the final recommendation can be found in the minutes from the 05-22-2018 meeting.
11	<b>Update procedure with instructions for dealing with camshaft lobe failures.</b>	<b>Fri 5/11/18</b>			<b>Procedure</b>	<b>Introduced on 10/03/2017.</b>
12	Make recommendation to Task Force regarding engine rebuild procedure.	Fri 5/11/18	Intertek		Procedure	
13	Make recommendation to Task Force regarding how to identify lobe failures.	Fri 5/11/18	Intertek		Procedure	
14	<b>Finalize Keyence G2 software settings.</b>				<b>Metrology</b>	<b>Introduced on 07/20/2017.</b>
15	Document the pros and cons of each setting change in the G2 software.				Metrology	
16	Develop a DOE to evaluate each setting in the G2 software using all (5) labs.				Metrology	
17	Develop a procedure to use the G2 software to screen lifters based on crown.				Metrology	
18	Determine whether the Keyence instruments should be monitored in LTMS.				Metrology	
19	<b>Identify an insulation or coating that can be applied to the front cover and oil pan.</b>	<b>Fri 5/11/18</b>	<b>OHT</b>		<b>Hardware</b>	<b>Introduced on 08/08/2017.</b>
20	Make recommendation to Task Force.	Fri 5/11/18	OHT		Hardware	
21	<b>Revisit the chamfered intake camshaft lobes as a possible solution to lobe failures.</b>				<b>Hardware</b>	<b>Introduced on 08/29/2017.</b>
22	TBD					
23	<b>OHT to design and supply a clutch alignment tool.</b>	<b>Fri 5/11/18</b>	<b>OHT</b>		<b>Hardware</b>	<b>Introduced on 08/08/2017.</b>
24	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/22/18	Hardware	
25	<b>OHT to design and supply a timing chain wedge.</b>	<b>Fri 5/11/18</b>	<b>OHT</b>		<b>Hardware</b>	<b>Introduced on 10/03/2017.</b>
26	Intertek to provide information on material and dimensions of current wedges.	Fri 5/11/18	Intertek		Hardware	

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27	Southwest to provide information on material and dimensions of current wedges.	Tue 5/8/18	Southwest		Hardware	
28	Lubrizol to provide information on material and dimensions of current wedges.	Tue 5/8/18	Lubrizol	Tue 5/22/18	Hardware	
29	Afton to provide information on material and dimensions of current wedges.	Tue 5/8/18	Afton		Hardware	
30	Exxon to provide information on material and dimensions of current wedges.	Tue 5/8/18	Exxon		Hardware	
31	Supply hardware to test labs.		OHT			
32	<b>OHT to stamp coolant adaptor plates with "in" and "out".</b>	<b>Fri 5/11/18</b>	<b>OHT</b>	<b>Tue 5/15/18</b>	<b>Hardware</b>	<b>Introduced on 10/03/2017.</b>
33	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/15/18	Hardware	
34	<b>Intertek and Southwest to swap E.O.T. oil drains so that they can compare analysis results.</b>	<b>Fri 5/11/18</b>	<b>Intertek,Southwest</b>		<b>Operational</b>	<b>Introduced on 10/03/2017.</b>
35	Report data to Task Force.	Fri 5/11/18	Intertek,Southwest		Operational	
36	<b>Explore (3) potential options to increase discrimination between REO300 and REO1012.</b>				<b>Operational</b>	<b>Introduced on 10/03/2017.</b>
37	Evaluate harder surface finish for camshaft.				Operational	
38	Increase fuel sulfur level.				Operational	
39	Increase test length by 25HRS.				Operational	
40	<b>Compare lifter wear vs. lifter position inside of the engine.</b>				<b>Statistics</b>	<b>Introduced on 10/03/2017. Is it appropriate to apply weighting to lifter severity based on position?</b>
41	Present statistical analysis to Task Force.		Statisticians		Statistics	
42	<b>Determine whether baffle on blowby heat exchanger should be added to procedure.</b>				<b>Procedure</b>	<b>Introduced on 10/25/2017.</b>
43	Make recommendation to Task Force.				Procedure	
44	<b>Finalize IVB report form.</b>		<b>TMC,Task Force</b>		<b>Documentation</b>	<b>Introduced on 10/25/2017.</b>
45	TBD					
46	<b>Compile a "lessons learned" report (and corresponding data table) that summarizes the impact of procedural/operational changes on test severity.</b>				<b>Documentation</b>	<b>Introduced on 11/07/2017.</b>
47	TBD					
48	<b>Compile a historical timeline for the overall IVB test development effort.</b>				<b>Documentation</b>	<b>Introduced on 11/07/2017.</b>
49	TBD					
50	<b>Compare oil temperature curves at different labs using a histogram instead of x-y charts.</b>		<b>Lubrizol,Statisticians</b>		<b>Statistics</b>	<b>Introduced on 11/07/2017.</b>
51	TBD					
52	<b>Confirm that all (5) labs are reading the same OBD-II parameters.</b>				<b>Operational</b>	<b>Introduced on 11/07/2017.</b>
53	Provide directory for relevant OBD-II channels.		Toyota		Operational	
54	Task Force to finalize list of mandatory OBD-II channels to be monitored by labs.		Task Force		Operational	
55	<b>Establish procedure for cleaning blowby flow meter.</b>	<b>Fri 5/11/18</b>			<b>Procedure</b>	<b>Introduced on 11/07/2017.</b>

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56	<b>Make recommendation to Task Force.</b>	Fri 5/11/18	Intertek	Tue 5/15/18	Procedure	
57	<b>Update Golden Stands to automatically control coolant pressure.</b>				Operational	<b>Introduced on 11/07/2017.</b>
58	TBD					
59	<b>All labs to provide 200HR E.O.T. oil samples to Intertek for analysis.</b>	Fri 5/11/18			Operational	
60	Southwest to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Southwest	Fri 5/11/18	Operational	
61	Lubrizol to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Lubrizol	Fri 5/11/18	Operational	
62	Exxon to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Exxon	Fri 5/11/18	Operational	
63	Afton to provide 200HR E.O.T. samples from prove-out testing.	Fri 5/11/18	Afton	Fri 5/11/18	Operational	
64	Intertek to conduct analysis on all E.O.T. samples to eliminate laboratory bias, with an emphasis on analyzing the proposed iron adjustment procedure.	Tue 5/29/18	Intertek		Operational	
65	<b>Re-evaluate QI for oil gallery temperature.</b>				Operational	
66	TBD					
67	<b>TMC to work with labs to complete Precision Matrix #2 test reports.</b>	Fri 5/11/18	TMC		Documentation	
68	Southwest to complete test reports.		Southwest		Documentation	
69	Intertek to complete test reports.		Intertek		Documentation	
70	Lubrizol to complete test reports.		Lubrizol		Documentation	
71	Exxon to complete test reports.		Exxon		Documentation	
72	<b>Compare 200HR operational data plots for Precision Matrix #2 tests.</b>				Operational	
73	TBD					
74	<b>Compile all notes from January 2018 IVB Engine Build Workshop into a single document.</b>				Documentation	
75	TBD					
76	<b>Develop a plan to address the significant lab-to-lab differences with (1) exhaust gas temperature, (2) crankcase pressure/blowby flow, (3) intake manifold pressure and (4) AFR.</b>				Operational	
77	TBD					
78	<b>Complete Appendix K.</b>		Task Force		Appendix K	
79	<b>Perform an initial review of Appendix K.</b>	Tue 5/15/18	5/15/2018		Appendix K	
80	<b>TMC to issue an information letter that summarizes all procedural and process changes that accompany new LTMS system.</b>		TMC		Documentation	
81	Issue information letter.		TMC		Documentation	
82	<b>Create an engine "health" checklist that is to be used to inspect hardware between tests.</b>	Tue 5/29/18	Lubrizol		Hardware	

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ID	Task Name	Start	Resource Names	Finish	Category	General Comments
83	Intertek, Southwest, Afton and Exxon to provide Lubrizol with their suggestions regarding this "health" checklist.	Tue 5/29/18	Afton,Exxon,Intertek,S			
84	<b>Assess the impact of camshaft lobe failures (and the subsequent rebuild) on engine severity.</b>				<b>Operational</b>	
85	Determine whether the IVB test report should identify when a candidate test follows a lobe failure.				Documentation	
86	TBD					
87	<b>Solicit and obtain a IVB "high wear" oil to replace REO300.</b>				<b>Operational</b>	<b>The inventory of REO300 is low, although a reblend is</b>
88	TBD					
89	<b>Investigate why coolant pressure becomes noisier as the Intertek stands enter Stage 2 conditions.</b>		<b>Intertek</b>		<b>Operational</b>	
90	TBD					
91	<b>Measure time constants of all Golden Stands.</b>				<b>Operational</b>	
92	Intertek to measure and supply time constants.		Intertek		Operational	
93	Southwest to measure and supply time constants.		Southwest		Operational	
94	Lubrizol to measure and supply time constants.		Lubrizol		Operational	
95	Exxon to measure and supply time constants.		Exxon		Operational	
96	Afton to measure and supply time constants.		Afton		Operational	
97	<b>Standardize the fuel dilution measurement technique at all labs.</b>				<b>Operational</b>	
98	TBD					
99	<b>Develop a standardized test stand audit checklist.</b>	<b>Fri 5/11/18</b>	<b>Lubrizol</b>	<b>Tue 5/15/18</b>	<b>Documentation</b>	
100	Make a recommendation to the Task Force.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
101	<b>Update procedure with instructions for dealing with extended periods of downtime.</b>	<b>Fri 5/11/18</b>	<b>Southwest</b>		<b>Procedure</b>	
102	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
103	Update Southwest's proposed procedural changes with instructions to pull purge oil from the pan.	Tue 5/15/18	Intertek			
104	<b>Develop a procedure for applying a calcium (or other detergent) adjustment to iron.</b>	<b>Tue 5/15/18</b>	<b>TMC</b>		<b>Procedure</b>	
105	Provide a draft procedure for review.	Tue 5/15/18	TMC	Tue 5/29/18		
106	Issue an updated version of TMC draft procedure to the full sub-group for review.	Tue 5/29/18	Intertek			
107	<b>Clarify instructions for changing cylinder heads and running the break-in/aging cycle.</b>	<b>Fri 5/11/18</b>	<b>Southwest</b>	<b>Tue 5/15/18</b>	<b>Procedure</b>	
108	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
109	<b>Identify the minimum number of acceptable data points in a test file.</b>	<b>Fri 5/11/18</b>	<b>Southwest</b>	<b>Tue 5/15/18</b>	<b>Procedure</b>	
110	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
111	<b>Determine whether candidate data from the Tech Demo period will be used in a future analysis of iron parameter.</b>				<b>Statistics</b>	<b>Introduced on 04/26/2018.</b>
112	The Surveillance Panel should compile a list of parameters to be captured from these candidate tests.				Statistics	

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113	<b>The Surveillance Panel will need to approve whether retroactive ACC registration can be granted to candidate tests that used Batch-C and Batch-D camshafts.</b>				<b>Registration</b>	<b>Introduced on 05/08/2018.</b>
114	TBD					
115	<b>The Surveillance Panel needs to finalize the BOI/VGRA matrix.</b>				<b>BOI/VGRA</b>	<b>Introduced on 05/08/2018.</b>
116	TBD					
117	<b>Determine whether NOX is a useful parameter to introduce with the IVB test.</b>	<b>Fri 5/11/18</b>			<b>Operational</b>	<b>Introduced on 05/08/2018.</b>
118	Intertek to report on their NOX trial on IAR165.	Fri 5/11/18				
119	<b>Analyze blowby gas using GC/MS.</b>				<b>Operational</b>	<b>Introduced on 05/08/2018.</b>
120	Determine how to sample this material.					
121	Determine if the gas and/or liquid will be analyzed.					
122	<b>Investigate whether silicone is leaching from new spark plug tube seals installed in the OHT rocker arm cover.</b>				<b>Hardware</b>	<b>Introduced on 05/08/2018.</b>
123	TBD					
124	<b>Develop cumulative iron curves for each engine over its full life cycle.</b>	<b>Tue 5/22/18</b>			<b>Hardware</b>	<b>Introduced on 05/08/2018.</b>
125	Intertek to provide a template that can be used to report engine information.	Tue 5/22/18	Intertek	Tue 5/22/18	Hardware	
126	Intertek to provide a template that can be used to report break-in and aging data.	Tue 5/22/18	Intertek	Tue 5/29/18	Hardware	
127	Intertek to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Intertek		Hardware	
128	Southwest to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Southwest		Hardware	
129	Lubrizol to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Lubrizol		Hardware	
130	Exxon to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Exxon		Hardware	
131	Afton to report data for all engines that they have used.	Tue 5/22/18	Afton		Hardware	
132	TBD					
133	<b>Include the iron parameter in MAD Survey.</b>	<b>Tue 5/15/18</b>	<b>Task Force</b>		<b>Appendix K</b>	
134	TBD					
135	<b>Identify a GF-6 reference oil to satisfy Section D of Appendix K.</b>	<b>Tue 5/15/18</b>	<b>Task Force</b>		<b>Appendix K</b>	
136	TBD					
137	<b>Modify new air filter boxes with a fitting for a pressure transducer.</b>	<b>Tue 5/22/18</b>	<b>OHT</b>		<b>Hardware</b>	
138	Provide dimensions to OHT for the location of the fitting.	Tue 5/22/18	Intertek		Hardware	
139	<b>Review oxidation and nitration technique specified in IVB procedure.</b>				<b>Procedure</b>	
140	TBD					

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141	<b>Determine whether the S.O.T. or E.O.T. compression and leak-down measurements can be eliminated.</b>					
142	TBD				Procedure	
143	<b>Introduce REO300-1 as a Sequence IVB reference oil.</b>				<b>Procedure</b>	
144	TBD					
145	<b>Determine if REO1011 can be re-blended.</b>		<b>TMC</b>		<b>Procedure</b>	
146	TBD					
147	<b>Confirm that critical parts are explicitly identified in the procedure.</b>				<b>Procedure</b>	
148	TBD					
149	<b>Establish a maximum iron validity criteria for the first test run after a "post lobe failure" engine flush.</b>	<b>Tue 5/29/18</b>			<b>Procedure</b>	
150	TBD					
151	<b>Document a procedure for flushing an engine after a camshaft lobe failure.</b>	<b>Tue 5/29/18</b>			<b>Procedure</b>	
152	Provide a draft procedure for review.	Tue 5/29/18	Exxon		Procedure	