

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
1	Establish oil consumption limit for test.	Fri 5/11/18			Procedure	Introduced on 07/26/2017.
2	Make recommendation to Task Force.	Tue 5/15/18	Intertek		Procedure	
3	Compile a "lessons learned" report to the ACC regarding Precision Matrix #1.				Documentation	Introduced on 07/26/2017.
4	TBD					
5	Decide on the Metrology data that will be included in IVB Data Dictionary.				Metrology	Introduced on 08/15/2017.
6	TBD					
7	Update procedure with guidance regarding how lifter grades are to be selected based on valve clearance.	Fri 5/11/18		Tue 5/22/18	Procedure	Introduced on 08/15/2017.
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	Update procedure with instructions for adding a new fuel batch over an existing fuel batch.	Fri 5/11/18		Tue 5/22/18	Procedure	Introduced on 10/03/2017.
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	Update procedure with instructions for dealing with camshaft lobe failures.	Fri 5/11/18			Procedure	Introduced on 10/03/2017.
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	Finalize Keyence G2 software settings.				Metrology	Introduced on 07/20/2017.
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	Identify an insulation or coating that can be applied to the front cover and oil pan.	Fri 5/11/18	OHT		Hardware	Introduced on 08/08/2017.
20	Make recommendation to Task Force.	Fri 5/11/18	OHT		Hardware	
21	Revisit the chamfered intake camshaft lobes as a possible solution to lobe failures.				Hardware	Introduced on 08/29/2017.
22	TBD					
23	OHT to design and supply a clutch alignment tool.	Fri 5/11/18	OHT		Hardware	Introduced on 08/08/2017.
24	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/22/18	Hardware	
25	OHT to design and supply a timing chain wedge.	Fri 5/11/18	OHT		Hardware	Introduced on 10/03/2017.
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	OHT to stamp coolant adaptor plates with "in" and "out".	Fri 5/11/18	OHT	Tue 5/15/18	Hardware	Introduced on 10/03/2017.
33	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/15/18	Hardware	
34	Intertek and Southwest to swap E.O.T. oil drains so that they can compare analysis results.	Fri 5/11/18	Intertek,Southwest		Operational	Introduced on 10/03/2017.
35	Report data to Task Force.	Fri 5/11/18	Intertek,Southwest		Operational	
36	All labs to supply iron curves for engines that they have run so that the data can be used to establish acceptable engine life.				Operational	Introduced on 10/03/2017.
37	Decide on how this data will be supplied by the labs.		Task Force		Operational	
38	Intertek to report data.		Intertek		Operational	
39	Southwest to report data.		Southwest		Operational	
40	Lubrizol to report data.		Lubrizol		Operational	
41	Exxon ro report data.		Exxon		Operational	
42	Afton to report data.		Afton		Operational	
43	Explore (3) potential options to increase discrimination between REO300 and REO1012.				Operational	Introduced on 10/03/2017.
44	Evaluate harder surface finish for camshaft.				Operational	
45	Increase fuel sulfur level.				Operational	
46	Increase test length by 25HRS.				Operational	
47	Compare lifter wear vs. lifter position inside of the engine.				Statistics	Introduced on 10/03/2017. Is it appropriate to apply weighting to lifter severity based on position?
48	Present statistical analysis to Task Force.		Statisticians		Statistics	
49	Determine whether baffle on blowby heat exchanger should be added to procedure.				Procedure	Introduced on 10/25/2017.
50	Make recommendation to Task Force.				Procedure	
51	Finalize IVB report form.		TMC,Task Force		Documentation	Introduced on 10/25/2017.
52	TBD					
53	Compile a "lessons learned" report (and corresponding data table) that summarizes the impact of procedural/operational changes on test severity.				Documentation	Introduced on 11/07/2017.
54	TBD					
55	Compile a historical timeline for the overall IVB test development effort.				Documentation	Introduced on 11/07/2017.
56	TBD					

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57	Compare oil temperature curves at different labs using a histogram instead of x-y charts.		Lubrizol,Statisticians		Statistics	Introduced on 11/07/2017.
58	TBD					
59	Confirm that all (5) labs are reading the same OBD-II parameters.				Operational	Introduced on 11/07/2017.
60	Provide directory for relevant OBD-II channels.		Toyota		Operational	
61	Task Force to finalize list of mandatory OBD-II channels to be monitored by labs.		Task Force		Operational	
62	Establish procedure for cleaning blowby flow meter.	Fri 5/11/18			Procedure	Introduced on 11/07/2017.
63	Make recommendation to Task Force.	Fri 5/11/18	Intertek	Tue 5/15/18	Procedure	
64	Update Golden Stands to automatically control coolant pressure.				Operational	Introduced on 11/07/2017.
65	TBD					
66	All labs to provide 200HR E.O.T. oil samples to Intertek for analysis.	Fri 5/11/18			Operational	
67	Southwest to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Southwest	Fri 5/11/18	Operational	
68	Lubrizol to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Lubrizol	Fri 5/11/18	Operational	
69	Exxon to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Exxon	Fri 5/11/18	Operational	
70	Afton to provide 200HR E.O.T. samples from prove-out testing.	Fri 5/11/18	Afton	Fri 5/11/18	Operational	
71	Intertek to conduct analysis on all E.O.T. samples to eliminate laboratory bias.	Fri 5/11/18	Intertek		Operational	
72	Re-evaluate QI for oil gallery temperature.				Operational	
73	TBD					
74	TMC to work with labs to complete Precision Matrix #2 test reports.	Fri 5/11/18	TMC		Documentation	
75	Southwest to complete test reports.		Southwest		Documentation	
76	Intertek to complete test reports.		Intertek		Documentation	
77	Lubrizol to complete test reports.		Lubrizol		Documentation	
78	Exxon to complete test reports.		Exxon		Documentation	
79	Compare 200HR operational data plots for Precision Matrix #2 tests.				Operational	
80	TBD					
81	Compile all notes from January 2018 IVB Engine Build Workshop into a single document.				Documentation	
82	TBD					
83	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.				Operational	
84	TBD					

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ID	Task Name	Start	Resource Names	Finish	Category	General Comments
85	Complete Appendix K.		Task Force		Appendix K	
86	Perform an initial review of Appendix K.	Tue 5/15/18	5/15/2018		Appendix K	
87	TMC to issue an information letter that summarizes all procedural and process changes that accompany new LTMS system.		TMC		Documentation	
88	Issue information letter.		TMC		Documentation	
89	Create an engine "health" checklist that is to be used to inspect hardware between tests.				Hardware	
90	TBD					
91	Generate additional data that will allow the statisticians to evaluate a potential engine hour effect for iron.				Statistics	
92	TBD				Statistics	
93	Compare break-in and aging data from all labs.				Operational	
94	TBD					
95	Assess the impact of camshaft lobe failures (and the subsequent rebuild) on engine severity.				Operational	
96	Determine whether the IVB test report should identify when a candidate test follows a lobe failure.				Documentation	
97	TBD					
98	Solicit and obtain a IVB "high wear" oil to replace REO300.				Operational	The inventory of REO300 is low, although a reblend is
99	TBD					
100	Investigate why coolant pressure becomes noisier as the Intertek stands enter Stage 2 conditions.		Intertek		Operational	
101	TBD					
102	Measure time constants of all Golden Stands.				Operational	
103	Intertek to measure and supply time constants.		Intertek		Operational	
104	Southwest to measure and supply time constants.		Southwest		Operational	
105	Lubrizol to measure and supply time constants.		Lubrizol		Operational	
106	Exxon to measure and supply time constants.		Exxon		Operational	
107	Afton to measure and supply time constants.		Afton		Operational	
108	Standardize the fuel dilution measurement technique at all labs.				Operational	
109	TBD					
110	Develop a standardized test stand audit checklist.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
111	Make a recommendation to the Task Force.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
112	Update procedure with instructions for dealing with extended periods of downtime.	Fri 5/11/18	Southwest		Procedure	
113	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
114	Update Southwest's proposed procedural changes with instructions to pull purge oil from the pan.	Tue 5/15/18	Intertek			
115	Develop a procedure for applying a calcium (or other detergent) adjustment to iron.				Procedure	
116	TBD					

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117	Clarify instructions for changing cylinder heads and running the break-in/aging cycle.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
118	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
119	Identify the minimum number of acceptable data points in a test file.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
120	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
121	Determine whether candidate data from the Tech Demo period will be used in a future analysis of iron parameter.				Statistics	Introduced on 04/26/2018.
122	The Surveillance Panel should compile a list of parameters to be captured from these candidate tests.				Statistics	
123	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.				Registration	Introduced on 05/08/2018.
124	TBD					
125	The Surveillance Panel needs to finalize the BOI/VGRA matrix.				BOI/VGRA	Introduced on 05/08/2018.
126	TBD					
127	Determine whether NOX is a useful parameter to introduce with the IVB test.	Fri 5/11/18			Operational	Introduced on 05/08/2018.
128	Intertek to report on their NOX trial on IAR165.	Fri 5/11/18				
129	Analyze blowby gas using GC/MS.				Operational	Introduced on 05/08/2018.
130	Determine how to sample this material.					
131	Determine if the gas and/or liquid will be analyzed.					
132	Investigate whether silicone is leaching from new spark plug tube seals installed in the OHT rocker arm cover.				Hardware	Introduced on 05/08/2018.
133	TBD					
134	Develop cumulative iron curves for each engine over its full life cycle.	Tue 5/22/18			Hardware	Introduced on 05/08/2018.
135	Intertek to provide a template that can be used to report the data.	Tue 5/22/18	Intertek	Tue 5/22/18	Hardware	
136	Southwest to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Southwest		Hardware	
137	Lubrizol to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Lubrizol		Hardware	
138	Exxon to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Exxon		Hardware	
139	Afton to report data for all engines that they have used.	Tue 5/22/18	Afton		Hardware	
140	TBD					
141	Include the iron parameter in MAD Survey.	Tue 5/15/18	Task Force		Appendix K	
142	TBD					
143	Identify a GF-6 reference oil to satisfy Section D of Appendix K.	Tue 5/15/18	Task Force		Appendix K	
144	TBD					

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145	Modify new air filter boxes with a fitting for a pressure transducer.	Tue 5/22/18	OHT		Hardware	
146	Provide dimensions to OHT for the location of the fitting.	Tue 5/22/18	Intertek		Hardware	
147	Review oxidation and nitration technique specified in IVB procedure.	Tue 5/22/18			Procedure	
148	TBD					
149	Determine whether the S.O.T. or E.O.T. compression and leak-down measurements can be eliminated.	Tue 5/22/18			Procedure	
150						