

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		Tue 7/10/18	Procedure	Introduced on 10/03/2017.
12	Make recommendation to Task Force regarding engine rebuild procedure.	Fri 5/11/18	Intertek	Tue 7/10/18	Procedure	Reference 07-10-2018 email from Bill Buscher.
13	Make recommendation to Task Force regarding how to identify lobe failures.	Fri 5/11/18	Intertek	Tue 7/10/18	Procedure	Initial identification: Over 20-microns of lobe wear will be considered a lobe failure.
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	

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25	Add drawing of generic timing chain wedge to the test procedure.	Fri 5/11/18	Task Force		Hardware	This action item was introduced on 10/03/2017. It was updated on 06-26-2018 when the Task Force decided to add a drawing to the procedure instead of having OHT supply a specific tool.
26	TBD					
27	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.
28	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/15/18	Hardware	
29	Explore (3) potential options to increase discrimination between REO300 and REO1012.				Operational	Introduced on 10/03/2017.
30	Evaluate harder surface finish for camshaft.				Operational	
31	Increase fuel sulfur level.				Operational	
32	Increase test length by 25HRS.				Operational	
33	Compare lifter wear vs. lifter position, and determine if lifter weighting and outlier screening are appropriate.	Tue 6/12/18			Statistics	Introduced on 10/03/2017. Updated on 06-26-2018.
34	Present statistical analysis to Task Force.		Statisticians,Lubrizonol		Statistics	
35	Determine whether baffle on blowby heat exchanger should be added to procedure.	Tue 6/26/18		Tue 7/10/18	Procedure	Introduced on 10/25/2017.
36	Decision made by sub-group.	Tue 6/26/18	Task Force	Tue 6/26/18	Procedure	See 06-26-2018 meeting minutes for more details.
37	Include drawings of optional baffle in test procedure.	Tue 6/26/18	Intertek	Tue 7/10/18	Procedure	See 07-10-2018 email from Bill Buscher.
38	Finalize IVB report form.		TMC,Intertek		Documentation	Introduced on 10/25/2017.
39	Send initial draft to Task Force for review.		TMC,Intertek		Documentation	
40	Task Force to provide feedback to TMC.		Task Force		Documentation	
41	Review final draft with full Surveillance Panel.		Surveillance Panel		Documentation	
42	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.
43	TBD					
44	Compile a historical timeline for the overall IVB test development effort.				Documentation	Introduced on 11/07/2017.
45	TBD					
46	Compare oil temperature curves at different labs using a histogram instead of x-y charts.		Lubrizonol,Statisticians		Statistics	Introduced on 11/07/2017.
47	TBD					
48	Confirm that all (5) labs are reading the same OBD-II parameters.	Tue 6/26/18			Operational	Introduced on 11/07/2017.
49	Provide directory for relevant OBD-II channels.		Toyota		Operational	
50	Audit OBD-II parameters currently being measured by labs.		Lubrizonol		Operational	
51	Task Force to finalize list of mandatory OBD-II channels to be monitored by labs.		Task Force		Operational	
52	Establish procedure for cleaning blowby flow meter.	Fri 5/11/18			Procedure	Introduced on 11/07/2017.

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53	Make recommendation to Task Force.	Fri 5/11/18	Intertek	Tue 5/15/18	Procedure	
54	Update Golden Stands to automatically control coolant pressure.				Operational	Introduced on 11/07/2017.
55	TBD					
56	All labs to provide 200HR E.O.T. oil samples to Intertek for analysis.	Fri 5/11/18			Operational	
57	Southwest to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Southwest	Fri 5/11/18	Operational	
58	Lubrizol to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Lubrizol	Fri 5/11/18	Operational	
59	Exxon to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Exxon	Fri 5/11/18	Operational	
60	Afton to provide 200HR E.O.T. samples from prove-out testing.	Fri 5/11/18	Afton	Fri 5/11/18	Operational	
61	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	
62	Re-evaluate QI's for all controlled parameters.	Tue 6/12/18	Statisticians		Operational	
63	Use three 1HR data files from each Precision Matrix test.	Tue 6/12/18	Statisticians			
64	TMC to work with labs to complete Precision Matrix #2 test reports.	Fri 5/11/18	TMC	Tue 6/12/18	Documentation	
65	Southwest to complete test reports.		Southwest	Tue 6/12/18	Documentation	
66	Intertek to complete test reports.		Intertek	Tue 6/12/18	Documentation	
67	Lubrizol to complete test reports.		Lubrizol	Tue 6/12/18	Documentation	
68	Exxon to complete test reports.		Exxon	Tue 6/12/18	Documentation	
69	Compare 200HR operational data plots for Precision Matrix #2 tests.	Tue 6/12/18	Task Force		Operational	This will be done at the next face-to-face Surveillance Panel meeting.
70	Analysis will focus on exhaust gas temperature, crankcase pressure/blowby flow, intake manifold pressure and AFR.					
71	Compile all notes from January 2018 IVB Engine Build Workshop into a single document.	Tue 6/12/18	Lubrizol	Mon 7/2/18	Documentation	
72	All labs to send notes/photographs from Workshop to Lubrizol.	Tue 6/12/18	Afton,Exxon,Intertek,S		Documentation	Labs have no documentation to provide.
73	Intertek to send Lubrizol hand-outs from workshop.	Tue 6/26/18	Intertek	Mon 7/2/18	Documentation	
74	Complete Appendix K.		Task Force		Appendix K	
75	Perform an initial review of Appendix K.	Tue 5/15/18	5/15/2018		Appendix K	
76	TMC to issue an information letter that summarizes all procedural and process changes that accompany new LTMS system.	Tue 6/12/18	TMC	Tue 6/12/18	Documentation	
77	Issue information letter.	Tue 6/12/18	TMC	Tue 6/12/18	Documentation	This was communicated as an LTMS manual update and not an information letter.

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78	Create an engine "health" checklist that is to be used to inspect hardware between tests.	Tue 5/29/18	Lubrizol		Hardware	
79	Intertek, Southwest, Afton and Exxon to provide Lubrizol with their suggestions regarding this "health" checklist.	Tue 5/29/18	Afton,Exxon,Intertek,S			
80	Assess the impact of camshaft lobe failures (and the subsequent rebuild) on engine severity.				Operational	
81	Determine whether the IVB test report should identify when a candidate test follows a lobe failure.				Documentation	This action item will be reviewed at the next Surveillance Panel meeting.
82	TBD					
83	Solicit and obtain a IVB "high wear" oil to replace REO300.				Operational	The inventory of REO300 is low, although a reblend is
84	TBD					
85	Investigate why coolant pressure becomes noisier as the Intertek stands enter Stage 2 conditions.		Intertek		Operational	
86	TBD					
87	Measure time constants of all Golden Stands.				Operational	
88	Intertek to measure and supply time constants.		Intertek		Operational	
89	Southwest to measure and supply time constants.		Southwest		Operational	
90	Lubrizol to measure and supply time constants.		Lubrizol		Operational	
91	Exxon to measure and supply time constants.		Exxon		Operational	
92	Afton to measure and supply time constants.		Afton		Operational	
93	Standardize the fuel dilution measurement technique at all labs.				Operational	
94	TBD					
95	Develop a standardized test stand audit checklist.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
96	Make a recommendation to the Task Force.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
97	Update procedure with instructions for dealing with extended periods of downtime.	Fri 5/11/18	Southwest		Procedure	
98	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
99	Update Southwest's proposed procedural changes with instructions to pull purge oil from the pan.	Tue 5/15/18	Intertek			
100	Develop a procedure for applying a calcium (or other detergent) adjustment to iron.	Tue 5/15/18	TMC		Procedure	
101	Provide a draft procedure for review.	Tue 5/15/18	TMC	Tue 5/29/18	Procedure	
102	Issue an updated version of TMC draft procedure to the full sub-group for review.	Tue 5/29/18	Intertek	Tue 7/10/18	Procedure	Reference 07-10-2018 email from Bill Buscher.
103	Provide feedback on TMC draft procedure.	Tue 7/10/18	Task Force		Procedure	
104	Clarify instructions for changing cylinder heads and running the break-in/aging cycle.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
105	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
106	Identify the minimum number of acceptable data points in a test file.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
107	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	

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108	Determine whether candidate data from the Tech Demo period will be used in a future analysis of iron parameter.	Tue 7/10/18	Task Force	Tue 7/10/18	Statistics	Introduced on 04/26/2018. This action item was closed on 07/10/2018 because the Task Force is already doing this by providing engine life data to the Statistics Group.
109	The Surveillance Panel should compile a list of parameters to be captured from these candidate tests.	Tue 7/10/18	Task Force	Tue 7/10/18	Statistics	These parameters are listed on the engine data templates provided by Intertek.
110	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.	Tue 6/12/18	Surveillance Panel	Tue 6/12/18	Registration	Introduced on 05/08/2018.
111	Vote on motion.	Tue 6/12/18	Surveillance Panel	Tue 6/12/18		Motion passed with no negatives.
112	The Surveillance Panel needs to finalize the BOI/VGRA matrix.				BOI/VGRA	Introduced on 05/08/2018.
113	TBD					
114	Determine whether NOX is a useful parameter to introduce with the IVB test.	Fri 5/11/18			Operational	Introduced on 05/08/2018.
115	Intertek to report on their NOX trial on IAR165.	Fri 5/11/18				
116	Analyze blowby gas using GC/MS.				Operational	Introduced on 05/08/2018.
117	Determine how to sample this material.					
118	Determine if the gas and/or liquid will be analyzed.					
119	Investigate whether silicone is leaching from new spark plug tube seals installed in the OHT rocker arm cover.				Hardware	Introduced on 05/08/2018.
120	TBD					
121	Develop cumulative iron curves for each engine over its full life cycle.	Tue 5/22/18			Hardware	Introduced on 05/08/2018.
122	Intertek to provide a template that can be used to report engine information.	Tue 5/22/18	Intertek	Tue 5/22/18	Hardware	
123	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	
124	Intertek to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Intertek		Hardware	
125	Southwest to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Southwest		Hardware	
126	Lubrizol to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Lubrizol		Hardware	
127	Exxon to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Exxon		Hardware	
128	Afton to report data for all engines that they have used.	Tue 5/22/18	Afton		Hardware	
129	Provide data to Statisticians for analysis.		Statisticians		Hardware	
130	Statisticians to review their findings with the Task Force.		Statisticians		Hardware	
131	Define an "engine".	Tue 6/26/18	Task Force	Tue 6/26/18	Hardware	
132	Include the iron parameter in MAD Survey.	Tue 5/15/18	Task Force		Appendix K	
133	TBD					

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ID	Task Name	Start	Resource Names	Finish	Category	General Comments
134	Identify a GF-6 reference oil to satisfy Section D of Appendix K.	Tue 5/15/18	Task Force		Appendix K	
135	TBD					
136	Modify new air filter boxes with a fitting for a pressure transducer.	Tue 5/22/18	OHT		Hardware	
137	Provide dimensions to OHT for the location of the fitting.	Tue 5/22/18	Intertek		Hardware	
138	Review oxidation and nitration technique specified in IVB procedure.				Procedure	
139	TBD					
140	Determine whether the S.O.T. or E.O.T. compression and leak-down measurements can be eliminated.					
141	TBD				Procedure	
142	Introduce REO300-1 as a Sequence IVB reference oil.				Procedure	
143	TBD					
144	Determine if REO1011 can be re-blended.	Tue 7/10/18	TMC	Tue 7/10/18	Procedure	TMC confirmed that the oil can be re-blended.
145	TBD					
146	Confirm that critical parts are explicitly identified in the procedure.				Procedure	
147	TBD					
148	Establish a maximum iron validity criteria for the first test run after a "post lobe failure" engine flush.	Tue 5/29/18			Procedure	
149	TBD					
150	Provide Camshaft Lobe Failure Data to TMC for ACC Inquiry	Tue 6/26/18			Appendix K	TMC issued results to ACC on 07-10-2018.
151	Lubrizol to supply data.	Tue 6/26/18	Lubrizol	Tue 6/26/18	Appendix K	
152	Intertek to supply data.	Tue 6/26/18	Intertek	Thu 7/26/18	Appendix K	
153	Southwest to supply data.	Tue 6/26/18	Southwest	Tue 7/10/18	Appendix K	
154	Afton to supply data.	Tue 6/26/18	Afton	Tue 7/10/18	Appendix K	
155	Exxon to supply data.	Tue 6/26/18	Exxon	Tue 7/10/18	Appendix K	