

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. The Surveillance Panel will still need to vote on this limit.	Tue 5/15/18	Task Force	Tue 8/7/18	Procedure	The sub-group agreed upon 1000g during the 08-07-2018 meeting. The Surveillance Panel will still need to vote on this limit.
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 (Section 4).	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	Convert draft document into ASTM format.	Tue 7/10/18	Southwest		Procedure	
14	Make recommendation to Task Force regarding stand maintenance procedure (for after a lobe failure).	Tue 7/10/18	Intertek	Tue 8/7/18	Procedure	
15	Make recommendation to Task Force regarding how to identify lobe failures. See minutes from 07-10-2018 sub-group meeting.	Fri 5/11/18	Intertek	Tue 7/10/18	Procedure	Initial identification: Over 20-microns of lobe wear will be considered a lobe failure.
16	Finalize Keyence G2 software settings.				Metrology	Introduced on 07/20/2017.
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	Conduct a Keyence round-robin with all five labs.	Fri 7/13/18	Afton,Exxon,Intertek,L		Metrology	
20	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.
21	Make recommendation to Task Force.	Fri 5/11/18	OHT		Hardware	
22	Revisit the chamfered intake camshaft lobes as a possible solution to lobe failures.				Hardware	Introduced on 08/29/2017.
23	TBD					
24	OHT to design and supply a clutch alignment tool.	Fri 5/11/18	OHT		Hardware	Introduced on 08/08/2017.
25	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/22/18	Hardware	

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26	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.
27	TBD					
28	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.
29	Supply hardware to test labs.	Fri 5/11/18	OHT	Tue 5/15/18	Hardware	
30	Explore (3) potential options to increase discrimination between REO300 and REO1012.				Operational	Introduced on 10/03/2017.
31	Evaluate harder surface finish for camshaft.				Operational	
32	Increase fuel sulfur level.				Operational	
33	Increase test length by 25HRS.				Operational	
34	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.
35	Present statistical analysis to Task Force.		Statisticians,Lubrizon		Statistics	
36	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.
37	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.
38	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.
39	Finalize IVB report form.		TMC,Intertek		Documentation	Introduced on 10/25/2017.
40	Send initial draft to Task Force for review.		TMC,Intertek		Documentation	
41	Task Force to provide feedback to TMC.		Task Force		Documentation	
42	Review final draft with full Surveillance Panel.		Surveillance Panel		Documentation	
43	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.
44	TBD					
45	Compile a historical timeline for the overall IVB test development effort.				Documentation	Introduced on 11/07/2017.
46	TBD					
47	Compare oil temperature curves at different labs using a histogram instead of x-y charts.		Lubrizon,Statisticians		Statistics	Introduced on 11/07/2017.
48	TBD					
49	Confirm that all (5) labs are reading the same OBD-II parameters.	Tue 6/26/18			Operational	Introduced on 11/07/2017.
50	Audit labs for information on their current OBD-II parameters.	Fri 7/13/18	Lubrizon	Fri 7/13/18	Operational	
51	Provide directory for relevant OBD-II channels.		Toyota		Operational	
52	Audit OBD-II parameters currently being measured by labs.		Lubrizon		Operational	

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ID	Task Name	Start	Resource Names	Finish	Category	General Comments
53	Task Force to finalize list of mandatory OBD-II channels to be monitored by labs.		Task Force		Operational	
54	Establish procedure for cleaning blowby flow meter.	Fri 5/11/18			Procedure	Introduced on 11/07/2017.
55	Make recommendation to Task Force.	Fri 5/11/18	Intertek	Tue 5/15/18	Procedure	
56	Update Golden Stands to automatically control coolant pressure.				Operational	Introduced on 11/07/2017.
57	TBD					
58	All labs to provide 200HR E.O.T. oil samples to Intertek for analysis.	Fri 5/11/18			Operational	
59	Southwest to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Southwest	Fri 5/11/18	Operational	
60	Lubrizol to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Lubrizol	Fri 5/11/18	Operational	
61	Exxon to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Exxon	Fri 5/11/18	Operational	
62	Afton to provide 200HR E.O.T. samples from prove-out testing.	Fri 5/11/18	Afton	Fri 5/11/18	Operational	
63	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	
64	All labs to use iron adjustment procedure to repeat E.O.T. oil analysis from their 2nd Precision Matrix tests.	Tue 7/17/18	Afton,Exxon,Lubrizol,S	Tue 8/21/18	Operational	Action item introduced during 07-17-2018 Surveillance Panel meeting.
65	Re-evaluate QI's for all controlled parameters.	Tue 6/12/18	Statisticians		Operational	
66	Use three 1HR data files from each Precision Matrix test.	Tue 6/12/18	Statisticians			
67	TMC to work with labs to complete Precision Matrix #2 test reports.	Fri 5/11/18	TMC	Tue 6/12/18	Documentation	
68	Southwest to complete test reports.		Southwest	Tue 6/12/18	Documentation	
69	Intertek to complete test reports.		Intertek	Tue 6/12/18	Documentation	
70	Lubrizol to complete test reports.		Lubrizol	Tue 6/12/18	Documentation	
71	Exxon to complete test reports.		Exxon	Tue 6/12/18	Documentation	
72	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.
73	Analysis will focus on exhaust gas temperature, crankcase pressure/blowby flow, intake manifold pressure and AFR.					
74	Compile all notes from January 2018 IVB Engine Build Workshop into a single document.	Tue 6/12/18	Lubrizol	Mon 7/2/18	Documentation	
75	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.
76	Intertek to send Lubrizol hand-outs from workshop.	Tue 6/26/18	Intertek	Mon 7/2/18	Documentation	
77	Complete Appendix K.		Task Force		Appendix K	
78	Perform an initial review of Appendix K.	Tue 5/15/18	5/15/2018		Appendix K	

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ID	Task Name	Start	Resource Names	Finish	Category	General Comments
79	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	
80	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.
81	Create an engine "health" checklist that is to be used to inspect hardware between tests.	Tue 5/29/18	Lubrizol		Hardware	
82	Intertek, Southwest, Afton and Exxon to provide Lubrizol with their suggestions regarding this "health" checklist.	Tue 5/29/18	Afton,Exxon,Intertek,S		Hardware	
83	Issue draft checklist document.	Tue 7/31/18	Lubrizol	Tue 7/31/18	Hardware	
84	Assess the impact of camshaft lobe failures (and the subsequent rebuild) on engine severity.				Operational	
85	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.
86	TBD					
87	Solicit and obtain a IVB "high wear" oil to replace REO300.				Operational	A reblend of REO300 has been ordered, so there is no need to pursue a replacement.
88	TBD					
89	Investigate why coolant pressure becomes noisier as the Intertek stands enter Stage 2 conditions.		Intertek		Operational	
90	TBD					
91	Measure time constants of all Golden Stands.				Operational	
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	Standardize the fuel dilution measurement technique at all labs.				Operational	
98	TBD					
99	Develop a standardized test stand audit checklist.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
100	Make a recommendation to the Task Force.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
101	Update procedure with instructions for dealing with extended periods of downtime.	Fri 5/11/18	Southwest		Procedure	
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	Tue 7/31/18	Procedure	
104	Develop a procedure for applying a calcium (or other detergent) adjustment to iron.	Tue 5/15/18	TMC		Procedure	
105	Provide a draft procedure for review.	Tue 5/15/18	TMC	Tue 5/29/18	Procedure	
106	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.

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107	Provide feedback on TMC draft procedure.	Tue 7/10/18	Task Force		Procedure	
108	Clarify instructions for changing cylinder heads and running the break-in/aging cycle.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
109	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
110	Identify the minimum number of acceptable data points in a test file.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
111	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
112	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.
113	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.
114	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.
115	Vote on motion.	Tue 6/12/18	Surveillance Panel	Tue 6/12/18		Motion passed with no negatives.
116	The Surveillance Panel needs to finalize the BOI/VGRA matrix.				BOI/VGRA	Introduced on 05/08/2018.
117	Provide Chairperson of BOI/VGRA matrix with an update on current supplies of critical hardware.	Tue 7/31/18	Intertek		BOI/VGRA	
118	Determine whether NOX is a useful parameter to introduce with the IVB test.	Fri 5/11/18			Operational	Introduced on 05/08/2018.
119	Intertek to report on their NOX trial on IAR165.	Fri 5/11/18				
120	Analyze blowby gas using GC/MS.				Operational	Introduced on 05/08/2018.
121	Determine how to sample this material.					
122	Determine if the gas and/or liquid will be analyzed.					
123	Investigate whether silicone is leaching from new spark plug tube seals installed in the OHT rocker arm cover.				Hardware	Introduced on 05/08/2018.
124	TBD					
125	Develop a comprehensive database of iron and engine life data.	Tue 5/22/18			Hardware	Introduced on 05/08/2018.
126	Intertek to provide a template that can be used to report engine information.	Tue 5/22/18	Intertek	Tue 5/22/18	Hardware	
127	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	
128	Intertek to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Intertek		Hardware	
129	Southwest to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Southwest		Hardware	
130	Lubrizol to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Lubrizol		Hardware	

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131	Exxon to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Exxon		Hardware	
132	Afton to report data for all engines that they have used.	Tue 5/22/18	Afton		Hardware	
133	Provide data to Statisticians for analysis.		Lubrizol		Hardware	
134	Statisticians to review their findings with the Task Force.		Statisticians		Hardware	
135	Define an "engine".	Tue 6/26/18	Task Force	Tue 6/26/18	Hardware	
136	Include the iron parameter in MAD Survey.	Tue 5/15/18	Task Force		Appendix K	
137	TBD					
138	Identify a GF-6 reference oil to satisfy Section D of Appendix K.	Tue 5/15/18	Task Force		Appendix K	
139	TBD					
140	Modify new air filter boxes with a fitting for a pressure transducer.	Tue 5/22/18	OHT		Hardware	
141	Provide dimensions to OHT for the location of the fitting.	Tue 5/22/18	Intertek		Hardware	
142	Review oxidation and nitration technique specified in IVB procedure.				Procedure	
143	TBD					
144	Determine whether the S.O.T. or E.O.T. compression and leak-down measurements can be eliminated.					
145	TBD				Procedure	
146	Introduce REO300-1 as a Sequence IVB reference oil.				Procedure	
147	Intertek will use REO300-1 during Keyence round-robin test.	Tue 8/7/18	Intertek		Procedure	
148	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.
149	TBD					
150	Confirm that critical parts are explicitly identified in the procedure.				Procedure	
151	TBD					
152	Establish a maximum iron validity criteria for the first test run after a "post lobe failure" engine flush.	Tue 5/29/18			Procedure	
153	TBD					
154	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.
155	Lubrizol to supply data.	Tue 6/26/18	Lubrizol	Tue 6/26/18	Appendix K	
156	Intertek to supply data.	Tue 6/26/18	Intertek	Thu 7/26/18	Appendix K	
157	Southwest to supply data.	Tue 6/26/18	Southwest	Tue 7/10/18	Appendix K	
158	Afton to supply data.	Tue 6/26/18	Afton	Tue 7/10/18	Appendix K	
159	Exxon to supply data.	Tue 6/26/18	Exxon	Tue 7/10/18	Appendix K	
160	Supply TMC with an audit template to collect supplemental data.	Tue 7/31/18	Intertek		Appendix K	
161	Add camshaft batch number to LTMS.	Tue 7/17/18	Intertek,TMC			Added after 07-17-2019 Surveillance Panel call.
162	Intertek will follow-up with the TMC about this.					