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 possibe 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	**Add drawing of generic timing chain wedge to the test procedure.**	**Fri 5/11/18**	**Task Force**		**Hardware**	**Introduced on 10/03/2017. Updated on 06-26-2018.**
26	TBD		OHT			

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
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,Lubrizol		Statistics	
35	**Determine whether baffle on blowby heat exchanger should be added to procedure.**	**Tue 6/26/18**			**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.		Intertek			
38	**Finalize IVB report form.**		**TMC,Intertek**		**Documentation**	**Introduced on 10/25/2017.**
39	Review proposed IVB report with full Surveillance Panel.		Surveillance Panel			
40	**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.**
41	TBD					
42	**Compile a historical timeline for the overall IVB test development effort.**				**Documentation**	**Introduced on 11/07/2017.**
43	TBD					
44	**Compare oil temperature curves at different labs using a histrogram instead of x-y charts.**		**Lubrizol,Statisticians**		**Statistics**	**Introduced on 11/07/2017.**
45	TBD					
46	**Confirm that all (5) labs are reading the same OBD-II parameters.**	**Tue 6/26/18**			**Operational**	**Introduced on 11/07/2017.**
47	Provide directory for relevant OBD-II channels.		Toyota		Operational	
48	Audit OBD-II parameters currently being measured by labs.		Lubrizol		Operational	
49	Task Force to finalize list of mandatory OBD-II channels to be monitored by labs.		Task Force		Operational	
50	**Establish procedure for cleaning blowby flow meter.**	**Fri 5/11/18**			**Procedure**	**Introduced on 11/07/2017.**
51	Make recommendation to Task Force.	Fri 5/11/18	Intertek	Tue 5/15/18	Procedure	
52	**Update Golden Stands to automatically control coolant pressure.**				**Operational**	**Introduced on 11/07/2017.**
53	TBD					
54	**All labs to provide 200HR E.O.T. oil samples to Intertek for analysis.**	**Fri 5/11/18**			**Operational**	
55	Southwest to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Southwest	Fri 5/11/18	Operational	

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
56	Lubrizol to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Lubrizol	Fri 5/11/18	Operational	
57	Exxon to provide 200HR E.O.T. samples from Precision Matrix #2.	Fri 5/11/18	Exxon	Fri 5/11/18	Operational	
58	Afton to provide 200HR E.O.T. samples from prove-out testing.	Fri 5/11/18	Afton	Fri 5/11/18	Operational	
59	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	
60	**Re-evaluate QI's for all controlled parameters.**	**Tue 6/12/18**	**Statisticians**		**Operational**	
61	Use three 1HR data files from each Precision Matrix test.	Tue 6/12/18	Statisticians			
62	**TMC to work with labs to complete Precision Matrix #2 test reports.**	**Fri 5/11/18**	**TMC**	**Tue 6/12/18**	**Documentation**	
63	Southwest to complete test reports.		Southwest	Tue 6/12/18	Documentation	
64	Intertek to complete test reports.		Intertek	Tue 6/12/18	Documentation	
65	Lubrizol to complete test reports.		Lubrizol	Tue 6/12/18	Documentation	
66	Exxon to complete test reports.		Exxon	Tue 6/12/18	Documentation	
67	**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.**
68	Analysis will focus on exhaust gas temperature, crankcase pressure/blowby flow, intake manifold pressure and AFR.					
69	**Compile all notes from January 2018 IVB Engine Build Workshop into a single document.**	**Tue 6/12/18**	**Lubrizol**		**Documentation**	
70	All labs to send notes/photographs from Workshop to Lubrizol.	Tue 6/12/18	Afton,Exxon,Intertek,S		Documentation	
71	Intertek to send Lubrizol hand-outs from workshop.	Tue 6/26/18	Intertek		Documentation	
72	**Complete Appendix K.**		**Task Force**		**Appendix K**	
73	Perform an initial review of Appendix K.	Tue 5/15/18	5/15/2018		Appendix K	
74	**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**	
75	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.
76	**Create an engine "health" checklist that is to be used to inspect hardware between tests.**	**Tue 5/29/18**	**Lubrizol**		**Hardware**	
77	Intertek, Southwest, Afton and Exxon to provide Lubrizol with their suggestions regarding this "health" checklist.	Tue 5/29/18	Afton,Exxon,Intertek,S			
78	**Assess the impact of camshaft lobe failures (and the subsequent rebuild) on engine severity.**				**Operational**	
79	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.
80	TBD					

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
81	**Solicit and obtain a IVB "high wear" oil to replace REO300.**				**Operational**	**The inventory of REO300 is low, although a reblend is**
82	TBD					
83	**Investigate why coolant pressure becomes noisier as the Intertek stands enter Stage 2 conditions.**		**Intertek**		**Operational**	
84	TBD					
85	**Measure time constants of all Golden Stands.**				**Operational**	
86	Intertek to measure and supply time constants.		Intertek		Operational	
87	Southwest to measure and supply time constants.		Southwest		Operational	
88	Lubrizol to measure and supply time constants.		Lubrizol		Operational	
89	Exxon to measure and supply time constants.		Exxon		Operational	
90	Afton to measure and supply time constants.		Afton		Operational	
91	**Standardize the fuel dilution measurement technique at all labs.**				**Operational**	
92	TBD					
93	**Develop a standardized test stand audit checklist.**	**Fri 5/11/18**	**Lubrizol**	**Tue 5/15/18**	**Documentation**	
94	Make a recommendation to the Task Force.	Fri 5/11/18	Lubrizol	Tue 5/15/18	Documentation	
95	**Update procedure with instructions for dealing with extended periods of downtime.**	**Fri 5/11/18**	**Southwest**		**Procedure**	
96	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
97	Update Southwest's proposed procedural changes with instructions to pull purge oil from the pan.	Tue 5/15/18	Intertek			
98	**Develop a procedure for applying a calcium (or other detergent) adjustment to iron.**	**Tue 5/15/18**	**TMC**		**Procedure**	
99	Provide a draft procedure for review.	Tue 5/15/18	TMC	Tue 5/29/18		
100	Issue an updated version of TMC draft procedure to the full sub-group for review.	Tue 5/29/18	Intertek			
101	**Clarify instructions for changing cylinder heads and running the break-in/aging cycle.**	**Fri 5/11/18**	**Southwest**	**Tue 5/15/18**	**Procedure**	
102	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
103	**Identify the minimum number of acceptable data points in a test file.**	**Fri 5/11/18**	**Southwest**	**Tue 5/15/18**	**Procedure**	
104	Make a recommendation to the Task Force.	Fri 5/11/18	Southwest	Tue 5/15/18	Procedure	
105	**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.**
106	The Surveillance Panel should compile a list of parameters to be captured from these candidate tests.				Statistics	
107	**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.**
108	Vote on motion.	Tue 6/12/18	Surveillance Panel	Tue 6/12/18		Motion passed with no negatives.
109	**The Surveillance Panel needs to finalize the BOI/VGRA matrix.**				**BOI/VGRA**	**Introduced on 05/08/2018.**
110	TBD					
111	**Determine whether NOX is a useful parameter to introduce with the IVB test.**	**Fri 5/11/18**			**Operational**	**Introduced on 05/08/2018.**

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
112	Intertek to report on their NOX trial on IAR165.	Fri 5/11/18				
113	**Analyze blowby gas using GC/MS.**				**Operational**	**Introduced on 05/08/2018.**
114	Determine how to sample this material.					
115	Determine if the gas and/or liquid will be analyzed.					
116	**Investigate whether silicone is leaching from new spark plug tube seals installed in the OHT rocker arm cover.**				**Hardware**	**Introduced on 05/08/2018.**
117	TBD					
118	**Develop cumulative iron curves for each engine over its full life cycle.**	**Tue 5/22/18**			**Hardware**	**Introduced on 05/08/2018.**
119	Intertek to provide a template that can be used to report engine information.	Tue 5/22/18	Intertek	Tue 5/22/18	Hardware	
120	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	
121	Intertek to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Intertek		Hardware	
122	Southwest to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Southwest		Hardware	
123	Lubrizol to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Lubrizol		Hardware	
124	Exxon to report data for all engines used during and after the Precision Matrix.	Tue 5/22/18	Exxon		Hardware	
125	Afton to report data for all engines that they have used.	Tue 5/22/18	Afton		Hardware	
126	Define an "engine".					
127	**Include the iron parameter in MAD Survey.**	**Tue 5/15/18**	**Task Force**		**Appendix K**	
128	TBD					
129	**Identify a GF-6 reference oil to satisfy Section D of Appendix K.**	**Tue 5/15/18**	**Task Force**		**Appendix K**	
130	TBD					
131	**Modify new air filter boxes with a fitting for a pressure transducer.**	**Tue 5/22/18**	**OHT**		**Hardware**	
132	Provide dimensions to OHT for the location of the fitting.	Tue 5/22/18	Intertek		Hardware	
133	**Review oxidation and nitration technique specified in IVB procedure.**				**Procedure**	
134	TBD					
135	**Determine whether the S.O.T. or E.O.T. compression and leak-down measurements can be eliminated.**					
136	TBD				Procedure	
137	**Introduce REO300-1 as a Sequence IVB reference oil.**				**Procedure**	
138	TBD					
139	**Determine if REO1011 can be re-blended.**		**TMC**		**Procedure**	
140	TBD					
141	**Confirm that critical parts are explicitly identified in the procedure.**				**Procedure**	

Sequence IVB Task Force Action Items

ID	Task Name	Start	Resource Names	Finish	Category	General Comments
142	TBD					
143	**Establish a maximum iron validity criteria for the first test run after a "post lobe failure" engine flush.**	**Tue 5/29/18**			**Procedure**	
144	TBD					
145	**Document a procedure for flushing an engine after a camshaft lobe failure.**	**Tue 5/29/18**			**Procedure**	
146	Provide a draft procedure for review.	Tue 5/29/18	Exxon		Procedure	
147	**Provide Camshaft Lobe Failure Data to TMC for ACC Inquiry**	**Tue 6/26/18**				
148	Lubrizol to supply data.		Lubrizol		Appendix K	
149	Intertek to supply data.		Intertek		Appendix K	
150	Southwest to supply data.		Southwest		Appendix K	
151	Afton to supply data.		Afton		Appendix K	
152	Exxon to supply data.		Exxon		Appendix K	