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Unapproved Minutes of the March 18, 2014
Sequence III Surveillance Panel Conference Call.

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The call was initiated by Chairman Glaenzer at 2 PM Eastern Time.

The purpose of this call was to address the procedure to prepare Sequence III satellite heads for re-use in Sequence III test methods and as such, no formal agenda was issued.

A listing of participants is included as attachment 1. A total of fourteen voting members were in attendance on the call.

The procedure for rework of cylinder heads, developed by the task group headed by Ed Altman and Sid Clark, is included as attachment 2. Chairman Dave Glaenzer thanked both Ed and Sid for their tireless efforts in developing this procedure. Ed felt that the procedure, as written, would

provide consistent results for reuse of these heads and tried to keep the tolerances for valve seat depth, valve guide clearance, etc, as close as possible and he had a lot of confidence that the test labs using this procedure would obtain consistent results.

The panel attempted to address implementation of the this procedure and how to introduce reused heads in both the Sequence IIIF and Sequence IIIG test types. There was some discussion as to whether the use of these hardened insert heads was approved for IIIF. Pat Lang indicated he thought they were approved for both test types during a previous call, while Dave Glaenger, Charlie Leverett and Rich Grundza were under the impression that the approval was only for the Sequence IIIG test. Rich reviewed the minutes from the previous call and they did not indicate that approval was for only the IIIG and the minutes did not reflect any specific test type approval.

Chairman Glaenger then decided that the best approach to addressing these items was to take them one at a time and move for approval separately. The first motion was to allow referencing on the hardened insert cylinder heads for Sequence IIIF testing effective 3/18/14. These cylinder heads can be used for non reference oil tests, provided that an acceptable reference oil test has been obtained. Rich Grundza, 2nd Ed Altman. Approved 14/0/0.

The panel entertained a motion to allow the reuse of hardened seat insert heads. After some discussion, a motion was made by Ed Altman, seconded by Pat Lang, to allow the use of satellite heads for additional run(s). Additional discussions took place as to whether this would allow multiple runs on a cylinder head. ~~Both~~ Several members, primarily test lab personnel, felt that to carry through the life of the test, it would not be necessary to conduct more than one additional run on the hardened seat heads. The motion to allow the use of the heads for an additional run was unanimous, with all fourteen members approving and no abstains or waives.

The final item was to address how to introduce the heads into the system. Ed Altman explained that very little has changed between runs and that he felt that introducing these heads may not require a reference oil test. Rich Grundza explained while the engineering review suggests little or no change, a failing result on a candidate test may leave customers wondering. Charlie Leverett acknowledged that a number of corrections have been applied to the IIIF and the introduction of these heads may impact those correction factors. Robert Stockwell noted that while we think there won't be any differences, the only way to know would be to generate the data. After some more discussions, Robert Stockwell moved to introduce the additional run on hardened seat heads with a successful reference oil test for both the IIIF and IIIG test types, with a second from Rich Grundza. Additional discussions took place regarding failed references and these tests would follow the normal LTMS protocol. Also discussed was that once both the initial run and subsequent run on the hardened seat heads had successfully referenced, these heads may be used interchangeably. Finally, the panel agreed to append the cylinder head part number with a 2, to designate the second run. The motion was approved 13/0/1, with Tracey King waiving.

Dave mentioned that he was looking at conducting a meeting in San Antonio after the Easter break to review the Sequence IIIG test stand and to review the procedure, hardware, etc. Rich Grundza also mentioned that report forms and data dictionary close beta on Thursday of this week and once correction of a couple of items identified during beta is completed, they will be available for use.

There being no further business, the meeting was adjourned at 2:41 PM.

TELECONFERENCE

ASTM Sequence III Surveillance Panel (20 Voting members)

date: 03/18/14

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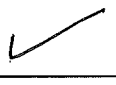
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ASTM Sequence III Surveillance Panel (20 Voting members)

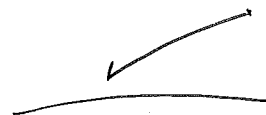
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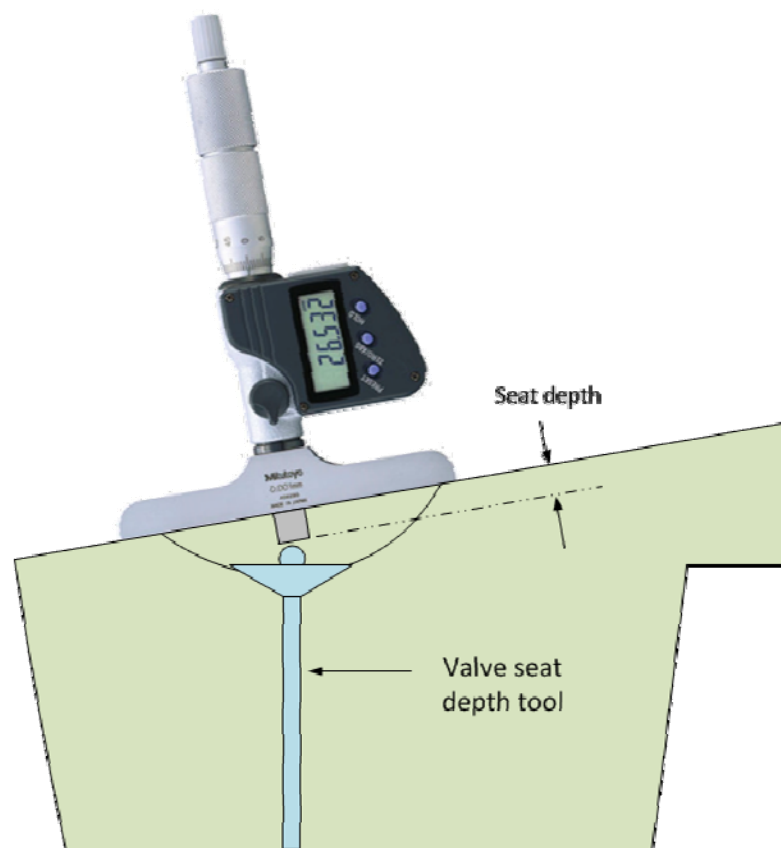
Robert Stockwell GM



Procedure for reworking Stellite seat cylinder heads:

(Pre-Test Measurement Before First Run)

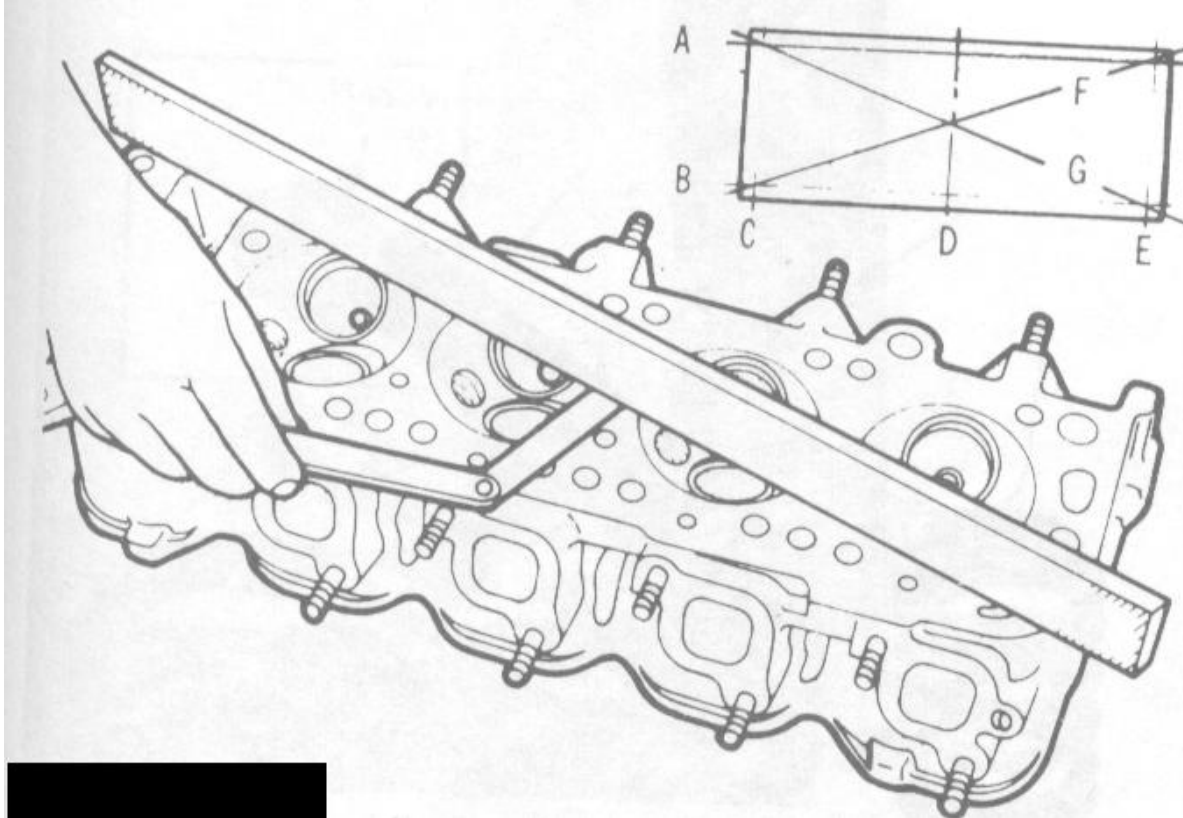
- A. Clean cylinder head, taking care that deck surface is free of nicks and scratches. No sandpaper, scotchbrite pads or other abrasives which could transfer materials to the head surface may be used.
- B. Install valve seat depth tool into valve pocket
- C. Insure that depth micrometer is properly calibrated/zeroed.
- D. Place depth micrometer on cylinder head such that both ends of micrometer rest on either side of the combustion chamber
- E. Measure the depth to the ball on the end of the valve seat depth tool
- F. Record depth value in thousands of an inch (0.xxx")



Post Test Qualification Procedure

1. Complete Disassembly of first run heads.
2. Visually inspect valve seats for unusual wear.
3. Measure clearance at the top and bottom of valve guides. Specified limits are .0015" - .0032"
4. Scrape head gasket from deck surface. No sandpaper, scotchbrite pads or other abrasives which could transfer materials to the head surface may be used.

5. Check head deck for warping.



Using a straight edge, measure the clearance between the straight edge and the head with a feeler gauge. Maximum .004"

5. Spray head with degreasing solvent and dry with compressed air.

6. Wash heads in power washer for 30 minutes, or use ultra sonic cleaner for 30 minutes to remove debris from combustion chamber and intake and exhaust ports.

7. Rinse with hot water and immediately spray with 50-50 mixture of degreasing solvent and EF411.

8. Continue cleaning with degreasing solvent only, using a brush to clean any remaining debris from surfaces. Wire brush can be used in combustion chambers and intake and exhaust ports. Do not use wire brush on deck surface.

9. Spray with 50-50 mixture of degreasing solvent and EF411, then blow dry with compressed air.

10. Lap valves using a water based valve grinding compound. Use Permatex Valve Grinding Compound, water mixed, item #80036.

12. Thoroughly clean lapping compound from valves and seats using water and a lint free rag. Be sure all lapping compound is removed. After cleaning lapping compound, spray entire head with degreasing solvent.

13. Spray with, with 50-50 mixture of degreasing solvent and EF411 then blow dry with compressed air.

14. Apply bluing to each valve and install. Visually inspect for proper seating. The bluing ring should be a consistent width around the entire valve circumference and be positioned toward the middle of the face.

15. If valves show proper seating appearance, repeat steps B through F of the "Pre Test Measurement Procedure". If Valve seat wear does not exceed .005", heads are acceptable for re-use.

16. Assemble heads according to the IIIG assembly manual section 5, sheet 1, using all new valves, springs, keepers and caps.

17. Calibrate heads according to procedure.

18. Vacuum check heads. Must be able to pull a minimum of 24 inches of mercury.