

# **Sequence III Surveillance Panel Meeting**

Teams

Wednesday September 3, 2025 1:00 – 2:30 CST

## **Agenda**

### **1.0) Attendance**

### **2.0) Chairman Comments**

2.1) Dylan Beck has replaced Rich Grundza as the TMC representative.

### **3.0) Approval of minutes**

3.1) Minutes from 2/20/2025 Meeting, thank you Joe.

### **4.0) IIH Action Items**

4.1) Fuel Update – Haltermann

4.2) CPD Update - OHT

4.3) Analysis of BC9 piston and ring data – Panel

4.4) Sunnen SV15 replacing SV10 – Murdock



Sunnen SV10 to  
SV15 Comparison.docx

4.5) Ultrasonic cleaners – Murdock

4.6) IMPT update - Clark

4.7) Other Topics

### **5.0) Old Business**

5.1) TBD

### **6.0) New Business**

6.1) TBD

### **7.0) Review / Update Scope and Objectives**

### **8.0) Next Meeting**

**TBD**

### **9.0) Meeting Adjourned**

**Sequence III Surveillance Panel Meeting**  
Teams  
Wednesday September 3, 2025, 2:00 pm – 3:00 pm EDT

**Agenda**

**1.0) Attendance**

See attached

**2.0) Chairman Comments**

None

**3.0) Approval of minutes**

Motion by Jason Bowden to Approve the February meeting minutes

Motion seconded by Joe Anthony

Motion passes with no objections

**4.0) IIIH Action Items**

**4.1) Piston & Rings Update**

Jason Bowden:

- No update on current batch codes
  - Inventory: 3 years for pistons, 2 years for rings
  - Life of current IIIH Hardware supply is limited by engine inventory
- Working on designing prototype pistons and rings for rebuilt IIIH engines.
- Bore will be 0.007”
  - The current piston castings do not have enough excess material to allow 0.007” oversizes using the current casting.
  - OHT is acquiring tooling for a fully machined 0.007 inch oversize pistons.
  - Pistons and rings should be ready by the end of 2025.
- Recommends task force coordinated IMTS reman, OHT test kits, and ancillary parts.

**4.2) Engine Inventory Update**

Robert Stockwell:

- AER has 685 used engines in storage and some stored at the labs.
- Used 100 in the last 3 months and historically have used 35/month if that continues, the engines will last until 2027.
- Adrian Alfonso: Will there be an allocation based on historical usage or first come first served basis.
- The panel can make a recommendation.

- Robert Stockwell: It will likely be an allocation or redistribution so we all run out at the same time. We should start thinking about how we want to do that and make it an action item in a future meeting.

#### 4.3) Motions to Approve Use of Latest Equipment for Engine Builds

##### 4.3.1) Motion to Add SV15 as an approved honing machine

Will Murdock: presentation

- SV10 is no longer made. SV15 replaces SV10 and is same except for operator control panel.

**Motion** by Will to approve the use of the SV15 honing machine as an option to the SV10

**Motion** seconded by George Szappanos

- Robert Stockwell asked to review the presentation again and verify that the SV10 is equivalent to SV15.
- George Szappanos has used the SV15, and it appears to be the same equipment, it just has an updated user interface.
- Any questions from any other labs or members? No Let's have a vote

**Motion** passes: 12 Approves, 3 Waives, no Negatives

##### 4.3.2) Motion to Add MOT-600N as an approved ultrasonic cleaner

Will Murdock:

- MOT-500NS ultrasonic cleaner is no longer available.
- It is recommended to buy MOT-600N as the replacement, it has the same features as the MOT-500NS, except the MOT-600N has an auto lift hood.
- There is a need to get the MOT-600N approved, because the MOT-500NS is written in the procedure.

**Motion** by Will Murdock to allow either the MOT-600N or MOT-500NS ultra-sonic cleaner to be used for cleaning parts

**Motion** seconded by Bill Buscher

- Motion passes: 12 Approves, 3 Waives, no Negatives

#### 4.4) Rebuilt Engine Process Update

##### 4.4.1) IMTS Reworked Block Status

- Sid Clark presented IMTS' reworked block progress (attached)
- A test run was completed

- Andrew Rohlfing showed plots a comparison of a standard IIIH test with Batch 9 pistons and rings and test with IMTS rebuilt engine using forged pistons using the same Afton oil.

#### 4.4.2) Forged vs. Cast Pistons Discussion

- OHT is planning on using forged pistons for the rebuilt engines, to meet requested timing.
- Bob Cambell: It will be a different test with forged pistons.
- Jason Bowden: The GMOD uses forged pistons. I think that with all the changes required for the rebuilt engine, it will be a different test.
- Robert Stockwell: IMTS needed 0.006-0.007” to re-align the piston bores. We need to determine if using the same pistons 0.001-0.002” is a better trade off compared to truing the block and using forged pistons.
- Mike Lochte: We could do something similar to the 2.0L, sleeve and use the block
- Robert Stockweel: Are these pistons forged?
- Jason Bowden: We are looking at both cast and forged pistons. I think we can get better quality with a forged piston.
- Joe Anthony: It would be good to run forged pistons in a IIIH and apply what we learn to the VJ. Because the IIIH is more sensitive to pistons.
- Robert Stockwell: They are different tests. We know that the V is sensitive to things that aren’t as important in the III.
- Andrew Rolfig: Need to parallel path the forged and cast pistons. We are going to run out of parts in a year and a half.
- Bob: Afton is going to put a IIIH block in a honing machine and see what it takes to get it straight. If we can go 0.007” with a cast piston and it’s the same, that’s one thing, but if not, it’s whole different test.
- Robert Stockwell: Will Murdock could restart the O&H with IMTS and OHT to keep this moving forward, instead of in the entire SP.
- Pat Lang: When could OHT get a prototype piston?
- Jason: OHT is acquiring tooling and targeting the end of 2025. Exploring cast and forged pistons for 20 engine tests.
- Bob Campbell: Does cast vs. forged affect the batch size?
  - Jason Bowden: Yes, we are targeting minimum annual batch sizes.
  - Bob Campbell: We’d like larger batch sizes to minimize batch changes requiring referencing.

#### 4.4.3) Ancillary Parts Discussion

- Jason Bowden: What other parts that are being acquired outside of the CPD that should be stockpiled. JB: Yes, we should be stockpiling ancillary parts.

- I also recommend monthly O&H meetings. We stockpiled cam phasers and wiring harnesses when the engine ended production. If there's anything else, we need to identify them and source them.
- Robert Stockwell: Andrew is a good place to start because he's run some of these.
- Andrew Rohlfing: We can kick that off.
- Will Murdock: We were working on it with IMTS, but the VIG kicked off and resources got pulled away, but that effort has subsided and now focused on rebuilding the IIIH.
  - Amol Sawant has brought this up before; even if we have pistons we can't run tests without the rest of the parts.
  - Andrew will lead the O&H.
  - Jason Bowden will support sourcing parts.
  - Sid Clark: IMTS is deeply invested in this and is looking at everything and sourcing all of the parts.
- Arian Alfonso: We do need to finalize the list and go after anything that is missing. I think this has been done, but we need to go through the list in the O&H with the CPDs.

## **5.0) Old Business**

## **6.0) New Business**

### **6.1) Planning Next In-person Meetings**

- Bill Buscher will work with Pat Lang to coordinate the schedule and locations for the in-person meetings

Will did we approve the BC9 pistons to remove the level 2 Ei alarms. Dylan: I assumed that they were approved. Yes, only for the first tests at each lab.

## **7.0) Review / Update Scope and Objectives**

## **8.0) Next Meeting** TBD

## **9.0) Meeting Adjourned** Meeting adjourned at 12:30 pm EST

Name

Email

Signature:

RTS Stockwell

Present - Voting Members:

Votes:

<input type="checkbox"/> Jorge Agudelo	jorge.agudelo@bp.com				
<input checked="" type="checkbox"/> Adrian Alfonso →	adrian.alfonso@intertek.com	SWRI	N/A	N/A	
<input checked="" type="checkbox"/> Dylan Beck	djb@astmtmc.org		Y	Y	
<input checked="" type="checkbox"/> Jason Bowden	jbowden@ohtech.com		Y	Y	
<input checked="" type="checkbox"/> Michael Deegan	mdeegan@ford.com		W	Y	
<input checked="" type="checkbox"/> Seth Demel	samuel.demel@shell.com		W	W	
<input checked="" type="checkbox"/> Venkat Deshpande	venkat.deshpande@toyota.com		Y	W	
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<input checked="" type="checkbox"/> Dan Lanctot	dlanctot@tei-net.com		W	W	
<input checked="" type="checkbox"/> Patrick Lang	plang@swri.org		Y	Y	
<input checked="" type="checkbox"/> Paul Makarucha	Paul.Makarucha@Infineum.com		Y	Y	
<input checked="" type="checkbox"/> Dave Passmore	dpassmore@imtsind.com		Y	X	
<input type="checkbox"/> Michael Raney	michael.p.raney@gm.com				
<input checked="" type="checkbox"/> Andrew Rohlifing	Andrew.Rohlifing@AftonChemical.com		Y	X	
<input checked="" type="checkbox"/> Paul Rubas	Rubas, Paul J <paul.j.rubas@exxonmobil.com>		Y	Y	
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<input checked="" type="checkbox"/> Robert Stockwell	robert.stockwell@chevron.com		Y	Y	
<input checked="" type="checkbox"/> George Szappanos	george.szappanos@lubrizol.com		Y	Y	
<input checked="" type="checkbox"/> Haiying Tang	haiying.tang@stellantis.com		Y	Y	

Bill Buscher

ZAL

Wib  
Seung DungeApprove use of  
SV-15  
Honing Machine  
- OBTAIN

12-0-3 PASS

12-0-3 PASS

Will second Bill  
Approve use of  
Not-Tienna  
600N  
ultrasonic  
cleaner  
as an option

Name	Email	Signature:
Present - Members:		
<input checked="" type="checkbox"/> Ricardo Affinito	<a href="mailto:affinito@chevron.com">affinito@chevron.com</a>	
<input checked="" type="checkbox"/> Joseph Anthony	<a href="mailto:Joseph.Anthony@Infineum.com">Joseph.Anthony@Infineum.com</a>	
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<input type="checkbox"/> Bill Buscher III	<a href="mailto:william.buscher@intertek.com">william.buscher@intertek.com</a>	
<input type="checkbox"/> Bob Campbell	<a href="mailto:bob.campbell@aftonchemical.com">bob.campbell@aftonchemical.com</a>	
<input type="checkbox"/> Domingo Carreon	<a href="mailto:domingo.carreon@intertek.com">domingo.carreon@intertek.com</a>	
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<input type="checkbox"/> Scott Rajala	<a href="mailto:srajala.1460@idemitsu.com">srajala.1460@idemitsu.com</a>	
<input type="checkbox"/> Andrew Ritchie	<a href="mailto:andrew.ritchie@infineum.com">andrew.ritchie@infineum.com</a>	



ASTM Sequence III Surveillance Panel (19 Voting members)

date:

Name	Email	Signature:
___ Cliff Salvesen	<u>clifford.r.salvesen@exxonmobil.com</u>	
___ Hirano Satoshi	<u>satoshi_hirano_aa@mail.toyota.co.jp</u>	
___ Philip R. Scinto	<u>prs@lubrizol.com</u>	
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___ Justin Wolfe	<u>Justin.Wolfe@lubrizol.com</u>	
___ Yue Zhang	<u>Yue.Zhang@Lubrizol.com</u>	

Other Attendees:

✓ Wes Venhoff

✓ Alan Phone

✓ PABLO RAMIREZ IAR

✓ Bill Buschen IAR



## Ultrasonic Cleaner

### Current Machine:

- Unit: Tierra tech MOT-500NS
- Fluid
  - 50/50 mix (10 gal. each)
  - Aqua Vantage 815 QR-NF
  - Aqua Vantage 815 GD
- 130 gallons of water



### New Machine:

- Unit: Tierra tech MOT-600N



## ELECTRICAL CHARACTERISTICS

- **Power supply:** 400V+3-PHASE+NEUTRAL+EARTH / 25A

## TECHNICAL DATA

**Ultrasonic Cleaning Tank** made of 2 mm. thick stainless steel AISI 304L , with the following dimensions (length x width x height):

- Internal dimensions: 51.18 x 28.94 x 26.18 inches
- Useful dimensions: 48.43 x 25.59 x 16.93 inches
- External dimensions: 80.71 x 47.24 x 42.13 inches
- Capacity: 158.50 Gallons.
- Bottom of the tank: sloping
- External panel of 1 mm thick fingerprint-resistant steel (black color)
- Heating element: 9000w
- Temperature control through PT100.
- Thermo-acoustic insulation: thickness 20 mm
- Automatic insulated tank cover, in stainless steel, powered by pneumatic cylinder, with retainer, drip gutter and dead man safety system.
- Manual draining through valve: 1 1/2 "
- Air blow-gun
- Height adjustable silentblock legs.

## Sunnen SV10 to SV15 Comparison

The Machine specifications are the same between the two models. The main difference is the operator control panel was changed from Siemens (SV10) to Beckhoff (SV15). If you look at the display the SV10 had switches to perform certain task where on the SV15 the features can be performed directly through the touch screen.

### GENERAL INFORMATION & SPECIFICATIONS Sunnen® Automatic Vertical Honing Machine - Model SV-10

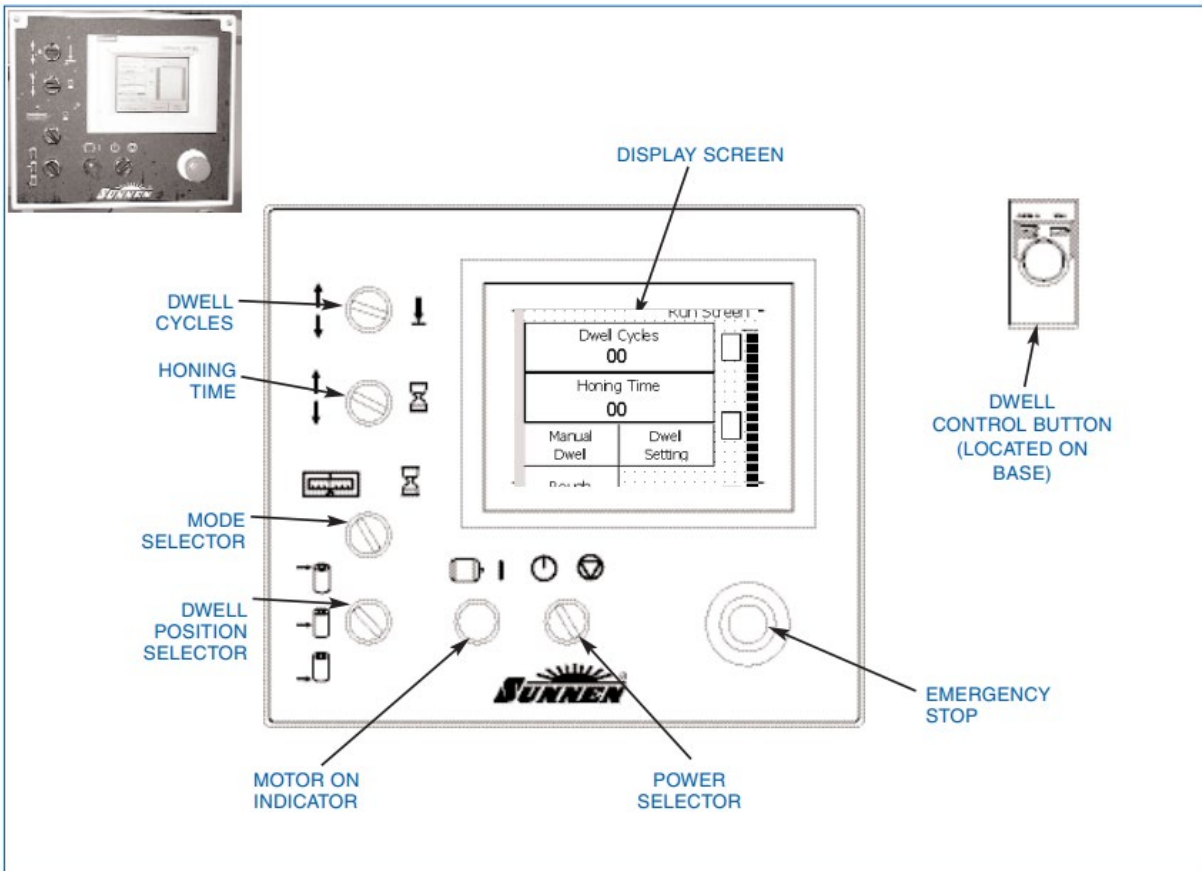
<b>Bore Diameter Range (I.D.):*</b>	19,0 to 203,0 mm (.75 to 8 in.) For diameters below 19,0 mm (.75 in) or above 203,0 mm (8 in) call Sunnen in St. Louis
<b>Bore Length Range*:</b>	Up to 450 mm (18 in.)
<b>Workpiece Size*:</b>	1168 L x 558 W x 673 H mm (46 x 22 x 26.5 in.)
<b>Workpiece Weight*:</b>	680 Kg (1496 lbs) including Fixture
<b>Spindle Motor:</b>	2,2 kW (3 hp)
<b>Spindle Speeds:</b>	90 to 350 RPM; Variable
<b>Stroker Motor:</b>	0,75 kW (1 hp)
<b>Stroke Rate:</b>	40 to 80 Strokes Per Minute; Variable
<b>Stroke Length Range*:</b>	0 to 225 mm (0 to 9 in.)
<b>Coolant Pump Motor:</b>	0,75 kW (1 hp)
<b>Coolant Pump Rate:</b>	38 LPM@1,7 Bars (10 GPM@25 psi)
<b>Coolant Capacity:</b>	208 liters (55 gal) with self-contained filter system
<b>Coolant Requirements:</b>	Sunnen Industrial Honing Fluids
<b>Floor Space:</b>	2318 W x 1835 D x 2197 H mm (91.25 x 72.25 x 86.5 in.)
<b>Floor Weight (Dry):</b>	860 kg (1900 lbs)
<b>Floor Weight (W/Coolant):</b>	1050 kg (2300 lbs)
<b>Floor Load:</b>	739 kg/sq meter (151 lbs/sq ft)
<b>Shipping Weight:</b>	1150 kg (2500 lbs)
<b>Voltages Available:</b>	230 V, 60 Hz, 3 Ph; 220 V, 50 Hz, 3 Ph

## GENERAL INFORMATION & SPECIFICATIONS

### SUNNEN® SV15 VERTICAL HONING MACHINES

<b>Diameter Range (ID)<sup>1</sup>:</b>	19,0 to 203,0 mm (0.75 to 8 inches)
<b>Workpiece Length<sup>1</sup>:</b>	450 mm (18 inches)
<b>Workpiece Size<sup>1</sup>:</b>	1168 L x 558 W x 673 H mm (46 x 22 x 26.5 inches)
<b>Workpiece Weight<sup>1</sup>:</b>	680 Kg (1496 lbs.) including fixture
<b>Spindle Motor:</b>	2,2 kW (3 hp)
<b>Spindle Speeds:</b>	90 to 350 rpm; Variable
<b>Stroker Motor:</b>	0,75 kW (1 hp)
<b>Stroke Rate:</b>	40 to 80 strokes per minute; Variable
<b>Stroke Length Range<sup>1</sup>:</b>	0 to 225 mm (0 to 9 inches)
<b>Coolant Pump Motor:</b>	0,75 kW (1 hp)
<b>Coolant Pump Rate:</b>	38 LPM @ 1,7 Bars (10 GPM @ 25 psi)
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<b>Floor Weight (Dry):</b>	860 kg (1900 lbs.)
<b>Floor Weight (w/Coolant)</b>	1050 kg (2300 lbs.)
<b>Floor Load:</b>	739 kg/M <sup>2</sup> (151 lbs./sq. ft.)
<b>Shipping Weight:</b>	1150 kg (2500 lbs.)
<b>Voltages Available:</b>	230 V, 60 Hz, 3 Ph, 24 FLA; 220 V, 50 Hz, 3 Ph, 24 FLA

## SV10 Display



**FIGURE 2-2, Operator Controls**

## OPERATOR CONTROL PANEL

For the location and function of the operator controls, refer to "Figure 3-3, Operator Control Panel" and "Table 3-1, Operator Controls."



Figure 3-3, Operator Control Panel



### Event Message Exists

# IMTS IIIH Re-Man

Program Update

September 3, 2025

*Modified 11/17/2025 as recommended during the IIH Surveillance  
Panel Meeting held October 27, 2025 in San Antonio*

# Prove-Out Engine Block

- Prove-out testing used a modified new engine block
  - Allowed the use of current OHT Pistons & Rings
  - Threaded Inserts installed
    - Inner M11 and Outer M8 Main Cap Threaded Inserts
    - Crank Tunnel Alignment Confirmation
      - Precision Crankshaft Alignment Bar used to confirm post- operation main cap alignment

# Fuji Fax Film Clamp Load Study

- Tapered Seat Stud Type M12 Non-Yield fasteners
- Show uniform clamp load around entire head gasket using the following torque sequence:
  - 1<sup>st</sup> Pass 30 N·m
  - 2<sup>nd</sup> Pass 60 N·m
  - 3<sup>rd</sup> Pass 90 N·m
  - Final Pass 135 N·m

# Engine Block

- Crankshaft Tunnel
- Installed High Quality Threaded Inserts with Split Ring Retainers
- M11 Inner Fasteners
- M8 Outer Main and Windage Tray Fastener



# Cylinder Bore Sizing (Actual Re-Man Block)

- Will use true cylinder bore locating
- Proposed Target Sizing (with torque plates & gaskets)
  - IMTS Finish Bore 0.152mm (0.006 in.) oversize
  - Lab Honed Bore 0.178mm (0.007 in.) oversize
- IMTS Piston Bore Target Sizing
  - 1<sup>st</sup> Run 0.178mm (0.007 in) oversize
  - 2<sup>nd</sup> Run 0.203mm (0.008 in) oversize



# Cylinder Heads

## New Heads Used for Prove-out

- New Intake and Exhaust Seats
  - Same materials as current intake seats will also be used in the exhaust positions
  - New Valves, Valve Springs, Roller Rockers, Lash Adjusters, Camshafts
- Subsequent Re-man will use re-conditioned head
  - New seats, valves, roller rockers, lash adjusters, and new valve guides
    - *Further investigation (Federal Air Gage Tooling) shows all Powdered Metal Valve Guides to be In-Spec. Both post-test inventory and multiple run cylinder head inventory*
      - *Decision made to 100% inspect and not to risk potential loss of parent material around guide during removal or installation of new guides*
  - Head deck will be checked for flatness and brushed for clean-up

# Consumable Hardware

IMTS has purchased and inspected Alternate and Original Equipment Manufactured Materials and plans to provide the following:

- Engine Bearings
- Valves
- Valve Seals
- Valve Springs
- Lash Adjusters
- Roller Rockers
- Timing Chain Assemblies
- Oil Filter Housings \*
- Oil Coolers
- Oil Pumps
- Gasket Kit

\* IMTS Recommends OEM