



Test Monitoring Center

203 Armstrong Drive, Freeport, PA 16229, USA

www.astmtmc.org
412-365-1000

Sequence IVB Information Letter 23-2
Sequence Number 6
November 30, 2023

TO: Sequence IV Surveillance Panel

SUBJECT: 1. Corrected Test Method for Sulfur determination in received Fuel
2. Alternate motor for RAC Coolant Pump

During the November 14, 2023, Sequence IV Surveillance Panel Conference Call, the panel approved the following changes to Test Method D8350:

1. Recently, it was noted that Sections 7.2.2 and 7.2.2.2 reference Test Method D5453 as the method for analyzing the fuel for sulfur. However, the Certificate of Analysis indicates that the fuel supplier uses D2622 for determination of sulfur content in the fuel. Sections 7.2.2 and 7.2.2.2 have been updated to reflect D2622. Also, D5453 has been removed from referenced documents as these two sections are the only places where this document is referenced.
2. The panel agreed to allow substitution of the RAC Coolant pump motor with any motor with a horsepower rating of 1.5 horsepower and 3450 RPM. Note A has been added to Table A9.2 to reflect this modification.

The attached revised sections of Test Method D8350 are effective November 14, 2023.

William A. Buscher III
Chairman
Sequence IV Surveillance Panel

Jeffrey A. Clark
Executive Director
ASTM Test Monitoring Center

Attachment

c: https://www.astmtmc.org/ftp/docs/gas/sequenceiv/procedure_and_ils/ivb/IL23-002-ivb.pdf

Distribution: Email

Revises D8350-23

2. Referenced Documents

2.1 ASTM Standards:

~~Delete D5453 Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence~~

7.2.2 Fuel Analysis—Monitor the test fuel using good laboratory practices. Analyze each fuel shipment to determine the value of each parameter for fuel sulfur as described in Test Method D5453~~2622~~, existent gum as described in Test Method D381, RVP as described in Test Method D5191, and API Gravity as described in Test Method D4052. Compare the results to the original values supplied by the fuel supplier. The analytical results shall be within the tolerances shown in parentheses beside each parameter. This provides a method to determine if the fuel batch is contaminated or has aged prematurely. If any analytical result falls outside the tolerances, the laboratory shall contact the fuel supplier for problem resolution.

7.2.2.2 Analyze the fuels using Test Methods D5453~~2622~~, D4052, D381, and D5191. **7.2.3 Fuel Shipment and Storage**—Ship the fuel in containers with the minimum allowable venting as dictated by all safety and environmental regulations, especially when shipment times are anticipated to be longer than one week. Store the fuel in accordance with all applicable safety and environmental regulations. If the run tank has more than one batch of fuel, document the most recent batch in the test report.

TABLE A9.2 Engine and Stand Parts supplied by TEI

Item	Description
251-1061	Heat Sink, Single Phase SSR RHS100 (70014831)
CWD2450	RELAY, SOLID STATE DC-AC 240VAC 50A, DC-AC Solid State RELAY (70130488)
IAC5	OPTO 22 Module, Input (IAC5-70133476)
IDC5	OPTO 22 Module, AC Input (IDC5-70133482)
OAC5	OPTO 22, Module Digital (OAC5-70133487)
ODC5	OPTO 22, Module 5-60 VDC (ODC5-70133495)
PB-16H	PB-16, PB-16 I/O BACKPLANE
70001027	Power Supply, AC to DC, 5V@3A, DIN Rail Mount
70000974	SUPPLY-24VDC@3A
KRPA-11DN-12	RELAY- PB- KRPA-SERIES
MG17416	CIRCUIT BREAKER 1P 15A
MG17456	CIRCUIT BREAKER 2P 15A
MG24456	CIRCUIT BREAKER 2P 50A
LC1D32G7	CONTACTOR—non-reversing, 600vac, 32a, 3-pole, 120vac coil, FOR COOLANT PUMPS
27E891	Socket, Relay, Screw Term, Snap-Mount (70199345)
C2-G20X-024VDC	RELAY R4157
SSRT-240D25	RELAY, SOLID STATE DC-AC 240VAC 25A, DC-AC Solid State (70199305)
DLS30	BATTERY CHARGER
9003GCW36SV3A29L36	RESEARCH VALVE, COOLANT
1002GCN36SVCCLN36	RESEARCH VALVE, TOWER WATER
1001GCN36SVCFLN36	RESEARCH VALVE
1003GCN36SVC40L36	RESEARCH VALVE, CHILLED WATER
4270061	GAUGE, 60PSI, 2.5" DIAL, BOTTOM 1/4 NPTM (Liquid Filled)
5020	ELEPHANT FEET
5100	SIDEWINDERS
969-710-201	I/P TRANSDUCER - T1500
010-606-002	I/P Manifold - 10 port
PR7L-1A11D5D111	GO REGULATOR VALVE
BL122CR, 1A	Load cell- 500 lbs

Item	Description
FPG1AP 1AJ 2U 5B 6M	P-XDUCER-FP2000-1PSIG
FPA BL 1AK 2U 5B 6M	P-XDUCER-FP2000-25PSIA
FPG BR 1AK 2U 5B 6M	P-XDUCER-FP2000-100PSIG
1410_SERIES_FLANGE	Driveshaft 20" Collapsed Length 2.75" pilot 3.75" bolt circle
21671	1014A 60 TOOTH GEAR
20015	1014A TACH HOUSING & COVER
31145/31146	REAR SHAFT GUARD – 2 PIECE
10005	DYNO TORQUE ARM
10132	1014A ACTUATOR BAR
10131	BACK KNIFE EDGE ASSEMBLY
10035	MAGNETIC PICK-UP
20029	LOAD CELL CLEVIS BRACKET
ACTUATOR-05	ACTUATOR ASSEMBLY WITH MOUNTING PLATE, ARM, STOP COLLAR
DTC REMOTE-02	DTC REMOTE / OTPUAU REMOTE-02 / Throttle Remote with 40 Feet of Shielded cable and 15 Pin Transform
T/SGS3.5FY-0	TRANSFORMER, 3.5KVA TRANSFORMERS, 208V PRIMARY/250V SECONDARY
T/SGS1.0FY-0	TRANSFORMER, 1.0KVA TRANSFORMERS, 208V PRIMARY/220V SECONDARY
NIL5-ECTPAU-R01	DS820 POWER AMPLIFIER & THROTTLE PAU, 15 AMP RACK MOUNT
1TDT2	EXHAUST COOLING FAN
2ZWT2	PUMP/MOTOR (1.5 HP) ^A
1219-440A3	1/4" OD FLAME RETARDANT TUBING, WHITE STRIP, 250 ft
1219-440B3	1/4" OD FLAME RETARDANT TUBING, RED STRIPE, 250 ft
1219-440C3	1/4" OD FLAME RETARDANT TUBING, ORANGE STRIPE, 250 ft
1219-440D3	1/4" OD FLAME RETARDANT TUBING, YELLOW STRIPE, 250 ft
1219-440E3	1/4" OD FLAME RETARDANT TUBING, GREEN STRIPE, 250 ft
1219-440F3	1/4" OD FLAME RETARDANT TUBING, BLUE STRIPE, 250 ft
1219-440G3	1/4" OD FLAME RETARDANT TUBING, VIOLET STRIPE, 250 ft
1219-44003	1/4" OD FLAME RETARDANT TUBING, NO STRIPE, 250 ft
5100270606	HORIBA MEXA-730, A/F Ratio Analyzer
3200199647	HORIBA SENSOR CABLE, 10 M
3200202803	HORIBA SENSOR
HW111 2024E	MULTICONDUCTOR THERMOCOUPLE CABLE. 24 PAIR, 50 FT, ANSI TYPE EX, 20 AWG
E40107	DYNO FLOW SWITCH ADAPTER
SI5000	DYNO FLOW SWITCH
SM9000	Large flow meter with calibration
E40229	Adaptor for large flow meter
SM8000	Small flow meter with calibration
US0041	Adaptor for small flow meter
EVC006	Cord set, Micro DC-4 wire
5-160-02-008-002	HEAT EXCHANGER - Oil and Blowby
5-160-03-024-002	HEAT EXCHANGER
5-030-06-048-002	HEAT EXCHANGER
5-160-02-008-001	HEAT EXCHANGER—Fuel
CSMN37MM-50	37 PIN D-SUB CABLE, 50 FT
60745K471	ROD END, 5/8" FEMALE
4213K146	FLOW SIGHT GAUGE
60645K421	BALL JOINT ROD END, 1/4" W/ STUD
60645K321	BALL JOINT ROD END, 1/4"
93013A813	SPACER, 1/2" OD, 1/4" ID, 7/8" LENGTH
91465A110	SQUARE HEAD BOLT, 1/4-20, 2" LENGTH
3131T58	HOSE HANGER
289-624	WAGO Break Out Module-37 Pin female
281-901	WAGO, 2 Wire
281-402	WAGO-JMPR
280-833	WAGO-AC-3-STACK
281-652	WAGO-4 Hole

Item	Description
282-698/281-434	WAGO-Fuse Holder
281-302	WAGO-End Cap
280-547	WAGO-AC-3-STACK
284-601	WAGO - Large Gauge
CMFS010M335N2BAE2ZZ	FLOWMETER
2500D3ABBAEZZZ	FLOWMETER TRANSMITTER
VAS 3-A544-2M	DIN CABLE
960-068-003	AIR REGULATOR (SOLD IN TWO PIECES) (REGULATOR 960-068-003) (ADJ KNOB 82510)
F74G-4AN-QP3	MOISTURE TRAP/FILTER
4338-05	ELEMENT, 40
4380-700	SERVICE KIT, F74
JWS300-15	SUPPLY-15VDC@16.5A
51-902	CUTOFF DISCONNECT SWITCH
EZ-202	DRAIN VALVE
SJP4-24-E	Omega T/C Panel
730-N2-1-E0-PV1-V4-0	SIERRA FLOWMETER
BVR	OVERFLOW RESERVOIR
E7T2-9C407-BA	FUEL PUMP
16321-1	PDB (G), Power Distribution Block
16321-3	PDB (L1/L2/N), Power Distribution Block
9001SKR9R	E-Stop, Actuator
9001KA1	E-Stop, Contactor - NC
050200C1-0001B	SILICON RUBBER HEATER
L21EX1A	WATLOW FIREROD CARTRIDGE
X27620-652-00	TYPE E SERIALIZED THERMOCOUPLE 1/8"X2"
X27621-652-00	TYPE E SERIALIZED THERMOCOUPLE 1/8"X3"
X27622-652-00	TYPE E SERIALIZED THERMOCOUPLE 1/8"X4"
X27623-652-00	TYPE E SERIALIZED THERMOCOUPLE 1/4"X4"
13301	FUEL PRESSURE REGULATOR
HPG1	FILTER, Fuel, With Mount Housing
TEI-HPG1-ALT	TEI-HPG1-ALT: FUEL FILTER CANISTER (Replaces FRAM HPG1)
HPGC1	FRAM Replacement Fuel Filter Elements
23682	REMOTE OIL FILTER ADAPTER
SEQIVB-02-02-03	EXHAUST TURN-DOWN PIPE
SEQIVB-02-02-05	EXHAUST BRASS GASKET
SEQIVB-02-02-04	EXHAUST INSULATION WRAP (2 PIECES)
SEQIVB-02-03-01	EXHAUST SAMPLE TUBE
SEQIVB-03-03-02	LOAD CELL ADAPTER
BRD7	SwRI Interface Board Digital, 8Ch Interface Board
PB-16H	SwRI 16 Channel I/O board
SEQIVB-CABLE-01	ACTUATOR ENCODER CABLE
SEQIVB-CABLE-02	AUXILIARY CABLE
SEQIVB-CABLE-03	DYNO CONTROL CABLE
SEQIVB-CABLE-04	THROTTLE CONTROL CABLE
SEQIVB-CABLE-05	ACTUATOR MOTOR CABLE
SEQIVB-CABLE-06	ECPAU POWER CABLE
SEQIVB-CABLE-07	RECEPTACLE BOX CABLE
SEQIVB-CABLE-08	REMOTE BASIC PLUG
SEQIVB-CABLE-09	THROTTLE ACTUATOR CABLE
SEQIVB-CABLE-10	SIERRA FLOW METER CABLE
SEQIVB-CABLE-11	LOAD CELL CABLE
SEQIVB-CABLE-12	MAGNETIC RPM PICK-UP CABLE
SEQIVB-TBC-004	THROTTLE ACTUATOR COVER
SEQIVB-CABLE-13	MICRO-MOTION CABLE
SEQIVB-05-03	ACTUATOR MOUNTING PLATE MOD
ARTHR-2149	1/4" SWGLK QC4 with 1/4" Male End Connector
SS-QC4-B2-4PF	SS, QUICK CONNECT BLKHEAD 1/4"FNPT W/2 Panel Nut**

Item	Description
SS-QC4-B2-400	1/4 SWGLK W/TWO PANEL NUTS (standard config)
329920HPIW	EXHAUST BOLTED CLAMP 2"
E40107	DYNO FLOW SWITCH ADAPTER
E40229	Adaptor for large flow meter SM9000
US0041	Adaptor for small flow meter SM8000
EVC006	CABLE
SM9000	Large flow meter with calibration
SM8000	Small flow meter with calibration
IVB001-5	FLYWHEEL GUARD
08F23C6240A3FPFH7	FUEL SOLENOID VALVE
SEQIVB-HOSE-08-01	Crankcase Ventilation to Flowmeter, 3/8" Tygon S3 B-44-3, 7.25" long, (connects with 3/8" ID Hose Barb, SS, not included)
SEQIVB-HOSE-08-02	Crankcase Ventilation to Trap, 5/8" Tygon S3 B-44, 60" long, (connects with 5/8" ID Hose Barb, SS, not included)
SEQIVB-HOSE-01-01	Chilled Water Return Oil Cooler, Gates LOL, 1/2" ID, Black, 149" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-02	Chilled Water Supply Oil Cooler, Gates LOL, 1/2" ID, Black, 120" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-03	Chilled Water Supply, RAC Research Valve, Gates LOL, 1/2" ID, Black, 60" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-04	Chilled Water Supply, Fuel Research Valve, Gates LOL, 1/2" ID, Black, 60" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-05	Chilled Water Return, RAC Research Valve, Gates LOL, 1/2" ID, Black, 48" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-06	Chilled Water Return, Fuel Research Valve, Gates LOL, 1/2" ID, Black, 48" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-07	Chilled Water Supply, Oil Research Valve, Gates LOL, 1/2" ID, Black, 48" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-01-08	Chilled Water Return, Oil Research Valve, Gates LOL, 1/2" ID, Black, 30" long, (connects with 08 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-02-01	RAC Coolant Supply B, Gates LOL, 3/4" ID, Black, 168" long, (connects with -12 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-02-02	RAC Coolant Supply A, Gates LOL, 3/4" ID, Black, 162" long, (connects with -12 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-02-03	RAC Coolant Return B, Gates LOL, 3/4" ID, Black, 144" long, (connects with -12 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-02-04	RAC Coolant Return A, Gates LOL, 3/4" ID, Black, 138" long, (connects with -12 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-02-05	Dyno Water Supply, Manifold, Gates LOL, 3/4" ID, Black, 30" long, (connects with -12 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-02-06	Dyno Water Return, Manifold, Gates LOL, 3/4" ID, Black, 30" long, (connects with -12 Push On / Female 37° Swivel, Brass, not included)
SEQIVB-HOSE-04-01	Fuel Return, Gates PTFE 1/4" ID, SS Braided, 102" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-02	Exhaust B/P, PEX, Gates PTFE 1/4" ID, SS Braided, 48 " long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-03	Oil Gallery, PLG, Gates PTFE 1/4" ID, SS Braided, 42" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-04	Crankcase, PCK, Gates PTFE 1/4" ID, SS Braided, 36" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-05	Exhaust A, Gates PTFE 1/4" ID, SS Braided, 33" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-06	Exhaust B, Gates PTFE 1/4" ID, SS Braided, 24" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-07	Intake Manifold, PIM, Gates PTFE 1/4" ID, SS Braided, 24" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-08	Intake Air, PIA, Gates PTFE 1/4" ID, SS Braided, 18" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-09	Fuel Rail, PFL, Gates PTFE 1/4" ID, SS Braided, 18" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-10	Fuel Return, Panel, Gates PTFE 1/4" ID, SS Braided, 15" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-04-11	Oil Sampling, Gates PTFE 1/4" ID, SS Braided, 15" long with 04-04 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-05-01	Fuel Supply, Gates PTFE 3/8" ID, SS Braided, 102" long with 06-06 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-05-02	Fuel Rail, Gates PTFE 3/8" ID, SS Braided, 24" long with 06-06 PTFE Crimp,

Item	Description
	SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-05-03	Fuel Supply, Panel, Gates PTFE 3/8" ID, SS Braided, 15" long with 06-06 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-06-01	Oil from Filter, Gates PTFE 1/2" ID, SS Braided, 14" long with 08-08 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-06-02	Oil In, Gates PTFE 1/2" ID, SS Braided, 11" long with 08-08 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-06-03	Oil Out, Gates PTFE 1/2" ID, SS Braided, 9.5" long with 08-08 PTFE Crimp, SAE 37° (JIC) swivels, SS
SEQIVB-HOSE-07-01	Engine Coolant Supply, Eaton Class A Heater hose 1"ID Blue, 144" long, (connects with 1" ID Hose Barb, SS, not included)
SEQIVB-HOSE-07-02	Engine Coolant Return, Eaton Class A Heater hose 1"ID Blue, 132" long, (connects with 1" ID Hose Barb, SS, not included)
SEQIVB-HOSE-07-03	Dyno Water Supply, Eaton Class A Heater hose 1"ID Blue, 16" long, (connects with 1" ID Hose Barb, SS, not included)
SEQIVB-HOSE-07-04	Dyno Water Return, Eaton Class A Heater hose 1"ID Blue, 16" long, (connects with 1" ID Hose Barb, SS, not included)
T-Couple Extension #1	Thermal Couple Extension Cable, 84 inches long, Type E with male and female connectors
T-Couple Extension #2	Thermal Couple Extension Cable, 86 inches long, Type E with male and female connectors
T-Couple Extension #3	Thermal Couple Extension Cable, 64 inches long, Type E with male and female connectors
T-Couple Extension #4	Thermal Couple Extension Cable, 61 inches long, Type E with male and female connectors
T-Couple Extension #5	Thermal Couple Extension Cable, 84 inches long, Type E with male and female connectors
T-Couple Extension #7	Thermal Couple Extension Cable, 86 inches long, Type E with male and female connectors
T-Couple Extension #8	Thermal Couple Extension Cable, 67 inches long, Type E with male and female connectors
T-Couple Extension #11	Thermal Couple Extension Cable, 100 inches long, Type E with male and female connectors
T-Couple Extension #12	Thermal Couple Extension Cable, 100 inches long, Type E with male and female connectors
T-Couple Extension #13	Thermal Couple Extension Cable, 86 inches long, Type E with male and female connectors
T-Couple Extension #15	Thermal Couple Extension Cable, 65 inches long, Type E with male and female connectors
BPO-2288-08-08	1/2" ID, -08 Push On / Female 37° Swivel, Brass
BPO-2288-12-12	3/4" ID, -12 Push On / Female 37° Swivel, Brass
SEQIVB-RCT01	Rocker Cover Table
SMN-5250-U	Flow Switch
B70227	O-Ring for oil filter adaptor (Buna A70)
SEQIVB-02-10-02	Oil Filter Adapter Sleeve Nut
SEQIVB-02-10-01	Oil Filter Adaptor
85472	Oil Separator

^A The motor for this pump may be replaced with any motor rated at 1.5 HP and 3450 r/min.