



## Test Monitoring Center

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Sequence IIF Information Letter 03-1  
Sequence No. 11  
July 18, 2003

***ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.***

TO: Sequence IIF Mailing List

SUBJECT: New Oil Filter  
Revised Front Cover & Oil Filter Housing  
New Dip Stick  
New Solvent Specifications  
Calibrated Flask for Initial Oil Charge Measurement  
ACC Registration Information  
Editorial Corrections

This Information Letter implements action items approved by the Sequence IIF Surveillance Panel. This Information Letter addresses specific parts and procedures pertaining to quality, consistency, performance, and accountability of test parts as part of the ongoing effort by the panel to ensure continual process improvement of the Sequence IIF test.

### New Oil Filter

On May 27, 2003, the Sequence IIF Surveillance Panel Chairman made a motion for unanimous consent to implement the IIFG oil filter, part number OHT3G-057-3, into the Sequence IIF test. The current oil filter is no longer available. No objections to this motion were received by the May 30, 2003, closing date, so the motion passes. These new oil filters are acceptable for use in all Sequence IIF testing started on or after May 30, 2003. A revised Section 10.49.1 and Table A2.1 are attached.

### Revised Front Cover & Oil Filter Housing

At the June 10, 2003 meeting of the Sequence IIF Surveillance Panel, the panel approved a motion to implement the Sequence IIFG Front Cover, part number OHT3G-085-1, and the Sequence IIFG Oil Filter Housing, part number OHT3G-080-1, into Sequence IIF testing. This change is mandatory for all tests started on or after June 30, 2003. A revised Table A2.2 is attached.

### New Dip Stick

At the June 10, 2003 meeting of the Sequence IIF Surveillance Panel, the panel approved a motion to implement the Sequence IIFG Dip Stick, part number OHT3G-064-1, into Sequence IIF testing. This change is mandatory for all tests started on or after June 30, 2003. A revised Table A2.2 and Section A3 are attached.

### New Solvent Specifications

At the June 10, 2003 meeting of the Sequence IIIF Surveillance Panel, the panel approved a motion to require the use of solvent meeting Specification D 235 Type II Class C requirements in the Sequence IIIF test. This change is mandatory in the laboratory by December 31, 2003. A revised Section 7.5.2 is attached.

### Calibrated Flask for Initial Oil Charge Measurement

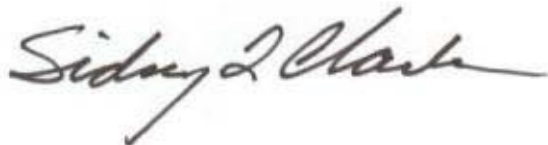
At the June 10, 2003 meeting of the Sequence IIIF Surveillance Panel, the panel approved a motion to require the use of a calibrated flask to measure the initial oil charge volume in the Sequence IIIF test. This change is mandatory for all tests started on or after June 30, 2003. A revised Section 10.49.2 and new Section 10.49.3 are attached.

### ACC Registration Information


On June 20, 2003, a motion for unanimous consent was made to add the ACC Conformance Statement to the Sequence IIIF test procedure for reporting of candidate oil tests. No objections to this motion were received by the June 25, 2003, closing date, so the motion passes. A new Section 14.5 is attached.

### Editorial Corrections

Section 6.10.5 was revised with an editorial correction and is attached. This section references oil cooler and/or oil filter replacement during a test and was revised to reflect the external bypass valve system added as part of Information Letter 02-4.



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Attachment

c: [ftp://ftp.astmtmc.cmu.edu/docs/gas/sequenceiii/procedure\\_and\\_ils/IL03-1.pdf](ftp://ftp.astmtmc.cmu.edu/docs/gas/sequenceiii/procedure_and_ils/IL03-1.pdf)

Distribution: Email

6.10.5 The oil cooler, oil filter, or both may be replaced once per test if the oil filter pressure differential is greater than 100 kPa during test operations or if bypass operation is detected.

7.5.2 Mineral spirits meeting Specification D 235 Type II Class C requirements (see Note 9, 12, & 13).

10.36.1 Install the Oil Filter Housing Assembly, part number OHT3G-080-1, on the engine front cover. Refer to Section 4 Sheet 4 of the Sequence IIIF Engine Assembly Manual.

10.49.1 Install a new oil filter OHT3G-057-3.

10.49.2 Measure the initial fill of 5.50 L (5 qt, 26 oz) of fresh test oil using a flask calibrated to Class A standards<sup>A</sup>.

<sup>A</sup> A 6000mL Erlenmeyer Flask, part number OHT3G-086-1, has been found suitable and is available from the Central Parts Distributor.

10.49.3 Add the initial fill of 5.50 L (5 qt, 26 oz) of fresh test oil through the rocker cover oil fill cap.

14.5 Reporting of Candidate Oil Tests – If the non-reference oil test results are also to be submitted as candidate oil test results to the ACC Test Registration Organization, the report forms and data dictionary that are maintained for reporting reference oil results shall also be used for reporting the candidate oil test results. The ACC Code of Practice Test Laboratory Conformance statement shall also be included.

**Table A2.1 Parts to be replaced every test**

<b>PART DESCRIPTION</b>	<b>PART NUMBER</b>
Arm, Rocker with Pivot Bearing	OHT3F-058-1
BEARING, KIT, ENGINE	OHT3F-042-2
<b>KIT INCLUDES:</b>	
BEARING, CONNECTING ROD, KIT, UPPER AND LOWER, OH-106 ASSY	3F042-01
MAIN BEARING KIT, OH101 ASSY, INCLUDES:	3F042-02
Bearing, Balance Shaft Front (part of 24502388)	SKF6205-2ZNRJEM
BEARING, MAIN, LOWER, #1 AND 3	OH-102
BEARING, MAIN, LOWER, #4	OH-103
BEARING, MAIN, LOWER, FLANGE, #2	OH-104
BEARING, MAIN, UPPER, FLANGE, #2	OH-105
BEARING, CAM BUSHING, POSITIONS 1 & 4	3F028-09
BEARING, CAM BUSHING, POSITIONS 2 & 3	3F028-10
Bolt, Camshaft Sprocket	24501366
Bolt, Cylinder Head, Long	25527831
Bolt, Cylinder Head, Short	25533811
Bolt, Flywheel	24505092
Bolt, Rear Cover Housing	24503970
Bolt, Rocker Arm, Special Test	3F-058-02
Camshaft, Special Test, including Manganese-phosphate coating	OHT3F-008-8
Cap, Valve Spring Retainer	24502257
Chain, Timing	24504668
Clip, Retainer, Piston Pin	OHT3F-012-1
COOLER, OIL, NICKEL PLATED, BYPASS CLOSED	OHT3F-030-2
Damper, Timing Chain (includes bolt, retaining ring)	24503893
FILTER, PRO TEC	OHT3F-057-3
Gasket kit, Intake Manifold lower	12539094
Gasket, Cylinder Head, left	24503802

<b>PART DESCRIPTION</b>	<b>PART NUMBER</b>
Gasket, Cylinder Head, right	24503801
Gasket, Front Cover	24502252
Gasket, Oil Filter Adapter	25534742
Gasket, Oil Pan	24502397
Gasket, Oil Suction Tube	24501259
Gasket, Rear Cover Housing	24507388
Gasket, Rocker Cover	25532619
Gasket, Water Outlet	24502433
Gasket, Water Pump	24501565
Head, Cylinder	24502260
Key, Camshaft Sproket	24500618
Key, Valve Stem Keeper	1016634
Lifter, Test ACI w/Flat (25338738A)	OHT3F-029-3
PIN, PISTON WRIST, PKG. OF 6	OHT3F-014-1
PISTON, TEST, RUNS 1 & 2, GRADE 12	OHT3F-053-1
PISTON, TEST, RUNS 3 & 4, GRADE 34	OHT3F-054-1
PISTON, TEST, RUNS 5 & 6, GRADE 56	OHT3F-055-1
PLATE, CAMSHAFT THRUST, .1520" THICKNESS	OHT3F-011-2
Plug, Engine Block Core Hole	24500867
Plug, Cylinder Head Core Hole	3835577
Plug, Cylinder Head Cup	9427698
Plug, Engine Block, Oil Gallery	24500867
Plug, Ignition Spark	AC R42LTSM
Plunger, Oil Relief	25530949
PUSHROD, SPECIAL LENGTH, PKG. OF 12	OHT3F-007-1
RETAINER CLIP, PISTON PIN PKG. OF 12	OHT3F-012-1
1 EA. RING, PISTON, RUN 1, ENGINE SET	OHT3F-050-RUN1
1 EA. RING, PISTON, RUN 2, ENGINE SET	OHT3F-050-RUN2
1 EA. RING, PISTON, RUN 3, ENGINE SET	OHT3F-051-RUN3
1 EA. RING, PISTON, RUN 4, ENGINE SET	OHT3F-051-RUN4
1 EA. RING, PISTON, RUN 5, ENGINE SET	OHT3F-052-RUN5
1 EA. RING, PISTON, RUN 6, ENGINE SET	OHT3F-052-RUN6
ROCKER ARM ASSEMBLY (Includes: 3F058-02)	OHT3F-058-1
Rod, Connecting	24501696
Seal, Crankshaft Front Oil (Lip Seal)	24504098
Seal, Crankshaft Rear Oil (Lip seal)	25534760
SEAL, EXHAUST VALVE STEM	OHT3F-061-1
SEAL, INTAKE VALVE STEM	OHT3F-060-1
Spring, Oil Relief Valve	1262505
SPRING, VALVE Special Test (COLOR CODE YELLOW)	OHT3F-059-5
Sprocket, Camshaft	24505306
Valve, Exhaust (STD)	24507423
Valve, Intake (STD)	12569550

**Table A2.2 Parts to be replaced as needed**

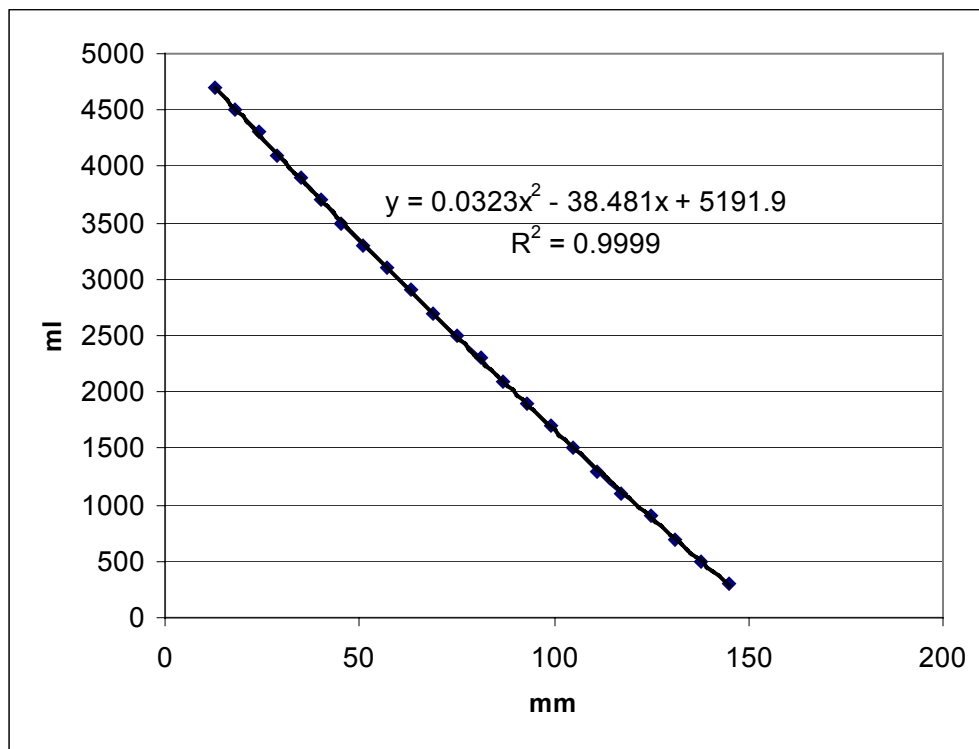
<b>PART DESCRIPTION</b>	<b>PART NUMBER</b>
ADAPTER, BLOWBY BREATHING TUBE	OHT3F-040-1
ADAPTER, OIL FILTER	OHT3F-035-1
Adapter, Throttle Body, Air Inlet	OHT3F-001-2
Balancer, Harmonic	24507058
Bearing, Balance Shaft Front (part of 24502388)	SKF6205-2ZNRJEM

<b>PART DESCRIPTION</b>	<b>PART NUMBER</b>
Block, Engine Assembly	24506028
Bolt / Screw, Thrust Plate retainer	25519242
Bolt, Connecting Rod	25531956
Bolt, Counter Balance Gear	24501367
Bolt, Counter Balance Shaft retainer	24500055
Bolt, Harmonic Balancer	24506341
Bolt, Main Cap	24503056
Bolt, Main Cap, Side	24505576
Bolt, Oil Filter Adapter	24504713
Bolt, Oil Pan	24502791
Bolt, Oil Suction Tube	24505570
Bolt, Rocker Cover W / Washer	25534748
Bolt, Screw Camshaft Sensor	25526395
Bolt, Screw, Oil Gearotor, Cover	25519242
Bolt, Stud Type, Front Cover & Crankshaft Sensor	24504717
Bolt, Upper Intake Long	24505205
Bolt, Upper Intake Short	24506498
Bolt, Upper Intake, Stud	24502453
BRACKET, BREATHER TUBE	OHT3F-041-1
BREATHER TUBE, S.S. MATERIAL	OHT3F-075-1
Bushing, Balance Shaft Rear	24503193
BUSHING, ROCKER COVER	OHT3F-028-1
CONNECTOR, MODIFIED FOR LENGTH, GM PN 24502883	OHT3F-039-2
COVER, FRONT, IMPREGNATED	OHT3G-085-1
Cover, Oil Gearotor	25521935
Cover, Rocker Arm Valve Cover Left Side Plastic	25534753
Crankshaft	34502168
DIP STICK, METRIC, EXTENDED LENGTH	OHT3G-064-1
FITTING, OIL FILTER ADAPTER	OHT3F-043-1
FLYWHEEL, MANUAL, MODIFIED P.N. 24503285	OHT3F-020-2
GASKET, EXHAUST, END PLATE	OHT3F-009-1
GASKET, EXHAUST, FLANGE, METAL	OHT3F-018-1
Gasket, Manifold, Upper Intake	17113137
GASKET, OIL COOLER, PKG. OF 50	OHT3F-074-1
GASKET, OIL FILTER, PKG. OF 50	OHT3F-062-1
Gear, Balanceshaft Drive	24504792
Gear, Balanceshaft Driven	24503524
Gear, Counter Balance Drive	24504792
Gear, Counter Balance Shaft	24503524
Grommet, Rocker Arm Valve cover bolt	25534749
HARNESS, COIL PACK SEGMENT	3F022-2
HARNESS, FUEL INJECTOR SEGMENT	3F022-1
HARNESS, WIRING, DYNO W/ OHT3F-056-1 SENSOR	OHT3F-022-1
HOUSING, ASSEMBLY, BYPASS VALVE	OHT3F-084-1
Injector, Fuel	17120601
Key, Crankshaft	25534912
Magnet, Camshaft Position Sensor	10456195
MANIFOLD, CAST IRON	OHT3F-003-0
MANIFOLD, EXHAUST, WATER COOLED ASSY (ONE BANK)	OHT3F-003-1
<b><u>ASSEMBLY INCLUDES:</u></b>	
1 EA. RUNNER, EXHAUST MANIFOLD	OHT3F-004-1
1 EA. PLATE, REAR, EXHAUST MANIFOLD	OHT3F-005-1

PART DESCRIPTION	PART NUMBER
1 EA. ELBOW, EXHAUST, MODIFIED	OHT3F-005A-1
1 EA. PLATE, FRONT, EXHAUST MANIFOLD	OHT3F-006-1
2 EA. GASKET, EXHAUST, END PLATE	OHT3F-009-1
1 EA. GASKET, EXHAUST, FLANGE, METAL	OHT3F-018-1
Manifold, Lower Intake	24505728
Manifold, Upper Intake	17096162
METER, BLOWBY	RX-116169-A1 REV N
Module, Assembly, Coil Pack	1103948
MOUNT FRONT ENGINE W/ BOLT PATTERN FOR COIL PACK	OHT3F-026-1
MOUNT, REAR ENGINE HOUSING W/ AIR STARTER, MUFFLER & SHIM PACK	OHT3F-025-1
<b>ASSEMBLY INCLUDES:</b>	
STARTER, AIR	3F025-03
MUFFLER, STARTER, AIR	3F025-04
SHIM PACK, STARTER, AIR	3F025-05
MUFFLER, STARTER, AIR	3F025-04
Nut, Throttle Body Fuel Rail Retainer	24506469
Nut, Throttle body Retainer	24506469
OIL FILTER HOUSING ASSEMBLY, NO BYPASS, IMPREGNATED	OHT3G-080-1
OUTLET, COOLANT	OHT3F-034-1
PAN, IIF TEST, NICKEL PLATED	OHT3F-073-1
PCM, SPECIAL	OHT3F-021-1
PCV, DUMMY	OHT3F-002-1
Pin, Cylinder Head Locating	25536320
Pin, Front Cover Lower	25536323
Pin, Front Cover Upper	24501162
Pin, Transmission Locating	12338076
PLATE, EGR BLOCKOFF	OHT3F-024-1
PLATE, FRONT, EXHAUST MANIFOLD	OHT3F-006-1
PLATE, REAR, EXHAUST MANIFOLD	OHT3F-005-1
PLATE, WATER PUMP HOUSING	OHT3F-031-1
Plug, Auto Hex, Socket, (Main Oil Gallery Block Off)	444777
PLUG, DIP STICK	OHT3F-065-1
PLUG, DRAIN, MODIFIED	OHT3F-063-1
Pump, Oil, Gearoter Set	24505433
Rail, Fuel	17113198
Rail, Fuel Injector	17120601
REAMER, DIP STICK AND DIP STICK HOLE PLUG	OHT3F-071-1
Regulator, Fuel Pressure, on Rail	17113346
Retainer, Counter Balance, Timing Chain Oiler	2450055
RUNNER, EXHAUST MANIFOLD	OHT3F-004-1
Screen, Oil pump (w/suction pipe)	24505569
Seal, oil pan drain plug (o ring)	3536966
Sensor, Camshaft Position	10456148
Sensor, MAF	24503983
Sensor, Mass Air Flow (2 Bolt, Use with Throttle Body 24507235)	24503983
Sensor, Mass Air Flow (3 Bolt, Use with Throttle Body 24507230)	24504302
SENSOR, MODIFIED COOLANT TEMPERATURE	OHT3F-056-1
Shaft Assembly, Counter Balance	24502388
Shield, Crankshaft Position Sensor	24506440
SHIM PACK, STARTER, AIR	3F025-05
SHIM, STEEL, .005" THICK, 10 PER PKG.	OHT3F-072-005
SHIM, STEEL, .010" THICK, 10 PER PKG.	OHT3F-072-010

PART DESCRIPTION	PART NUMBER
SHIM, STEEL, .015" THICK, 10 PER PKG.	OHT3F-072-015
SHIM, STEEL, .020" THICK, 10 PER PKG.	OHT3F-072-020
SHIM, STEEL, .031" THICK, 10 PER PKG.	OHT3F-072-031
SLEEVE, VALVE STEM PROTECTORS (PKG. OF 100)	OHT3F-070-1
SPROCKET, CRANKSHAFT, SPECIAL 2 PC	OHT3F-036-1
STARTER, AIR	3F025-03
Throttle Body (2 Bolt Mass Air Flow Sensor)	24507235
Throttle Body (3 Bolt Mass Air Flow Sensor)	24504302
TOOL, CAMSHAFT BUSHING INSTALLATION	OHT3F-019-2
TOOL, OIL PUMP PRIMER	OHT3F-038-1

### A3. Sequence IIF Engine Oil Dipstick Calibration Curve



### OHT3G064-1 DIPSTICK, METRIC, EXTENDED LENGTH

DATE: 04/30/2003

<u>mm</u>	<u>ml</u>	-	<u>mm</u>	<u>ml</u>	-	<u>mm</u>	<u>ml</u>
1	5153		51	3313		101	1635
2	5115		52	3278		102	1603
3	5077		53	3243		103	1571
4	5038		54	3208		104	1539
5	5000		55	3173		105	1508
6	4962		56	3138		106	1476

7	4924	57	3103	107	1444
8	4886	58	3069	108	1413
9	4848	59	3034	109	1381
10	4810	60	2999	110	1350
11	4773	61	2965	111	1318
12	4735	62	2930	112	1287
13	4697	63	2896	113	1256
14	4659	64	2861	114	1225
15	4622	65	2827	115	1194
16	4584	66	2793	116	1163
17	4547	67	2759	117	1132
18	4510	68	2725	118	1101
19	4472	69	2690	119	1070
20	4435	70	2657	120	1039
21	4398	71	2623	121	1009
22	4361	72	2589	122	978
23	4324	73	2555	123	947
24	4287	74	2521	124	917
25	4250	75	2488	125	886
26	4213	76	2454	126	856
27	4176	77	2420	127	826
28	4140	78	2387	128	796
29	4103	79	2353	129	765
30	4067	80	2320	130	735
31	4030	81	2287	131	705
32	3994	82	2254	132	675
33	3957	83	2220	133	645
34	3921	84	2187	134	615
35	3885	85	2154	135	586
36	3848	86	2121	136	556
37	3812	87	2089	137	526
38	3776	88	2056	138	497
39	3740	89	2023	139	467
40	3704	90	1990	140	438
41	3668	91	1958	141	408
42	3633	92	1925	142	379
43	3597	93	1893	143	350
44	3561	94	1860	144	320
45	3526	95	1828	145	291
46	3490	96	1795	146	262
47	3455	97	1763	147	233
48	3419	98	1731	148	204
49	3384	99	1699	149	175
50	3349	100	1667	150	146