

 Go Further				Project validation plan				Responsible Validation		SOGEFI NAFTA laboratory			
FORD MOTOR COMPANY		Program:		XFC 233 - 18522 3 PORTS FINE FILTER, MY23, P708 Filter PC34-9150-AA				Creation Date		25-Mar-22			
Validation plan		New Rib Design Cover and Bowl Part Thickness (18522-100 +18522-119)		FORD Scorpion fine filter - Diesel fuel filter - Production				Revision date		6-Mar-24			
Test method		SPECIFICATION		Acceptance Criteria		PLANING			Results		Status		
						Resp. Start date Completed Samples TYPE			PASS/FAIL		Remarks/Action plan		
Tests requirements													
Initial efficiency and Lifetime Capacity		Per ISO 19438 Q: 280 LPH T: 23C Dust: ISO ultra fine (UFTD) @6.2 mg/l Final dP: Initial dP +70kPa Efficiency: To be measured at 4µm, 5µm and 10µm		No detectable loss in efficiency permitted, 9150-AA vs. 9150-AB Capacity ≥ 3.65g		SOGEFI		5/1/2023 5/22/2023 3 Production		See Report: 26545A1 ISO 19438-A1, -A2 and -A3 Retained Capacity: Sample 1 = 4.3gr Sample 2 = 3.8gr Sample 3 = 3.8gr		PASS PV1 - RHTC OTS2 Bowl OTS2 Cover	
Pressure Drop		ISO 4020 Q: 280 LPH T: 23C		No detectable change in pressure drop 9150-AA vs. 9150-AB		SOGEFI		5/4/2023 5/22/2023 3 Production		See Report: 26545B ISO 4020 Flow Pressure drop (kPa) @ 280L/h Sample 1: 19.4 Sample 2: 18.7 Sample 3: 17.4		PASS PV1 - RHTC OTS2 Bowl OTS2 Cover	
Pressure cycling test		Per FORD ES CUSA-9G282-AD Spec- 3.1.4.5 according to ISO 4020 Test fuel: Oil Flow rate: Rated flow (End of life HOT max flow condition) Pressure: 700kPa relative or 1.5x system Pump rated pressure and approved by Ford SME (whichever is lower) T: 90C +/- 5C Pressure cycling: 0-7 bar +/- 0.2 relative (.3Hz) 100K Cycles Minimum ADS (Assisted Direct Start) to 300k (non-commercial); 600k cycles commercial		No leaks, deforma ion, functional degradation or failures prior to 100,000 cycles. Test to failure Calculate LogNormal B10 lifecycle (FIO)		SOGEFI		7/26/2023 8/1/2023 18 Production		See Report: L21521P2-111-002		PASS PV2 - RHTC (thinner bowl, undersized OD SAE ports for Cover as worst case condition for PPAP) OTS3 parts	
								10/9/2023 10/23/2023 16 Production		See Report L2152P1-113		FAIL PV3 - RHTC (After PPAP just for confirmation) OTS4 Bowl OTS3 Cover The weld between the bowls and covers was found to be insufficient due to the bowls material moisture content not being within specification before the molding process. Full details can be found in the 8D report: New Design 3 port PV Failure 11-6-2023.pdf	
								10/30/2023 11/15/2023 12 Production		See Report: L21521P2-114		PASS PV3 - RHTC OTS4 Bowl (after identifying and fixing bowl moisture issue) OTS3 Cover Testing with correctly processed bowls were rerun, see line 11, test report L21521P2-114	
QC Port Sideload test		PER FORD ESCUSA-9G282-AB spec - 3.8.8 Test is to be conducted at 23°C, with loads applied at each of +X/-X/+Y/-Y directions.		Max Strength > 200 N		SOGEFI		5/15/2023 5/19/2023 16 2/direction/port/c over cavity Production		See Report: L21521P1-114 All Parts passed		PASS PV1 - RHTC OTS2 Bowl OTS2 Cover	
QC Port Sideload test		PER FORD ESCUSA-9G282-AB spec - 3.8.8 Test is to be conducted at 23°C, with loads applied at each of +X/-X/+Y/-Y directions.		Max Strength > 200 N		SOGEFI		5/15/2023 5/19/2023 16 1/direction/port/c over cavity Production		L21521P2-116 – QC PORT SIDE LOAD (RE-TOOL)		PASS PV1 - RHTC OTS4 Bowl OTS4 Cover	
QC Port Axial Pullout test		PER FORD ESCUSA-9G282-AB spec - 3.8.7 Test is to be conducted at 23°C, with loads applied axially		Max Strength > 450 N		SOGEFI		5/15/2023 5/19/2023 8 2/port/c over cavity Production		See Report: L21521P1-115 All Parts passed		PASS PV1 - RHTC OTS2 Bowl OTS2 Cover	
QC Port Axial Pullout test		PER FORD ESCUSA-9G282-AB spec - 3.8.7 Test is to be conducted at 23°C, with loads applied axially		Max Strength > 450 N		SOGEFI		2/1/2024 2/5/2024 8 2/port/c over cavity Production		L21521P2-117 – QC PORT AXIAL PULL OUT (RE-TOOL)		PASS PV1 - RHTC OTS4 Bowl OTS4 Cover	
Burst test		PER FORD ESCUSA-9G282-AB spec - 3.8.9 Test is to be conducted at 23°C and on the pressure side of the module.		Burst pressure > 14.25 Bar.		SOGEFI		6/19/2023 6/26/2023 125 32/cover cavity 16/bowl cavity 16/weld nest Production		Burst Test Results - Sep-29-2023.Pdf		PASS PV2 - Prichard OTS3 parts	
								2/11/2024 2/16/2024 125 32/cover cavity 16/bowl cavity 16/weld nest Production		PC34-9T329-AA Stat Cap Burst 2-16-2024.pdf		PASS PV1 - Prichard OTS4 Bowl OTS4 Cover	
Initial Cleanliness		Test Procedure: Seal Filter end caps in test rig Total test fluid: 3 extractions totalling 3L Particle collection: 1.2 µm white membrane Leica Microscope + Optical image analyzer		Max amount allowed particles: For particles between 50 - 100 µm 350 For particles between 100 - 200 µm 90 For particles between 200 - 400 µm 5 For particles between > 400 µm 0		SOGEFI		5/18/2023 5/23/2023 3 Production		See Report: Fine Filter Clean Test P1 Rev 1, P2 Rev 1 and P3 Rev1 All parts passed		PASS PV1 - Prichard OTS2 Bowl OTS2 Cover	
Installation/Removal Torque		Measure the torque applied to the Fuel filter required to unlock the fuel filter from bracket		Record and report data		SOGEFI		7/20/2023 7/27/2023 24 3/bowl cavity Production		Rotational Torque from Locking Position New design Module 10-18-2023.pdf		PASS PV3 - RHTC OTS4 Bowl OTS3 Cover	
								7/12/2023 7/20/2023 182 46/cover cavity 23/bowl cavity Production		PC34-9150-AA Leak Test Results - Sep-25-2023.pdf		PASS PV3 - Prichard OTS4 Bowl OTS3 Cover	

Production run and leak check under 7 bar of pressure	Per FORD LC34-9150-AB drawing	s8 sccm	SOGEFI	1/8/2024	2/8/2024	75	Production	Leak Test Results - Feb-8-2024.pdf	PASS	PV1 - Prichard OTS4 Bowl OTS4 Cover
Electrostatic Discharge	PER FORD ESCUSA-9G282-AD spec - 3.5.2	The electrical resistance between the component & vehicle should not exceed 10E8 ohms. At a component level, the resistance shall not exceed 10E6 ohms.	SOGEFI	5/17/2023	5/19/2023	1/cavity	Production	See Report: PC34-9150-AA Ford Fine Filter - Conductivity Report 20230518.pdf All parts < 10 ⁹	PASS	PV1 - Prichard OTS2 Bowl OTS2 Cover
Thermal Shock Resistance (extreme temperatures)	PER FORD ESCUSA-9G282-AD spec - 3.6.4 	No cracks on part Pass Leak Test	SOGEFI	6/19/2023	7/12/2023	24 6/cover cavity 3/bowl cavity	Production	See Report: L21521P2-112-002	PASS	PV2 - RHTC OTS3 parts
Assembly Effort	Per SAE J2044 6.2 Max Effort 67N for small port Max Effort 156N for large ports		SOGEFI	2/1/2024	2/21/2024	4 Full Assemblies with Ford Supplied connectors (1 from each of the 4 cav/ies)	Production	L21521P2-118 – ASSEMBLY EFFORT	PASS	PV1 - RHTC OTS4 Bowl OTS4 Cover
Disassembly (service) Effort	Evaluate hat connectors were removable		SOGEFI	2/1/2024	2/21/2024	Same parts from Assembly effort test	Production	L21521P2-119 – DISASSEMBLY EFFORT	PASS	PV1 - RHTC OTS4 Bowl OTS4 Cover
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