
 Engine Division		ENGINE DIVISION	WORK CENTER / STG / SUB STG NO	ENGINE MODEL / APPLICATION	STG / SUB STG DESCRIPTION	OPERATIONS DESCRIPTION						
		PROCESS SHEET	294901	ALL MODELS (FOR ENGINES TO BE FITTED ON ORIGINAL EQUIPMENT)		PRIMER COATING						


OPR NO.	OPERATION DESCRIPTION	SSA CODE	AS	IND	PARTS ASSEMBLED			QTY	TORQUE IN Kgm	TOOL/FIXTURE		INSPECTION	AMEND MENT
	SUB ASSEMBLY / MOUNTING				PART DESCN.	PART NO.	BEML P/N			DESCRIPTION	NUMBER		
010	<p>NOTE: Cleaning of engine.(Engine will be received in washed condition at final assy shop). Primer coating of engine shall be carried out after final testing & final assembly of engines.However 'Muffler' will be assembled only after primer painting.</p> <p>PREPARATION OF PRIMER COATING:</p> <p>1. Masking of parts not requiring primer coating. Following parts shall be masked using polythene sheets.</p> <ul style="list-style-type: none"> - All hoses. - Blowby tube. - Lub oil filter catridges,Fuel filter, Water seperator, Centrifugal oil filter - Alternator belts and fan belts. - Starter motor assembly. - Hour meter / Service meter. - APS (Auto Priming System) wiring socket. - APS Fuel Shut off valve handle. - Thermostat housing air vent elbow. - All Sensors (on Water manifold,Lube oil filter,Oil pan,Main gallery & FWH) <p>2. Masking of parts/areas by grease application</p> <ul style="list-style-type: none"> - All name plates - Air cleaner rubber beading - APS rubber boot <p>3. Closing of ports & machined surfaces by plastic caps should be ensured in the following order.</p> <ul style="list-style-type: none"> - Air cleaner duct - Turbo charger / Exhaust Outlet - Water pump inlet & outlet - Oil cooler inlet - Thermo housing Outlet. - PTO Oil charging point - Flywheel housing outside machined surface. 												

REF :												
APPROVED BY									PROCESS SHEET NO.	PS-PC-010	TOTAL TIME	
CHECKED BY									ISSUE STATUS	01	SETUP TIME	
PREPARED BY									SHEET NO.	1 OF 3		
	SIGNATURE	DATE	AMEND.NO.	APPROVED BY	DATE	AMEND.NO.	APPROVED BY	DATE				

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	SUB ASSEMBLY / MOUNTING				PART DESCPN.	PART NO.	BEML P/N			DESCRIPTION	NUMBER		
020	<u>PROCEDURE FOR PRIMER COATING</u> - Primer paint to be used shall be polyurethane zinc phosphate primer-golden yellow as per company standard C6001-53 (Latest issue). - Mix the base and hardener thoroughly in the manufacturer recommended ratio i.e. 4:1 (by Vol). Mixture must be free from setting. Allow 30 min for curing. - Mix the primer after adding thinner to company standard C6001-47 (latest issue) thoroughly. - Viscosity of the mixture shall be 25 - 30 sec. (Ratio of primer to thinner is 4:1 by volume) Ensure the following while application of primer: - Spray pressure of 2.5 Kg/Sq cm. - Spray gun operating speed of 40 cm/s. - Distance between Gun and specimen 200 - 250 mm (approx) For application of primer, refer company standard PR1031-C & PR1006-C - Spray paint the engine in the painting booth to have a dry film thickness of 30 - 40 microns as per std PR1031-C & PR1006-C (latest issue). - Allow the primer to dry as mentioned below, Drying time : Surface Drying - 20 to 40 minutes, hard dry - 8 hours max. Note: Refer Process Qualifying and monitoring sheet PQ-PS-P-20/21 for process monitoring parameters and qualifying of the process.												


REF :												
APPROVED BY									PROCESS SHEET NO.	PS-PC-010	TOTAL TIME	
CHECKED BY									ISSUE STATUS	01	SETUP TIME	
PREPARED BY									SHEET NO.	2 OF 3		
	SIGNATURE	DATE	AMEND.NO.	APPROVED BY	DATE	AMEND.NO.	APPROVED BY	DATE				

 Engine Division	ENGINE DIVISION	WORK CENTER / STG / SUB STG NO	ENGINE MODEL / APPLICATION	STG / SUB STG DESCRIPTION	OPERATIONS DESCRIPTION							
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030	DEMASKING - Demask all polythene and grease covered parts. (Note: Retain Plastic caps as they are on the engine) - Apply red paint on grease nipples, oil filler cap, dipstick gauge head, oil drain plug & water drain plug using brush after wiping with suitable degreasing agent. - Cover the complete engine with Polythene cover.												


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APPROVED BY									PROCESS SHEET NO.	PS-PC-010	TOTAL TIME	
CHECKED BY									ISSUE STATUS	01	SETUP TIME	
PREPARED BY									SHEET NO.	3 OF 3		
	SIGNATURE	DATE	AMEND.NO.	APPROVED BY	DATE	AMEND.NO.	APPROVED BY	DATE				

 Engine Division		ENGINE DIVISION	WORK CENTER / STG / SUB STG NO	ENGINE MODEL / APPLICATION	STG / SUB STG DESCRIPTION	OPERATIONS DESCRIPTION						
		PROCESS SHEET	294901	ALL MODELS (FOR ENGINES TO BE SUPPLIED TO MKTG & FLOAT ENGINES)		PRIMER & FINISH PAINTING						


OPR NO.	OPERATION DESCRIPTION	SSA CODE	AS	IND	PARTS ASSEMBLED			QTY	TORQUE IN Kgm	TOOL/FIXTURE		INSPECTION	AMEND MENT
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010	<p>NOTE: Cleaning of engine.(Engine will be received in washed condition at final assy shop). Primer coating of engine shall be carried out after final testing & final assembly of engines.However 'Muffler' will be assembled only after primer painting.</p> <p>PREPARATION OF PRIMER COATING:</p> <p>1. Masking of parts not requiring primer coating. Following parts shall be masked using polythene sheets.</p> <ul style="list-style-type: none"> - All hoses. - Blowby tube. - Lub oil filter catridges,Fuel filter, Water seperator, Centrifugal oil filter - Alternator belts and fan belts. - Starter motor assembly. - Hour meter / Service meter. - APS (Auto Priming System) wiring socket. - APS Fuel Shut off valve handle. - Thermostat housing air vent elbow. - All Sensors (on Water manifold,Lube oil filter,Oil pan,Main gallery & FWH) <p>2. Masking of parts/areas by grease application</p> <ul style="list-style-type: none"> - All name plates - Air cleaner rubber beading - APS rubber boot <p>3. Closing of ports & machined surfaces by plastic caps should be ensured in the following order.</p> <ul style="list-style-type: none"> - Air cleaner duct - Turbo charger / Exhaust Outlet - Water pump inlet & outlet - Oil cooler inlet - Thermo housing Outlet. - PTO Oil charging point - Flywheel housing outside machined surface. 												

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CHECKED BY									ISSUE STATUS	01	SETUP TIME	
PREPARED BY									SHEET NO.	1 OF 4		
	SIGNATURE	DATE	AMEND.NO.	APPROVED BY	DATE	AMEND.NO.	APPROVED BY	DATE				

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		PROCESS SHEET	294901	ALL MODELS (FOR ENGINES TO BE SUPPLIED TO MKTG & FLOAT ENGINES)		PRIMER & FINISH PAINTING							


OPR NO.	OPERATION DESCRIPTION	SSA CODE	AS	IND	PARTS ASSEMBLED			QTY	TORQUE IN Kgm	TOOL/FIXTURE		INSPECTION	AMEND MENT
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020	<u>PROCEDURE FOR PRIMER COATING</u> - Primer paint to be used shall be polyurethane zinc phosphate primer-golden yellow as per company standard C6001-53 (Latest issue). - Mix the base and hardener thoroughly in the manufacturer recommended ratio i.e. 4:1 (by Vol). Mixture must be free from setting. Allow 30 min for curing. - Mix the primer after adding thinner to company standard C6001-47 (latest issue) thoroughly. - Viscosity of the mixture shall be 25 - 30 sec. (Ratio of primer to thinner is 4:1 by volume) Ensure the following while application of primer: - Spray pressure of 2.5 Kg/Sq cm. - Spray gun operating speed of 40 cm/s. - Distance between Gun and specimen 200 - 250 mm (approx) For application of primer, refer company standard PR1031-C & PR1006-C - Spray paint the engine in the painting booth to have a dry film thickness of 30 - 40 microns as per std PR1031-C & PR1006-C (latest issue). - Allow the primer to dry as mentioned below, Drying time : Surface Drying - 20 to 40 minutes, hard dry - 8 hours max. Note: Refer Process Qualifying and monitoring sheet PQ-PS-P-20/21 for process monitoring parameters and qualifying of the process.												

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	SUB ASSEMBLY / MOUNTING				PART DESCPN.	PART NO.	BEML P/N			DESCRIPTION	NUMBER		
030	<u>PROCEDURE FOR FINISH PAINTING:</u> - Finish paint to be used shall be Poyurethane Finish paint - Golden yellow company standard C6001-45 (latest issue). - Mix the base & Hardener thoroughly in the manufacturer recommended ratio of 4:1 (by vol). Allow it for 30 mins for curing. - Mix the paint after adding thinner to company standard C6001-47 (latest issue) thoroughly. - Viscosity of the mixture shall be 25-30 sec. Ratio of paint to thinner = 4:1 (by Volume). - Use the mix within 2 hours.(Pot life of mix is only 2 hours). Ensure the following while application of finish paint: - Spray pressure of 2.5 Kg/Sq cm. - Spray Gun operating speed 40 cm/s. - Distance between Gun and specimen 200 - 250 mm (approx). For application of finish paint, refer company standard PR1032-C & PR1006-C. - Spray paint the engine in the painting booth to have a dry film thickness of 30-40 microns. - Allow the paint to dry as below: Surface Dry - 20 to 40 minutes & Hard dry - 8 hours max. Note: Refer Process Qualifying and Monitoring Sheet PQ-PS-P-020/030 for process monitoring parameters & qualifying of the process.												

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040	DEMASKING - Demask all polythene and grease covered parts. (Note: Retain Plastic caps as they are on the engine) - Apply red paint on grease nipples, oil filler cap, dipstick gauge head, oil drain plug & water drain plug using brush after wiping with suitable degreasing agent. - Cover the complete engine with Polythene cover.																
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