



PRODUCT INFORMATION
IO-C-M-00-001e

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DEFERRED START-UP ENGINE INSPECTION AND PROTECTION

G18-317 U&M 19.09.271_03_2015

1. INTRODUCTION

The deferred start-up status aims to keep GUASCOR's Basic Warranty valid for any new engine that is going to be stored for more than 6 months from factory dispatch before its initial start-up.

KOHLER will grant the deferred start-up status to an engine if all of KOHLER requirements as specified in this Product Information Sheet are met.

2. DEFERRED START-UP STATUS APPLICATION REQUIREMENTS

When planning to store a new engine for more than 6 months, the owner shall apply to KOHLER for the deferred start-up status. In this event, KOHLER authorised staff shall inspect and protect the engine fulfilling all the herein defined obligations.

An engine subject to deferred start-up shall be put into operation within the next 12 months from the date of being recognised the deferred start-up status.

KOHLER will accept a maximum of two requests for deferred start-up status, the second application having to be filed no more than 12 months after the first inspection and protection of the engine provided however that the first request had been made.

As a result of said deferred start-up status, the initial start-up of an engine may occur up to 30 months after the date of dispatch from factory, with GUASCOR's Basic Warranty remaining valid. The total storage and warranty period shall by no means exceed 42 months from the date the equipment is at the customer's disposal.

If an engine is tested after dispatch from factory and is not started at the operating site within one month from said testing, then it will be necessary to protect it and to apply for deferred start-up status in order to withhold its warranty; it will be further requisite to renew said protection once a year.

Engines stored at the mercy of the elements or in humid or corrosive atmospheres may need protections and inspections more often than specified herein. In those events, consult KOHLER.

Since the deferred start-up status is no extension of the standard Basic Warranty, there is no cost charged for it, except for the costs of the inspection made and protective lube oil used by the Authorised Technical Service Workshop.

The Basic Warranty will become effective from the engine start-up date, provided that the duly filled start-up report is submitted within thirty days from said start-up, the requests for deferred start-up status had been filed and the protections implemented. If the owner did not apply for the deferred start-up status, the warranty period will not be extended as stated in this section.

3. RELATED DOCUMENTS

- GLPI_09 KOHLER Limited Warranty for Industrial Products
- GLPM_09 KOHLER Limited Warranty for Marine Products

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4. CONDITION OF ENGINES SUBJECT TO DEFERRED START-UP

At the time Customer applies for the deferred start-up status, the engine can be in any of these conditions: stored in its original packaging; unpacked and stored under conditions differing from the original ones, or mounted on the Customer's equipment.

- If **packed in its original packaging**, the engine shall be inspected and protected by the Workshop according to the instructions contained in this Product Information Sheet.
- When the engine is **unpacked and stored in conditions differing from the original ones**, the Workshop shall inspect the engine in order to assess its storage conditions and shall pack the engine again in original packaging in order to ensure a good state of preservation. Such inspection, protection and packaging of the engine shall conform to these specifications.
- In the event of the engine being **mounted on the Customer's equipment, but not put into operation**, the Workshop shall inspect, protect and pack the engine as specified herein.



If the engine exhaust is piped to the outside, the Workshop shall check to ensure these connections are perfectly sealed, impeding rainwater from getting inside the engine and causing serious damage to it.

- In the event of the engine having been **started up and its commissioning being incomplete** and not expected to be completed at once (within one to six or more months), the Workshop shall recommend that Customer should start the engine periodically (weekly) and operate it at least for one hour, idling or on low load. In addition to the items described in this Product Information Sheet, the following points shall be checked during the engine inspection:
 - Draining of cooling circuits
 - Oil and coolant levels and pressures
 - Air filters
 - Starter motor
 - Unusual noise during operation
 - Draining of condensates or water ingress from exhaust system
 - Repair of fuel, coolant or lube oil leaks, if any.

Finally, the Workshop shall protect the engine according to the specifications contained in this document.

5. DEFERRED START-UP ENGINE INSPECTION

The Authorised Technical Service Workshop shall inspect the equipment in accordance with the following guidelines, recording findings and results on form G-19-31 "Deferred Start-up Engine Inspection".

Engine inspection comprises the following steps:

- Check **packaging and protection** of the engine as per document IM-C-C-00-001e and record whether the engine has been installed and whether it has been started but not completely commissioned.
- **Turn the engine by hand** to check that it rotates freely and has not seized up.
- Inspect the unpainted machined surfaces for rust. Also, check to see if all inlets and outlets of the engine (such as pump elbows, exhaust fume ducts, etc.) are adequately sealed and whether there is any part of the engine missing. If you observed any defect or fault, report on the condition of the equipment.
- Remove all the **rocker arms covers**. Check pushrods, rocker arms, adjusting screws, valve springs for rust, corrosion or contamination. If you observed any defect or fault, report on the condition of the equipment.

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- Boroscope the **combustion chambers** of all the engine cylinders to see if there is water or moisture inside. Also, check the cylinder liners or walls, cylinder head firing deck and valves for rust. If you observed any defect or fault, report on the condition of the equipment.
- Remove the covers from the **exhaust manifold** (water-cooled exhaust manifold) and from the **intake manifold**. Check to see if there is moisture or corrosion inside. If you observed any defect or fault, report on the condition of the equipment.
- Remove the **camshaft** covers. Inspect camshafts and auxiliary rocker arms for moisture or rust. If you observed any defect or fault, report on the condition of the equipment.
- Remove the **crankshaft** covers. Inspect crankshaft, connecting rods, main bearing caps and crankcase for moisture or rust. If you observed any defect or fault, report on the condition of the equipment.
- Remove the inspection covers from the **gear covers** (front and rear). Check the timing gears for moisture or rust. If you observed any defect or fault, report on the condition of the equipment.
- Check **turbochargers** to see if their shafts rotate freely, if there is any blade damaged and if the axial bearings are correctly lubricated. If you observed any defect or fault, report on the condition of the equipment.
- Check the **water pumps** of the engine to determine whether they rotate freely and their belts (in the case of belt-driven pumps) are in good condition. If you observed any defect or fault, report on the condition of the equipment.
- Check the **injectors (jets)** of the engine to make sure they inject fuel correctly. If you observed any defect or fault, report on the condition of the equipment.
- Inspect **wiring and electric and electronic devices** (e.g. pickups, connectors, coils, HV leads, actuators, etc.) to see if they are rusty, if they are adequately protected, if leads are coiled and packed in plastic bags. If you observed any defect or fault, report on the condition of the equipment.

Record all findings and results on form G-19-31 "Deferred Start-up Engine Inspection" included at the end of this document.

6. DEFERRED START-UP ENGINE PROTECTION

The Authorised Technical Service Workshop, after checking the equipment, shall protect or preserve it in accordance with the following guidelines.



For engine protection, use only **KOHLER MOTOROIL PROTECTOR**.



The recommended protector contains oil distillates. Read the Material Safety Datasheet before use.

- Spray KOHLER MOTOROIL PROTECTOR inside all of the **rocker arms covers** while turning the engine manually. Apply said protector to push rods, rocker arms, adjusting screws and valve springs.
- Spray KOHLER MOTOROIL PROTECTOR inside the **combustion chambers** through the jet or spark plug housings while turning the engine manually. Spray when the piston is at TDC.

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- Before starting up engines that have been protected this way (especially gas engines), it will be necessary to inspect the combustion chambers and drain waste protective oil.
- Dry the inside of the **exhaust manifold** and the **camshaft** housing, if found humid during inspection. Spray KOHLER MOTOROIL PROTECTOR on the camshaft and, only in case of humidity, into the exhaust manifold.
 - Spray a thin coat of TECTYL 506 or similar rust-preventive oil on the **unpainted machined surfaces** that will remain exposed, out of the engine (such as, for instance, the flywheel, etc.).
 - Hermetically seal all the flanged elbows or inlet and outlet ports of the **intake, exhaust, cooling and lubricating** systems with plastic, rubber or similar plugs or films.
 - Apply KOHLER MOTOROIL PROTECTOR with a brush to the **control linkage and ball joints**.
 - Fit the **electric and electronic components** with connectors, protectors and caps, if missing. Put **all leads and cables** in plastic bags. Also, apply TECTYL 506 or any similar substance to any components showing signs of rust damage.

7. PACKING OF DEFERRED START-UP ENGINES

These instructions apply to engines with damaged packaging or unpacked. Packing deferred start-up engines implies the steps that follow.

- Spread **bags of desiccant** evenly over the surface to be packed. The number of bags will be proportional to the volume of the package.
- Cover the engine with **heat-shrinkable plastic film** and heat-seal it. Protect all sharp edges to prevent damage to the plastic film. The wrapping must cover the machine entirely and be sealed at the bottom.
- The wrapping must enable lifting the engine without breaking; for this purpose, make **holes** in the wrapping as follows. In the event of 6 or 12-cylinder engines, make two holes on both sides and one hole at each end; in the event of 8 or 16-cylinder engines, make three holes on both sides and one hole at each end. Additionally, the wrapping must have a **window** to gain access to the engine **nameplate**.
- Write the date inspected, protected and packed on the engine's packaging sticker.

8. APPLICABLE FORMS

Form G-19-31 – Deferred Start-up Engine Inspection


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	INSPECCIÓN DE MOTORES PARA ARRANQUE DIFERIDO <i>DEFERRED START-UP ENGINE INSPECTION</i>		Doc.: G-19-31 Rev.: 3 Asistencia Técnica <i>Technical Assistance</i> Página 1 de 2 / Page 1 of 2
	Modelo motor: <i>Engine Model</i>	Nº serie: <i>Serial Number</i>	Fecha Suministro: <i>Delivery date</i>
Datos del Cliente / Customer data			
Empresa: <i>Company</i>		Persona de contacto: <i>Key person</i>	
Dirección: <i>Address</i>			
Localidad: <i>City</i>		País: <i>Country</i>	
Teléfono: <i>Phone number</i>	Fax: <i>Fax number</i>	E-mail: <i>E-mail</i>	
Inspección del Motor / Engine Inspection			
0. Instalación del motor <i>Engine installation</i> ¿Esta montado en la instalación? <input type="checkbox"/> ¿Está arrancado sin terminar Puesta en Marcha? <input type="checkbox"/> <i>Is it assembled in the installation or vessel? Has it been started up without finishing the commissioning?</i>			
1. Embalaje y preparación del motor de fábrica <i>Engine factory packaging and protection</i> ¿Está embalado según IM-C-C-00-001? <input type="checkbox"/> ¿Está protegido según IM-C-C-00-001? <input type="checkbox"/> <i>Is the engine packed according to IM-C-C-00-001? Is the engine preserved according to IM-C-C-00-001?</i> En la operación de virado, ¿Gira el motor libremente sin esfuerzo anormal? <input type="checkbox"/> <i>In the engine manual rotation operation, does the engine rotate freely without abnormal effort?</i> En caso negativo, explicar el estado: <input type="checkbox"/> <i>If not, explain the status:</i> ¿Están las superficies metálicas no pintadas oxidadas? <input type="checkbox"/> ¿Faltan piezas del motor? <input type="checkbox"/> <i>Are the non painted machined surfaces rusted? Are there any part missing from the engine?</i> ¿Faltan los sellos o cerramientos de cualquier parte abierta del motor (incluidos escapes)? <input type="checkbox"/> <i>Is there any engine seal or duct closing devices missing (included exhaust fumes outlet)?</i> En caso afirmativo, explicar el estado: <input type="checkbox"/> <i>If yes, explain the status:</i>			
2. Desmontar las Tapas de Balancines <i>Remove Rocker Arms Covers</i> Verificar los siguientes componentes en busca de oxidación o corrosión (indicar estado de los componentes) <i>Check for oxidation or rust in the following components (indicate component conditions)</i> <input type="checkbox"/> Empujadores y varillas <input type="checkbox"/> Balancines <input type="checkbox"/> Tornillos reglaje <input type="checkbox"/> Muelles de válvula <i>Push rods and pushers Rocker Arms Valve lash adjustment screws Valve springs</i> En caso afirmativo, explicar el estado: <input type="checkbox"/> <i>If yes, explain the status:</i>			
3. Revisar con endoscopio las cámaras de combustión <i>Boroscope combustion chambers (cylinders)</i> Verificar los siguientes componentes en busca de oxidación o corrosión (indicar estado de los componentes) <i>Check for oxidation or rust in the following components (indicate component conditions)</i> <input type="checkbox"/> Paredes camisas cilindro <input type="checkbox"/> Cara de fuego de la culata <input type="checkbox"/> Válvulas <i>Cylinder liner or Cylinder walls Cylinder Head Firing Deck Valves</i> En caso afirmativo, explicar el estado: <input type="checkbox"/> <i>If yes, explain the status:</i>			
4. Desmontar las Tapas del Colector de Escape (refrigerado) y del Colector de Admisión <i>Remove the Exhaust Manifold Covers (Water Cooled Manifolds) and the Intake Manifold</i> ¿Hay presencia de humedad en su interior? <input type="checkbox"/> ¿Hay corrosión en su interior? <input type="checkbox"/> <i>Is there any moisture present? Is there any rust present?</i> En caso afirmativo, explicar el estado: <input type="checkbox"/> <i>If yes, explain the status:</i>			

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	INSPECCIÓN DE MOTORES PARA ARRANQUE DIFERIDO DEFERRED START-UP ENGINE INSPECTION		Doc.: G-19-31 Rev.: 3 Asistencia Técnica Technical Assistance Página 2 de 2 / Page 2 of 2
	Modelo motor: <i>Engine Model</i>	Nº serie: <i>Serial Number</i>	Fecha Suministro: <i>Delivery date</i>
5. Desmontar las Tapas de Visita del Árbol de Levas / Remove Camshaft Covers ¿Hay presencia de humedad en su interior? <input type="checkbox"/> ¿Hay corrosión en su interior? <input type="checkbox"/> <i>Is there any moisture present? Is there any rust present?</i> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
6. Desmontar las Tapas de Visita del Cigüeñal / Remove Crankshaft Covers Verificar los siguientes componentes en busca de oxidación o corrosión (indicar estado de los componentes) <i>Check for oxidation or rust in the following components (indicate component conditions)</i> <input type="checkbox"/> Cigüeñal <input type="checkbox"/> Bielas <input type="checkbox"/> Sombreretes <input type="checkbox"/> Bloque motor <i>Crankshaft Connecting rods Main Bearing Caps Crankcase</i> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
7. Desmontar la Tapa de Inspección de las Puertas de Distribución (Delanteras y Traseras) <i>Remove the Inspection Cover of the Gear Covers (Front and Rear)</i> ¿Hay presencia de humedad en su interior? <input type="checkbox"/> ¿Hay corrosión en su interior? <input type="checkbox"/> <i>Is there any moisture present? Is there any rust present?</i> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
Accesorios del Motor y Varios / Engine Accessories and miscellaneous			
8. Turbocompresores / Turbocharger ¿No giran libremente sus partes móviles? <input type="checkbox"/> ¿Está alguna de las palas dañada? <input type="checkbox"/> <i>Do their mobile components not spin freely? Any blade damage?</i> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
9. Bombas de Agua / Water pumps ¿No giran libremente sus partes móviles? <input type="checkbox"/> ¿Las correas están flojas? <input type="checkbox"/> <i>Do their mobile components not spin freely? Are the belts loose?</i> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
10. Inyectores / injectors ¿No inyectan correctamente? <input type="checkbox"/> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
11. Cableados, conexiones eléctricas, etc. / Wirings, electrical connections, etc. ¿Hay corrosión? <input type="checkbox"/> ¿Mal protegidos? <input type="checkbox"/> Faltan bolsas de recogida de cableados <input type="checkbox"/> <i>Is there any rust present? Are they badly protected? Wiring bags lack</i> En caso afirmativo, explicar el estado: _____ <i>If yes, explain the status:</i>			
12. Observaciones sobre otros equipos del suministro: _____ <i>Observations about other elements included in the supply</i>			
Realizado por / Performed by			
Taller de Servicio Técnico Autorizado: _____ <i>Authorized Technical Service Workshop</i>			
Nombre y Apellidos del Técnico: _____ <i>Technician Name</i>		Firma: _____ <i>Signature</i>	
Lugar de la Inspección: _____ <i>Inspection location</i>		Fecha: _____ <i>Date</i>	