

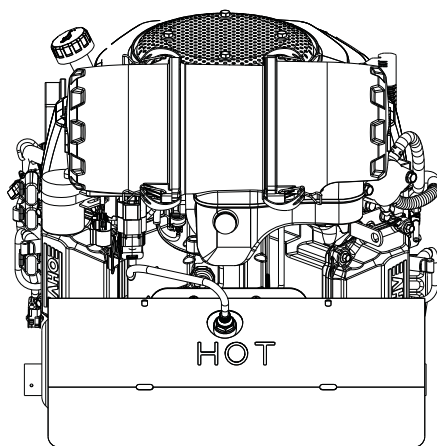
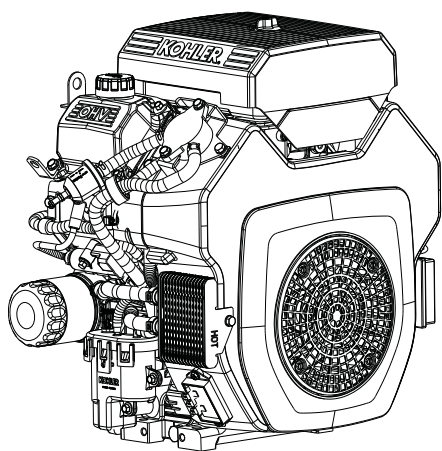
KOHLER® Command PRO

EN
ZH

ECH630-ECH749, CH735/CH26, CH745

ECV630-ECV749, CV735, CV745

Owner's Manual



IMPORTANT: Read all safety precautions and instructions carefully before operating equipment. Refer to operating instruction of equipment that this engine powers.

Ensure engine is stopped and level before performing any maintenance or service.

Warranty coverage as outlined in the warranty card and on KohlerEngines.com. Please review carefully as it provides you specific rights and obligations.

To maintain compliance with applicable emission regulations, exhaust system backpressure may not exceed limits which can be found on KohlerEngines.com. Search by Model No., select Read More, then select Specs tab.

Record engine information to reference when ordering parts or obtaining warranty coverage.

Engine Model _____

Specification _____

Serial Number _____


Purchase Date _____


Safety Precautions


⚠ WARNING: A hazard that could result in death, serious injury, or substantial property damage.


⚠ CAUTION: A hazard that could result in minor personal injury or property damage.


NOTE: is used to notify people of important installation, operation, or maintenance information.

	<p>⚠ WARNING</p> <p>Explosive Fuel can cause fires and severe burns.</p> <p>Do not fill fuel tank while engine is hot or running.</p>
	<p>Gasoline is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers, in well ventilated, unoccupied buildings, away from sparks or flames. Spilled fuel could ignite if it comes in contact with hot parts or sparks from ignition. Never use gasoline as a cleaning agent.</p>


	<p>⚠ WARNING</p> <p>Carbon Monoxide can cause severe nausea, fainting or death.</p> <p>Avoid inhaling exhaust fumes.</p>
	<p>Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless, and can cause death if inhaled.</p>

	<p>⚠ WARNING</p> <p>Accidental Starts can cause severe injury or death.</p> <p>Disconnect and ground spark plug lead(s) before servicing.</p>
	<p>Before working on engine or equipment, disable engine as follows: 1) Disconnect spark plug lead(s). 2) Disconnect negative (-) battery cable from battery.</p>

	<p>⚠ WARNING</p> <p>High Pressure Fluids can puncture skin and cause severe injury or death.</p> <p>Do not work on fuel system without proper training or safety equipment.</p>
	<p>Fluid puncture injuries are highly toxic and hazardous. If an injury occurs, seek immediate medical attention.</p>

	<p>⚠ WARNING</p> <p>Rotating Parts can cause severe injury.</p> <p>Stay away while engine is in operation.</p>
	<p>Keep hands, feet, hair, and clothing away from all moving parts to prevent injury. Never operate engine with covers, shrouds, or guards removed.</p>

	<p>⚠ WARNING</p> <p>Hot Parts can cause severe burns.</p> <p>Do not touch engine while operating or just after stopping.</p>
	<p>Never operate engine with heat shields or guards removed.</p>

	<p>⚠ CAUTION</p> <p>Electrical Shock can cause injury.</p> <p>Do not touch wires while engine is running.</p>
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California Proposition 65 Warning
<p>Engine exhaust from this product contains chemicals known to State of California to cause cancer, birth defects, or other reproductive harm.</p>



California Proposition 65 Warning
<p>This product contains chemicals known to State of California to cause cancer, birth defects, or other reproductive harm.</p>

Pre-Start Checklist

1. Check oil level. Add oil if low. Do not overfill.
2. Check fuel level. Add fuel if low. Check fuel system components and lines for leaks.
3. Check and clean cooling areas, air intake areas and external surfaces of engine (particularly after storage).
4. Check that air cleaner components and all shrouds, equipment covers, and guards are in place and securely fastened.
5. Check spark arrestor (if equipped).

Starting

	 WARNING
	Carbon Monoxide can cause severe nausea, fainting or death. Avoid inhaling exhaust fumes.
Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless, and can cause death if inhaled.	

	 WARNING
	Rotating Parts can cause severe injury. Stay away while engine is in operation.
Keep hands, feet, hair, and clothing away from all moving parts to prevent injury. Never operate engine with covers, shrouds, or guards removed.	

NOTE: To prime a dry fuel system, turn key switch to ON position for one minute. Allow fuel pump to cycle and prime system. Turn key switch OFF.

NOTE: Do not crank engine continuously for more than 10 seconds. Allow a 60 second cool down period between starting attempts. Failure to follow these guidelines can burn out starter motor.

NOTE: Upon start-up, a metallic ticking may occur. Run engine for 5 minutes. If noise continues, run engine at mid throttle for 20 minutes. If noise persists, take engine to your local Kohler authorized dealer.

1. Place throttle control midway between slow and fast positions.
2. Turn key switch to START position Release switch as soon as engine starts. If starter does not turn engine over, shut off key switch immediately. Do not make further attempts to start engine until condition is corrected. Do not jump start. See your Kohler authorized dealer for trouble analysis.

Cold Weather Starting Hints

1. Use proper oil for temperature expected.
2. Disengage all possible external loads.
3. Use fresh winter grade fuel. Winter grade fuel has higher volatility to improve starting.

Stopping

1. If possible, remove load by disengaging all PTO driven attachments.
2. If equipped, move throttle control to slow or idle position; stop engine.
3. If equipped, close fuel shut-off valve.



Angle of Operation

Refer to operating instructions of equipment this engine powers. Do not operate this engine exceeding maximum angle of operation; see specification table. Engine damage could result from insufficient lubrication.

Engine Speed

NOTE: Do not tamper with governor setting to increase maximum engine speed. Overspeed is hazardous and will void warranty.

Maintenance Instructions

	 WARNING	Before working on engine or equipment, disable engine as follows: 1) Disconnect spark plug lead(s). 2) Disconnect negative (-) battery cable from battery.
	Accidental Starts can cause severe injury or death. Disconnect and ground spark plug lead(s) before servicing.	

Normal maintenance, replacement or repair of emission control devices and systems may be performed by any repair establishment or individual; however, warranty repairs must be performed by a Kohler authorized dealer found at KohlerEngines.com or 1-800-544-2444 (U.S. and Canada).

Maintenance Schedule

Every 25 Hours or Annually¹

- Service/replace low-profile precleaner (if equipped).

Every 100 Hours or Annually¹

- Change oil.
- Replace low-profile air cleaner element.
- Remove and clean shrouds and cooling areas.
- Check oil cooler fins, clean as necessary (if equipped).

Every 150 Hours

- Check heavy-duty filter minder.
- Inspect heavy-duty air filter paper element and inlet screen area.

Every 200 Hours¹

- Replace unique Electronic Fuel Injection (EFI) fuel filter.

Every 200 Hours

- Change oil filter.

Every 300 Hours¹

- Replace heavy-duty air cleaner element and check inner element.

Every 500 Hours or Annually¹

- Replace spark plugs and set gap.

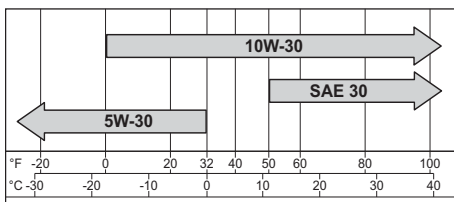
Every 600 Hours¹

- Replace heavy-duty air cleaner inner element.

¹ Perform these procedures more frequently under severe, dusty, dirty conditions.

Oil Recommendations

We recommend use of Kohler oils for best performance. Other high-quality detergent oils (including synthetic) of API (American Petroleum Institute) service class SJ or higher are acceptable. Select viscosity based on air temperature at time of operation as shown in table below.



Check Oil Level

NOTE: To prevent extensive engine wear or damage, never run engine with oil level below or above operating range indicator on dipstick.

Ensure engine is cool. Clean oil fill/dipstick areas of any debris.

1. Remove dipstick; wipe oil off.
 - a. Push-on cap: reinsert dipstick into tube; press completely down.
 - or
 - b. Threaded cap: reinsert dipstick into tube; rest cap on tube, do not thread cap onto tube.
2. Remove dipstick; check oil level. Level should be at top of indicator on dipstick.
3. If oil is low on indicator, add oil up to top of indicator mark.
4. Reinstall and secure dipstick.

Change Oil and Filter


Change oil while engine is warm.

1. Clean area around oil fill cap/dipstick and drain plug. Remove drain plug and oil fill cap/dipstick. Allow oil to drain completely.
2. Clean area around oil filter. Place a container under filter to catch any oil and remove filter. Wipe off mounting surface. Reinstall drain plug. Torque to 10 ft. lb. (13.6 N·m).
3. Place new filter in shallow pan with open end up. Fill with new oil until oil reaches bottom of threads. Allow 2 minutes for oil to be absorbed by filter material.
4. Apply a thin film of clean oil to rubber gasket on new filter.
5. Refer to instructions on oil filter for proper installation.
6. Fill crankcase with new oil. Level should be at top of indicator on dipstick.
7. Reinstall oil fill cap/dipstick and tighten securely.
8. Start engine; check for oil leaks. Stop engine; correct leaks. Recheck oil level.
9. Dispose of used oil and filter in accordance with local ordinances.

Oil Sentry™ (if equipped)

This switch is designed to prevent engine from starting in a low oil or no oil condition. Oil Sentry™ may not shut down a running engine before damage occurs. In some applications this switch may activate a warning signal. Read your equipment manuals for more information.

Fuel Recommendations

	<p>WARNING</p> <p>Explosive Fuel can cause fires and severe burns.</p> <p>Do not fill fuel tank while engine is hot or running.</p>
<p>Gasoline is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers, in well ventilated, unoccupied buildings, away from sparks or flames. Spilled fuel could ignite if it comes in contact with hot parts or sparks from ignition. Never use gasoline as a cleaning agent.</p>	

NOTE: E15, E20 and E85 are NOT approved and should NOT be used; effects of old, stale or contaminated fuel are not warrantable.


Fuel must meet these requirements:

- Clean, fresh, unleaded gasoline.
- Octane rating of 87 (R+M)/2 or higher.
- Research Octane Number (RON) 90 octane minimum.
- Gasoline up to 10% ethyl alcohol, 90% unleaded is acceptable.
- Methyl Tertiary Butyl Ether (MTBE) and unleaded gasoline blend (max 15% MTBE by volume) are approved.
- Do not add oil to gasoline.
- Do not overfill fuel tank.
- Do not use gasoline older than 30 days.

Fuel Line

High pressure fuel line meeting SAE R12 standard must be installed on Kohler Co. engines equipped with an EFI system.

Spark Plugs

	<p>CAUTION</p> <p>Electrical Shock can cause injury.</p> <p>Do not touch wires while engine is running.</p>
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Clean out spark plug recess. Remove plug and replace.

1. Check gap using wire feeler gauge. Adjust gap, see specification table for adjustment.
2. Reinstall plug into cylinder head.
3. Torque plug to 20 ft. lb. (27 N·m).

Jump Starting

Follow all safety guidelines and procedures provided by battery manufacturer and/or original equipment manufacturer (OEM). Failure to follow proper procedures may result in serious personal injury and/or non-warrantable damage to engine's EFI components.

Electronic Fuel Injection (EFI) System

EFI is an electronically-controlled fuel management system which is monitored by an Electronic Control Unit (ECU). A Malfunction Indicator Light (MIL) will illuminate if problems or faults are detected. Servicing by a Kohler authorized dealer is necessary.

Fuel System Components

High pressure components inside fuel pump module are not serviceable. Engines are equipped with a special EFI fuel filter. See Maintenance Schedule.

Fuse Replacement

This engine has three (3) blade type automotive fuses. Replacement fuses must have same rating as blown fuse. Use fuse chart below to determine correct fuse.

Wire Color	Fuse Rating
2 Solid Red Wires	10-amp Fuse
1 Red Wire with Black Stripe 1 Red Wire with White Stripe	10-amp Fuse
2 Purple Wires	30-amp Fuse

Air Cleaner

NOTE: Operating engine with loose or damaged air cleaner components could cause premature wear and failure. Replace all bent or damaged components.

NOTE: Paper element cannot be blown out with compressed air.

Low-Profile

Loosen knob and remove air cleaner cover.

Pre-cleaner:

1. Remove pre-cleaner from paper element.
2. Replace or wash pre-cleaner in warm water with detergent. Rinse and allow to air dry.
3. Saturate pre-cleaner with new engine oil; squeeze out excess oil.
4. Reinstall pre-cleaner over paper element.

Paper Element:

1. Clean area around element. Remove wing nut, element cover, and paper element with pre-cleaner.
2. Separate pre-cleaner from element; service pre-cleaner and replace paper element.
3. Check condition of rubber seal and replace if necessary.
4. Install new paper element on base; install pre-cleaner over paper element; reinstall element cover and secure with wing nut.

Reinstall air cleaner cover and secure with knob.

Heavy-Duty

1. Unhook retaining clips and remove end cap(s).
2. Check and clean inlet screen (if equipped).
3. Pull air cleaner element out of housing and replace. Check condition of inner element; replace when dirty.
4. Check all parts for wear, cracks, or damage, and that ejector area is clean.
5. Install new element(s).

6. Reinstall end cap(s) with dust ejector valve/ screen down; secure with retaining clips.



Breather Tube

Ensure both ends of breather tube are properly connected.

Oil Cooler (if equipped)

1. Clean fins with a brush or compressed air.
2. Remove two screws securing oil cooler, and tilt to clean back side.
3. Reinstall oil cooler.

Air Cooling

	 WARNING
	<p>Hot Parts can cause severe burns.</p> <p>Do not touch engine while operating or just after stopping.</p>
<p>Never operate engine with heat shields or guards removed.</p>	

Proper cooling is essential. To prevent over heating, clean screens, cooling fins, and other external surfaces of engine. Avoid spraying water at wiring harness or any electrical components. See Maintenance Schedule.

Repairs/Service Parts

We recommend that you use a Kohler authorized dealer for all maintenance, service, and replacement parts for engine. To find a Kohler authorized dealer visit KohlerEngines.com or call 1-800-544-2444 (U.S. and Canada).

Storage

If engine will be out of service for 2 months or more follow procedure below.

1. Add Kohler PRO Series fuel treatment or equivalent to fuel tank. Run engine 2-3 minutes to get stabilized fuel into fuel system (failures due to untreated fuel are not warrantable).
2. Change oil while engine is still warm from operation. Remove spark plug(s) and pour about 1 oz. of engine oil into cylinder(s). Replace spark plug(s) and crank engine slowly to distribute oil.
3. Disconnect negative (-) battery cable.
4. Store engine in a clean, dry place.

Troubleshooting

Do not attempt to service or replace major engine components, or any items that require special timing or adjustment procedures. This work should be performed by a Kohler authorized dealer.

Problem	Possible Cause								
	No Fuel	Improper Fuel	Dirt In Fuel Line	Broken Fusible Link	Dirty Debris Screen	Incorrect Oil Level	Engine Overload	Dirty Air Cleaner	Faulty Spark Plug
Will Not Start	•	•	•	•		•	•	•	•
Hard Starting	•	•	•			•	•	•	•
Stops Suddenly	•		•		•	•	•	•	
Lacks Power		•	•		•	•	•	•	•
Operates Erratically		•	•		•		•	•	•
Knocks or Pings		•			•		•		•
Skips or Misfires		•	•		•			•	•
Backfires			•				•	•	•
Overheats			•		•	•	•	•	
High Fuel Consumption							•	•	•

Engine Specifications

Model	Bore	Stroke	Displacement	Oil Capacity (Refill)	Spark Plug Gap	Maximum Angle of Operation (@ full oil level)*
ECH630	3.2 in. (80 mm)		42.4 cu. in. (694 cc)			
ECV630						
ECH650						
ECV650						
ECH730	3.27 in. (83 mm)	2.72 in. (69 mm)	45.6 cu in. (747 cc)	1.7-2.0 U.S. qt. (1.6-1.9 L)	0.03 in. (0.76 mm)	25°
ECV730						
ECH740						
ECV740						
ECH749						
ECV749						
CH735/CH26		2.6 in. (67 mm)	44.2 cu. in. (725 cc)			
CV735						
CH745						
CV745						

*Exceeding maximum angle of operation may cause engine damage from insufficient lubrication.

Additional specification information can be found in service manual at KohlerEngines.com.

Exhaust Emission Control System for models ECH630-ECH749, ECV630-ECV749, CH735/CH26, CH745, CV735, and CV745 is EM, O2S, ECM, MPI for U.S. EPA, California, and Europe.

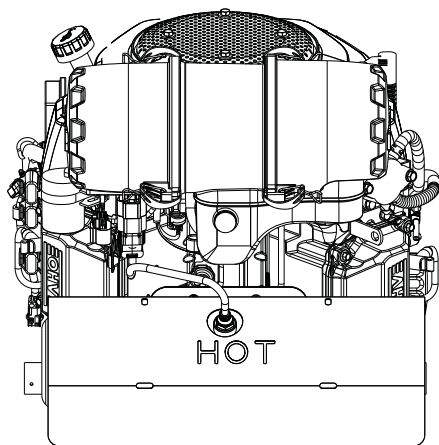
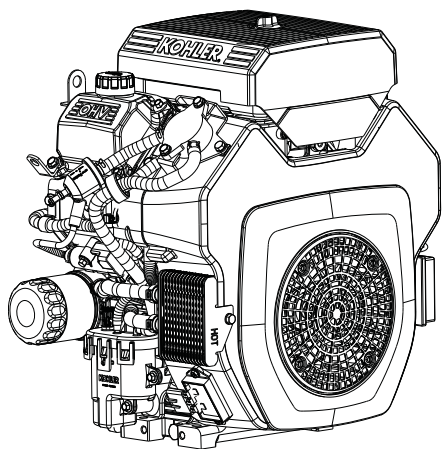
Any and all horsepower (hp) references by Kohler are Certified Power Ratings and per SAE J1940 & J1995 hp standards. Details on Certified Power Ratings can be found at KohlerEngines.com.

KOHLER® Command PRO

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ECH630-ECH749、CH735/CH26、CH745
ECV630-ECV749、CV735、CV745

用户手册



重要提示： 设备操作前请阅读所有安全预防措施和说明。请参阅安装该发动机设备的操作说明。

执行任何保养或检修前请确保发动机已停机并平坦放置。

保修范围在保修卡及 KohlerEngines.com 中扼要说明，具体规定了您的权利和义务，请仔细阅读。

请记录发动机信息，并在订购零件或获取保修范围时参考。

发动机型号 _____
规格 _____
系列号 _____
购买日期 _____

安全预防措施

警告： 可能导致死亡、严重人身伤害或重大财产损失的危险。

告诫： 可能导致轻微人身伤害或财产损失的危险。

注意： 用于告知人们非常重要的发动机安装、操作或保养相关信息。

	<p>警告</p> <p>易爆炸的燃油可能引起火灾和严重灼伤。</p> <p>在发动机处于高温或运转时，切勿往燃油箱内加油。</p>
	<p>汽油很容易燃烧，且它的蒸气被点燃的时候易爆炸。存储的汽油只能装在符合要求的容器内，并位于通风良好、无人居住的建筑物内，远离火花或火焰。溢出的燃油在接触到热的零件或点火火花的时候容易被点燃。不能使用汽油作为清洗剂。</p>

	<p>警告</p> <p>一氧化碳可能导致严重呕吐、昏厥甚至死亡。</p> <p>避免吸入排放的尾气。</p>
	<p>发动机排放的尾气含有有毒的一氧化碳。一氧化碳是无味、无色的气体，且吸入过多时会导致死亡。</p>

	<p>警告</p> <p>意外启动可能造成严重人身伤害甚至死亡。</p> <p>在维护前请断开火花塞导线并将其接地。</p>
	<p>在发动机或设备上工作之前，请按以下说明停止发动机：1) 断开火花塞导线。2) 断开电池的负极 (-) 电池线。</p>

	<p>警告</p> <p>高压液体可能刺破皮肤，并造成严重人身伤害甚至死亡。</p> <p>未经过专业培训或配戴安全设备，不得接触燃油系统。</p>
	<p>液体穿刺伤害有剧毒，非常危险！如果发生伤害，应立即就医。</p>

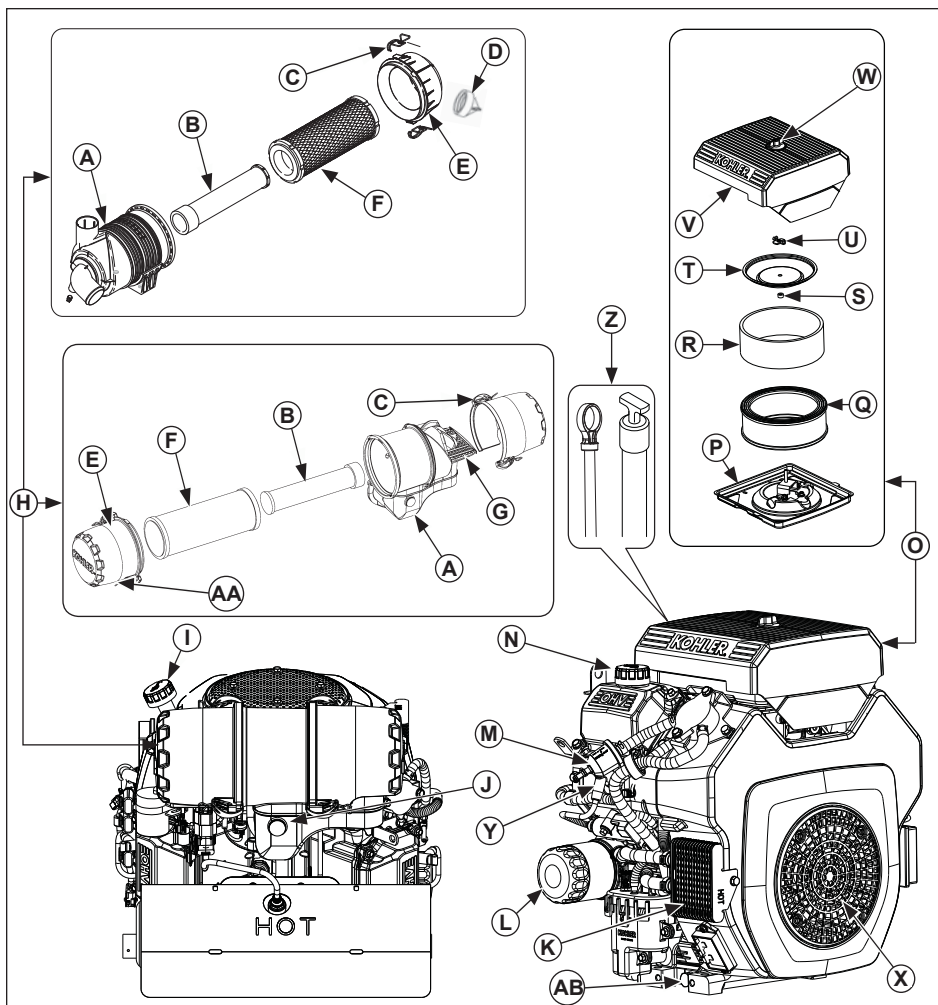
	<p>警告</p> <p>旋转零件可能引起严重人身伤害。</p> <p>切记远离运转中的发动机。</p>
	<p>手、足、头发和衣物必须远离正在转动的零件以防人身伤害。在外盖、保护罩或防护装置拆走的时候，不要运行发动机。</p>

	<p>警告</p> <p>高温零件可能引起严重灼伤。</p> <p>切勿在运转期间或停机后立即触摸发动机。</p>
	<p>在发动机隔热罩或隔热板拆走后，切记不能运行发动机。</p>

	<p>告诫</p> <p>触电可能导致严重人身伤害。</p> <p>在发动机运转期间不得触摸电线。</p>
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加利福尼亚州 65 号提案警告
<p>根据加利福尼亚州提案，这种发动机的尾气排放包含可能导致癌症、出生缺陷或其他生育损害的化学物质。</p>

加利福尼亚州 65 号提案警告
<p>根据加利福尼亚州提案，这种产品包含可能导致癌症、出生缺陷或其他生育损害的化学物质。</p>





A	空气滤清器外壳	B	内滤芯	C	固定夹	D	灰尘排气阀
E	端盖	F	滤芯	G	入口滤网	H	大型空气滤清器
I	润滑油加油盖/ 机油尺	J	滤清器防护装置	K	润滑油冷却器	L	润滑油过滤器
M	燃油过滤器	N	润滑油加油塞	O	小型空气滤清器	P	空气滤清器底座
Q	纸质滤芯	R	粗滤器	S	橡胶密封圈	T	滤芯罩
U	翼形螺帽	V	空气滤清器罩	W	空气滤清器旋钮	X	碎屑滤网
Y	火花塞	Z	机油尺	AA	排气区域	AB	润滑油放油塞

启动前检查

1. 检查润滑油液位。如果液位低，需加油。但不要过度加油。
2. 检查燃油液位。如液位较低，则应加注燃油。检查燃油系统部件及管道是否有泄漏。
3. 检查并清洁冷却部位、空气进气部位和发动机外部（尤其是存放后）。
4. 检查空气滤清器零部件和所有保护罩、设备遮盖和保护装置是否都安装到位，且安全紧固。
5. 检查阻火器（如配备）

启动

	警告 一氧化碳可能导致严重呕吐、昏厥甚至死亡。 避免吸入排放的尾气。
发动机排放的尾气含有有毒的一氧化碳。一氧化碳是无味、无色的气体，且吸入过多时会导致死亡。	

	警告 旋转零件可能引起严重人身伤害。 切记远离运转中的发动机。
手、足、头发和衣物必须远离正在转动的零件以防人身伤害。在外盖、保护罩或防护装置拆走的时候，不要运行发动机。	

注意： 按加浓泵启动耗尽燃油的系统时，将钥匙开关旋转到 **ON**（开启）位置并持续一分钟。允许燃油泵循环并按加浓泵启动系统。将钥匙开关旋转到 **OFF**（关闭）位置。

注意： 不要使用起动机带动发动机持续超过 10 秒钟。下次启动尝试之前等待 60 秒以使其冷却。否则可能导致起动机马达烧坏。

注意： 在启动时，可能会发出金属滴答声。运行发动机 5 分钟。如果噪音继续，以中油门运转发动机 20 分钟。如果噪音依然存在，请将发动机送到当地的 Kohler 授权代理商进行检修。

1. 将油门控制放在慢速与快速位置中间。
2. 将钥匙开关旋转到 **START**（启动）位置。发动机启动后，松开开关。如果起动机不能带动发动机，则应立即关闭钥匙开关。在未排除问题之前，切勿再次尝试启动发动机。不要进行助推启动。请向 Kohler 授权代理商寻求故障诊断。

冷天气启动说明

1. 请根据气温来使用合适的润滑油。
2. 脱开所有可能的外部负荷。
3. 请使用新鲜的冬季等级燃油。冬季等级燃油有更高的挥发性，可以改善启动。

停止


1. 如果可能，脱开所有 PTO 驱动附件，以移除负荷。
2. 将油门控制（如配备）移动到慢速或怠速位置；停止发动机。
3. 关闭燃油切断阀（如配备）。

工作角度

请参阅安装该发动机设备的操作说明。运行发动机时不得超出最大工作角度；请参阅规格表。发动机可能会由于润滑不足而损坏。

发动机转速

注意： 不要随意改变调速器设置，以增加发动机最大转速。超速是很危险的，且不属于保修范围。

	<p style="text-align: center;">警告</p> <p>意外启动可能造成严重人身伤害甚至死亡。 在维护前请断开火花塞导线并将其接地。</p>	<p>在发动机或设备上工作之前，请按以下说明停止发动机：1) 断开火花塞导线。 2) 断开电池的负极 (-) 电池线。</p>
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发动机排放控制设备/系统的正常保养、更换或维修工作，可以由任何发动机维修公司或个人来进行。但保修期维修必须由 **Kohler** 授权代理商执行。请访问 KohlerEngines.com 或拨打电话 **1-800-544-2444** (美国和加拿大) 获取授权代理商信息。

保养安排

每 25 小时或每年¹

- 检修/更换带有小型空气滤清器的粗滤器（如配备）。

每 100 小时或每年¹

- 更换润滑油。
- 更换小型空气滤清器滤芯。
- 拆下并清洁冷却罩及其他冷却区域。
- 检查润滑油散热片（如配备），根据需要进行清洁。

每 150 小时

- 检查大型空气滤清器防护装置。
- 检查大型空气滤清器的纸质滤芯及入口滤网区域。

每 200 小时¹

- 更换特有的电子燃油喷射 (EFI) 燃油过滤器

每 200 小时

- 更换润滑油过滤器。

每 300 小时¹

- 更换大型空气滤清器滤芯并检查内滤芯。

每 500 小时或每年¹

- 更换火花塞和调节间隙。

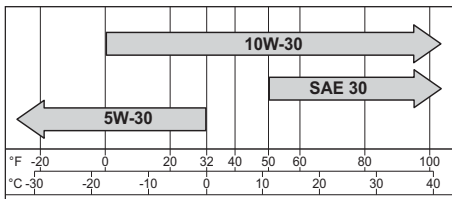
每 600 小时¹

- 更换大型空气滤清器内滤芯。

¹ 在灰尘、脏污严重的情况下，必须提高定期保养的频率。

润滑油使用建议

我们推荐使用 **Kohler** 润滑油，以获得最佳性能。其他满足 **API**（美国石油组织）服务等级 **SJ** 或更高等级的高质量去污润滑油也可以使用。如下表所示，根据发动机使用时期的大气温度选择合适粘度的润滑油。



检查润滑油液位

注意：为防止发动机出现过度磨损或损坏，润滑油液位低于或超出机油尺指示的工作范围时切勿运行发动机。

确保发动机处于冷却状态。清除润滑油添加/机油尺区域的所有杂物。

1. 取出机油尺，擦干净润滑油。
 - a. 推压式加油盖：重新将机油尺插入加油管，再完全按入到位。
或
 - b. 旋入式加油盖：重新将机油尺插入机油尺管；把加油盖放在机油尺管上，不要旋到机油尺管上。
2. 取出机油尺；检查润滑油液位。液位应该在机油尺指示的顶端。
3. 若润滑油指示的液位较低，则要添加润滑油到指示顶部的标志位置。
4. 重新安装并固定机油尺。

更换润滑油和过滤器。

发动机处于较热状态时更换润滑油。

1. 清洁润滑油加油盖/机油尺和放油塞。取出放油塞和加油盖/机油尺。让润滑油完全排出。
2. 清洁润滑油过滤器周围区域。将容器放到过滤器下方来接住润滑油并拆下过滤器。将过滤器安装位置表面擦干净。重新安装放油塞。拧紧至扭矩 **10 ft. lb. (13.6 N·m)**。
3. 将新的润滑油过滤器放在浅盘上，开口端朝上。加注新鲜润滑油直到润滑油液位到达螺纹底部。等待两分钟，以允许过滤器材料吸收润滑油。
4. 在新过滤器的橡胶垫圈上涂抹一层干净的润滑油。
5. 参阅润滑油过滤器相关说明以便正确安装。
6. 将新鲜润滑油注入曲轴箱。液位应该在机油尺指示的顶端。
7. 重新安装润滑油加油盖/机油尺，并将其旋紧。
8. 起动发动机，检查是否存在润滑油泄漏。停止发动机，纠正泄漏问题。重新检查润滑油液位。
9. 根据当地规定处理废机油和润滑油过滤器。

Oil Sentry™ (如配备)

该开关设计用于防止在低润滑油液位或无润滑油时起动发动机。Oil Sentry™ 不能在发生损坏之前停止发动机运转。在某些应用中，此开关可以激活一个警告信号。请阅读设备手册以获得更多信息。

燃油使用建议

	<p>警告</p> <p>易爆炸的燃油可能引起火灾和严重灼伤。</p> <p>在发动机处于高温或运转时，切勿往燃油箱内加油。</p>
<p>汽油很容易燃烧，且它的蒸气被点燃的时候易爆炸。存储的汽油只能装在符合要求的容器内，并位于通风良好、无人居住的建筑物内，远离火花或火焰。溢出的燃油在接触到热的零件或点火火花的时候容易被点燃。不能使用汽油作为清洗剂。</p>	

注意： E15、E20 和 E85 未获批准，不得使用；使用旧的、过期或污染机油导致的后果不在保修范围内。


燃油必须符合下列要求：

- 干净、新鲜的无铅汽油。
- **87 (R+M)/2** 或以上泵辛烷值等级的汽油。
- 研究法辛烷值 (RON) 最低为 **90** 号辛烷的汽油。
- 由最高 **10%** 乙醇和 **90%** 无铅汽油混合的汽油也可使用。
- 甲基叔丁基醚 (MTBE) 和无铅的汽油混合（按体积 MTBE 最高可达 **15%**）已获准使用。
- 不能往汽油里加润滑油。
- 不能过度往燃油箱里加油。
- 不能使用 **30** 天以上的汽油。

燃油管

满足 SAE R12 规定要求的高压燃油管必须安装在配备有 EFI 系统的 Kohler 公司发动机。

火花塞

	<p>警告</p> <p>触电可能导致严重人身伤害。</p> <p>在发动机运转期间不得触摸电线。</p>
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清洁火花塞凹槽。拆下火花塞并更换。

1. 使用塞尺检查火花塞间隙。调整间隙，请参阅规格表实施调整。
2. 将火花塞重新安装在气缸盖内。
3. 火花塞的紧固扭矩为 **20 ft. lb. (27 N·m)**。

助推起动

请遵循电池制造商和/或原始设备制造商 (OEM) 提供的所有安全指导和操作程序。如果不遵循正确的操作程序，可能导致严重的人身伤害和/或造成发动机 EFI 零部件损坏且不可保修。

电子燃油喷射 (EFI) 系统

EFI 系统是电子控制的燃油管理系统，由电子控制单元 (ECU) 监测。如果故障指示灯 (MIL) 监测到问题或故障，则灯会点亮。需要由 Kohler 授权代理商执行检修。

燃油系统部件

燃油泵模块内的高压零部件均不可维护。发动机配备了专用的 EFI 燃油过滤器。请参见保养安排。

保险丝更换

该发动机配备三 (3) 个插片式汽车保险丝。应使用与熔断保险丝规格相同的保险丝进行更换。使用下面的保险丝规格表确定正确的保险丝。

导线颜色	保险丝规格
2 条纯红色导线	10 A 保险丝
1 条红色导线, 带黑色条; 1 条红色导线, 带白色条	10 A 保险丝
2 条紫色导线	30 A 保险丝

空气滤清器

注意: 如果空气滤清器零部件出现松动或损坏, 则运行发动机可能引起过早磨损和故障。更换所有弯曲或损坏的零部件。

注意: 纸质滤芯不能用压缩空气吹出。

小型空气滤清器

松开空气滤清器罩固定旋钮并拆下外罩。

粗滤器:

1. 从纸质滤芯上拆下粗滤器。
2. 更换粗滤器, 或在温水中使用清洗剂清洗粗滤器。冲洗并风干。
3. 使用新鲜的发动机润滑油对粗滤器上油; 挤出过多的润滑油。
4. 重新将粗滤器安装在纸质滤芯上。

纸质滤芯:

1. 清洁滤芯周围区域。拆下翼形螺帽、滤芯罩和装有纸质滤芯的粗滤器。
2. 从纸质滤芯上拆下粗滤器; 对粗滤器进行保养并更换纸质滤芯。
3. 检查橡胶密封圈的状态, 根据需要加以更换。
4. 在底座上安装新的纸质滤芯, 在纸质滤芯上安装粗滤器, 再重新安装滤芯罩和固定翼形螺帽。

重新安装空气滤清器外罩, 并旋紧旋钮。

大型空气滤清器

1. 取下固定夹并拆下端盖。
2. 检查并清洁入口滤网 (如配备)。
3. 将空气滤清器从外壳取出并加以更换。检查内滤芯的状况, 脏污时加以更换。
4. 检查所有零件是否存在磨损、裂缝或损坏, 且排气区域处于清洁。
5. 安装新滤芯。
6. 重新安装带有灰尘排气阀/滤网的端盖向下, 并用固定夹牢固固定。

呼吸器管



确保呼吸器管的两端正确连接。

ZH

润滑油冷却器 (如配备)

1. 用刷子或压缩空气清洁散热片。
2. 拆下固定润滑油冷却器的两颗螺丝并翻转到干净的背面。
3. 重新安装润滑油冷却器。

空气冷却

	 警告
	<p>高温零件可能引起严重灼伤。 切勿在运转期间或停机后立即触摸发动机。</p>
<p>在发动机防热罩或隔热板拆走后, 切记不能运行发动机。</p>	

正确的冷却非常重要。为防止过热, 应清洁滤网、散热片及发动机外部。避免将水喷洒在线束或任何电子零部件上。请参见保养安排。

零件维修/检修

我们建议您联系 **Kohler** 授权代理商实施所有发动机零件的保养、维修和更换。要查找 **Kohler** 授权代理商, 请访问 **KohlerEngines.com** 或拨打 **1-800-544-2444** (美国和加拿大)。

存放

如果超过两个月不使用发动机, 请按照以下程序。

1. 在燃油箱内添加 **Kohler PRO** 系列燃油处理剂或替代产品。运行发动机 2-3 分钟, 以使加入稳定剂的燃油进入燃油系统内 (使用未经处理燃油造成的故障不在保修范围内)。
2. 在发动机停机后处于较热状态时更换润滑油。拆下火花塞并在气缸内倒入大约 1 盎司的发动机润滑油。更换火花塞并缓慢带动发动机, 使润滑油均匀分布。
3. 断开负极 (-) 电池线。
4. 将发动机存放在清洁、干燥的地方。

故障排除

切勿尝试维修或更换关键的发动机零部件，或任何需要特殊正时或调节程序的部件。请联系 Kohler 授权代理商来检修这些故障。

问题	可能原因								
	没有燃油	燃油不合适	燃油管脏污	保险丝熔断	滤网有碎屑或脏污	润滑油液位不正确	发动机载荷过高	空气滤清器脏污	火花塞故障
不能起动	●	●	●	●		●	●	●	●
起动困难	●	●	●			●	●	●	●
突然停机	●		●		●	●	●	●	
动力不足		●	●		●	●	●	●	●
运行不稳		●	●		●		●	●	●
敲缸或有异响		●			●		●		●
不着火或不点火		●	●		●			●	●
逆火			●				●	●	●
过热			●		●	●	●	●	
燃油消耗高							●	●	●

发动机规格

型号	缸径	冲程	排量	润滑油容量 (重新加注)	火花塞间隙	最大工作角度 (润滑油满液位时) *	
ECH630	3.2 in. (80 mm)		42.4 cu. in. (694 cc)				
ECV630							
ECH650							
ECV650							
ECH730	3.27 in. (83 mm)	2.72 in. (69 mm)	45.6 cu in. (747 cc)	1.7-2.0 U.S. qt. (1.6-1.9 L)	0.03 in. (0.76 mm)	25°	
ECV730							
ECH740							
ECV740							
ECH749							
ECV749							
CH735/CH26		2.6 in. (67 mm)	44.2 cu. in. (725 cc)				
CV735							
CH745							
CV745							

*超出最大工作角度可能引起润滑不足，从而导致发动机损坏。

其他规格信息请参见 KohlerEngines.com 内的服务手册。

ECH630-ECH749、ECV630-ECV749、CH735/CH26、CH745、CV735 和 CV745 型号的尾气排放控制系统为 EM、O2S、ECM、MPI（美国环保署、加利福尼亚州和欧洲）。

Kohler 提及的任何和所有马力 (hp) 均为根据 SAE J1940 & J1995 hp 标准经认证的额定功率。有关经认证的额定功率详细信息请访问 KohlerEngines.com。