

Operator's Manual

Walk-Behind Trowels

CT36/CT36A CT48/CT48A



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Original instructions

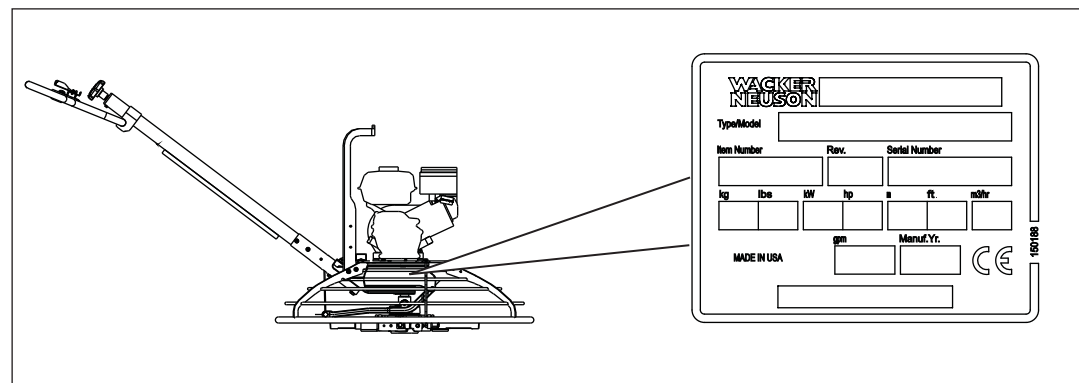
This Operator's Manual presents the original instructions. The original language of this Operator's Manual is American English.

Foreword

SAVE THESE INSTRUCTIONS—This manual contains important instructions for the machine models below. These instructions have been written expressly by Wacker Neuson Production Americas LLC and must be followed during installation, operation, and maintenance of the machines.

Machines covered by this manual

Machine	Item Number	Machine	Item Number
CT 36-6	5000009443 5000620830	CT 48-9	5000009453 5000620838
CT 36-9	5000009444 5000620833		
CT 36-9V	5000009447 5000620834		
CT 36-5A	5000009438 5000620106 5000620829 5200016256	CT 48-8A	5000009449 5000620837
CT 36-8A	5000009439 5000620831	CT 48-11A	5000009450 5000620835
CT 36-8A-V	5000009442 5000620832	CT 48-13A-V	5000009452 5000620836



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Machine identification

A nameplate listing the model number, item number, revision number, and serial number is attached to this machine. The location of the nameplate is shown above.

Serial number (S/N)

For future reference, record the serial number in the space provided below. You will need the serial number when requesting parts or service for this machine.

Serial Number:

Foreword

Machine documentation

- From this point forward in this documentation, Wacker Neuson Production Americas LLC will be referred to as Wacker Neuson.
- Keep a copy of the Operator's Manual with the machine at all times.
- For spare parts information, please see your Wacker Neuson Dealer, or visit the Wacker Neuson website at <http://www.wackerneuson.com/>.
- When ordering parts or requesting service information, be prepared to provide the machine model number, item number, revision number, and serial number.

Expectations for information in this manual

- This manual provides information and procedures to safely operate and maintain the above Wacker Neuson model(s). For your own safety and to reduce the risk of injury, carefully read, understand, and observe all instructions described in this manual.
- Wacker Neuson expressly reserves the right to make technical modifications, even without notice, which improve the performance or safety standards of its machines.
- The information contained in this manual is based on machines manufactured up until the time of publication. Wacker Neuson reserves the right to change any portion of this information without notice.
- The illustrations, parts, and procedures in this manual refer to Wacker Neuson factory-installed components. Your machine may vary depending on the requirements of your specific region.

CALIFORNIA Proposition 65 Warning

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Laws pertaining to spark arresters

NOTICE: State Health Safety Codes and Public Resources Codes specify that in certain locations spark arresters be used on internal combustion engines that use hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arresters are qualified and rated by the United States Forest Service for this purpose. In order to comply with local laws regarding spark arresters, consult the engine distributor or the local Health and Safety Administrator.



Manufacturer's approval

This manual contains references to *approved* parts, attachments, and modifications. The following definitions apply:

- **Approved parts or attachments** are those either manufactured or provided by Wacker Neuson.
- **Approved modifications** are those performed by an authorized Wacker Neuson service center according to written instructions published by Wacker Neuson.
- **Unapproved parts, attachments, and modifications** are those that do not meet the approved criteria.

Unapproved parts, attachments, or modifications may have the following consequences:

- Serious injury hazards to the operator and persons in the work area
- Permanent damage to the machine which will not be covered under warranty

Contact your Wacker Neuson dealer immediately if you have questions about approved or unapproved parts, attachments, or modifications.



WACKER NEUSON

EC Declaration of Conformity

Manufacturer

Wacker Neuson Production Americas LLC, N92W15000 Anthony Avenue,
Menomonee Falls, Wisconsin 53051, USA

Product

Product	CT36-5A, CT36-8A, CT36-8A-V, CT36-6, CT36-9, CT36-9-V, CT48-8A, CT48-11A, CT48-13A-V, CT48-9
Product category	Trowel
Product function	To smooth and finish semi-cured concrete
Item number	5000620829, 5000620830, 5000620831, 5000620832, 5000620833, 5000620834, 5000620835, 5000620836, 5000620837, 5000620838

Directives and Standards

We hereby declare that this product meets and complies with the relevant regulations and requirements of the following directives and standards:

2006/42/EC, 2014/30/EU, EN12649

Authorized Person for Technical Documents

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1 Safety Information

1.1 Signal Words Used in this Manual

This manual contains DANGER, WARNING, CAUTION, *NOTICE*, and NOTE signal words which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.



This is the safety alert symbol. It is used to alert you to potential personal hazards.

- Obey all safety messages that follow this symbol.



DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

- To avoid death or serious injury from this type of hazard, obey all safety messages that follow this signal word.



WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

- To avoid possible death or serious injury from this type of hazard, obey all safety messages that follow this signal word.



CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

- To avoid possible minor or moderate injury from this type of hazard, obey all safety messages that follow this signal word.

NOTICE: Used without the safety alert symbol, NOTICE indicates a situation which, if not avoided, could result in property damage.

Note: A Note contains additional information important to a procedure.

1.2 Machine Description and Intended Use

This machine is a walk-behind concrete finishing trowel. The Wacker Neuson Walk-Behind Trowel consists of a frame onto which are mounted a gasoline engine, a fuel tank, a gearbox, and a control handle. A set of four metal blades is connected to the gearbox and is surrounded by a ring guard. The engine rotates the blades through the gearbox and clutch mechanism. The rotating blades ride on the surface of curing concrete, creating a smooth finish. The operator walks behind the machine and uses the handle to control speed and direction of the machine.

This machine is intended to be used for floating and burnishing curing concrete.

This machine has been designed and built strictly for the intended use described above. Using the machine for any other purpose could permanently damage the machine or seriously injure the operator or other persons in the area. Machine damage caused by misuse is not covered under warranty.

The following are some examples of misuse:

- Using the machine as a ladder, support, or work surface
 - Using the machine to carry or transport passengers or equipment
 - Using the machine to finish inappropriate materials such as slurries, sealers, or epoxy finishes
 - Operating the machine outside of factory specifications
 - Operating the machine in a manner inconsistent with all warnings found on the machine and in the Operator's Manual
-

This machine has been designed and built in accordance with the latest global safety standards. It has been carefully engineered to eliminate hazards as far as practicable and to increase operator safety through protective guards and labeling. However, some risks may remain even after protective measures have been taken. They are called residual risks. On this machine, they may include exposure to:

- Heat, noise, exhaust, and carbon monoxide from the engine
- Chemical burns from curing concrete
- Fire hazards from improper refueling techniques
- Fuel and its fumes, fuel spillage from improper lifting technique
- Personal injury from improper lifting techniques or operating techniques
- Cutting hazards from sharp or worn blades

To protect yourself and others, make sure you thoroughly read and understand the safety information presented in this manual before operating the machine.

1.3 Operating Safety

Operator training

Before operating the machine:

- Read and understand the operating instructions contained in all manuals delivered with the machine.
- Familiarize yourself with the location and proper use of all controls and safety devices.
- Contact Wacker Neuson for additional training if necessary.

When operating this machine:

- Do not allow improperly trained people to operate the machine. People operating the machine must be familiar with the potential risks and hazards associated with it.

Operator qualifications

Only trained personnel are permitted to start, operate, and shut down the machine. They also must meet the following qualifications:

- have received instruction on how to properly use the machine
- are familiar with required safety devices

The machine must not be accessed or operated by:

- children
- people impaired by alcohol or drugs

Application area

Be aware of the application area.

- Keep unauthorized personnel, children, and pets away from the machine.
- Remain aware of changing positions and the movement of other equipment and personnel in the application area/job site.
- Identify whether special hazards exist in the application area, such as toxic gases, or unstable ground conditions, and take appropriate action to eliminate the special hazards before using the machine.

Be aware of the application area.

- Do not operate the machine in areas that contain flammable objects, fuels, or products that produce flammable vapors.

Safety devices, controls, and attachments

Only operate the machine when:

- All safety devices and guards are in place and in working order.
- All controls operate correctly.
- The machine is set up correctly according to the instructions in the Operator's Manual.
- The machine is clean.
- The machine's labels are legible.

To ensure safe operation of the machine:

- Do not operate the machine if any safety devices or guards are missing or inoperative.
- Do not modify or defeat the safety devices.
- Only use accessories or attachments that are approved by Wacker Neuson.

Safe operating practices

When operating this machine:

- Remain aware of the machine's moving parts. Keep hands, feet, and loose clothing away from the machine's moving parts.

When operating this machine:

- Do not operate a machine in need of repair.
 - Do not consume the operating fluids used in this machine. Depending on your machine model, these operating fluids may include water, wetting agents, fuel (gasoline, diesel, kerosene, propane, or natural gas), oil, coolant, hydraulic fluid, heat transfer fluid (propylene glycol with additives), battery acid, or grease.
-

Personal Protective Equipment (PPE)

Wear the following Personal Protective Equipment (PPE) while operating this machine:

- Close-fitting work clothes that do not hinder movement
 - Safety glasses with side shields
 - Hearing protection
 - Safety-toed footwear
-

General operating safety

- Do not operate the machine with the beltguard missing. Exposed drive belt and pulleys create potentially dangerous hazards that can cause serious injuries.
- Never operate this machine in applications for which it is not intended.
- Do not use the trowel around pop-ups in the concrete that are lower than the lowest ring on the ring guard.
- Do not use a mobile device while operating this machine.
- Do not tip the machine for cleaning or for any other reason.
- Do not operate the trowel with the engine control module (safety interlock) disabled. Serious injury could occur if struck by rotating trowel due to disabling this interlock.

1.4 Service Safety

Service training	<p>Before servicing or maintaining the machine:</p> <ul style="list-style-type: none">■ Read and understand the instructions contained in all manuals delivered with the machine.■ Familiarize yourself with the location and proper use of all controls and safety devices.■ Only trained personnel shall troubleshoot or repair problems occurring with the machine.■ Contact Wacker Neuson for additional training if necessary. <p>When servicing or maintaining this machine:</p> <ul style="list-style-type: none">■ Do not allow improperly trained people to service or maintain the machine. Personnel servicing or maintaining the machine must be familiar with the associated potential risks and hazards.
Precautions	<p>When servicing or maintaining the machine:</p> <ul style="list-style-type: none">■ Read and understand the service procedures before performing any service to the machine.■ All adjustments and repairs must be completed before operating the machine. Do not operate the machine with a known problem or deficiency.■ All repairs and adjustments shall be completed by a qualified technician.■ Turn off the machine before performing maintenance or making repairs.■ Remain aware of the machine's moving parts. Keep hands, feet, and loose clothing away from the machine's moving parts.■ Re-install the safety devices and guards after repair and maintenance procedures are complete.
Machine modifications	<p>When servicing or maintaining the machine:</p> <ul style="list-style-type: none">■ Use only accessories/attachments that are approved by Wacker Neuson. <p>When servicing or maintaining the machine:</p> <ul style="list-style-type: none">■ Do not defeat safety devices.■ Do not modify the machine without the express written approval of Wacker Neuson.
Replacing parts and labels	<ul style="list-style-type: none">■ Replace worn or damaged components.■ Replace all missing and hard-to-read labels.■ When replacing electrical components, use components that are identical in rating and performance to the original components.■ When replacement parts are required for this machine, use only Wacker Neuson replacement parts or those parts equivalent to the original in all types of specifications, such as physical dimensions, type, strength, and material.

Cleaning

When cleaning and servicing the machine:

- Keep the machine clean and free of debris such as leaves, paper, cartons, etc.
- Keep the labels legible.

When cleaning the machine:

- Do not clean the machine while it is running.
 - Never use gasoline or other types of fuels or flammable solvents to clean the machine. Fumes from fuels and solvents can become explosive.
-

Personal Protective Equipment (PPE)

Wear the following Personal Protective Equipment (PPE) while servicing or maintaining this machine:

- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

In addition, before servicing or maintaining the machine:

- Tie back long hair
 - Remove all jewelry (including rings)
-

Safe service practices

- Do not crank a flooded engine with the spark plug removed on gasoline-powered engines. Fuel trapped in the cylinder will squirt out the spark plug opening.
 - Do not test for spark on gasoline-powered engines if the engine is flooded or the smell of gasoline is present. A stray spark could ignite the fumes.
 - Disconnect the spark plug on machines equipped with gasoline engines, before servicing, to avoid accidental start-up.
 - Do not remove blades while the machine is hanging overhead.
 - Only change the blades when the machine is supported securely.
 - Handle blades carefully. The blades can develop sharp edges which can cause serious cuts.
-

After use

- Stop the engine when the machine is not being operated.
- Close the fuel valve on engines equipped with one when the machine is not being operated.
- Ensure that the machine will not tip over, roll, slide, or fall when not being operated.
- Store the machine properly when it is not being used. The machine should be stored in a clean, dry location out of the reach of children.

1.5 Operator Safety while Using Internal Combustion Engines

**WARNING**

Internal combustion engines present special hazards during operation and fueling. Failure to follow the warnings and safety standards could result in severe injury or death.

- Read and follow the warning instructions in the engine owner's manual and the safety guidelines below.

**DANGER**

Exhaust gas from the engine contains carbon monoxide, a deadly poison. Exposure to carbon monoxide can kill you in minutes.

- NEVER operate the machine inside an enclosed area, such as a tunnel, unless adequate ventilation is provided through such items as exhaust fans or hoses.

Operating safety

When running the engine:

- Keep the area around the exhaust pipe free of flammable materials.
- Check the fuel lines and the fuel tank for leaks and cracks before starting the engine. Do not run the machine if fuel leaks are present or the fuel lines are loose.

When running the engine:

- Do not smoke while operating the machine.
- Do not run the engine near sparks or open flames.
- Do not touch the engine or muffler while the engine is running or immediately after it has been turned off.
- Do not operate a machine when its fuel cap is loose or missing.
- Do not start the engine if fuel has spilled or a fuel odor is present. Move the machine away from the spill and wipe the machine dry before starting.

Refueling safety

When refueling the engine:

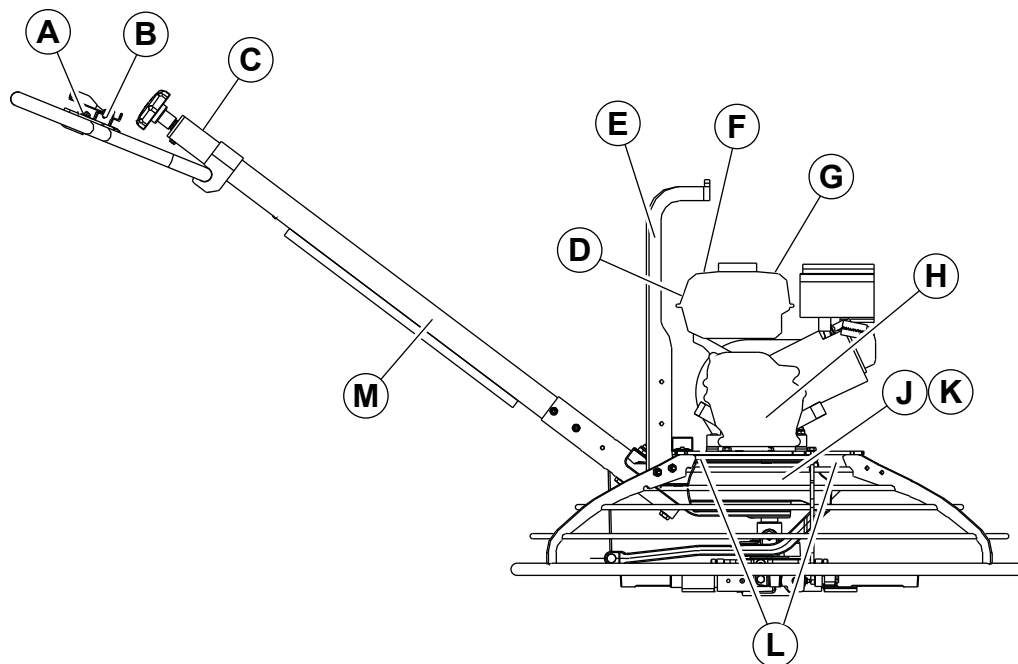
- Clean up any spilled fuel immediately.
- Refill the fuel tank in a well-ventilated area.
- Re-install the fuel tank cap after refueling.
- Use suitable tools for refueling (for example, a fuel hose or funnel).

When refueling the engine:

- Do not smoke.
- Do not refuel a hot or running engine.
- Do not refuel the engine near sparks or open flames.





2 Labels

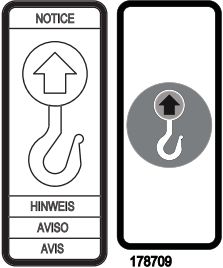


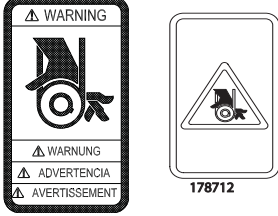
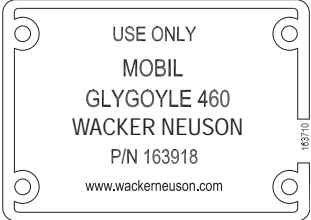
2.1 Label Locations



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2.2 Label Meanings

A		<p>Engine stop button: Press to stop engine.</p>
B		<p>Variable speed throttle</p>
C		<p>WARNING Always wear hearing and eye protection when operating this machine.</p>
D		<p>DANGER Asphyxiation hazard.</p> <ul style="list-style-type: none"> ■ Engines emit carbon monoxide. ■ Do not run the machine indoors or in an enclosed area. ■ NEVER use inside a home or garage, EVEN IF doors and windows are open. ■ Only use OUTSIDE and far away from windows, doors, and vents. ■ Read the Operator's Manual. ■ No sparks, flames, or burning objects near the machine. ■ Stop the engine before refueling. ■ Use only clean, filtered fuel.

E	 <p>178709</p>	<p>NOTICE Lifting point</p>
F	 <p>0117045</p> <p>178714</p>	<p>CAUTION Read and understand the supplied Operator's Manual before operating this machine. Failure to do so increases the risk of injury to yourself and others.</p>
G	 <p>117039</p> <p>178713</p>	<p>WARNING Hot surface</p>
H	 <p>178712</p>	<p>WARNING Hand injury if caught in moving belt. Always replace beltguard.</p>
J	 <p>163918</p>	<p>Use only Glygoyle 460 gear oil in gearbox.</p>

K	<div>U.S.PAT Nos: 5993109, 6155648, 6250844, 6322151 6368016, 6422786, 6619754, D390765, D410313, D453344 OTHER U.S. AND FOREIGN PATENTS PENDING TROWEL/BUGGY 159115</div>	This machine may be covered by one or more patents.
L	<div><div><div></div><div><p>WARNING</p><p>ADVERTENCIA</p><p>AVERTISSEMENT</p></div><div></div></div><div>111453</div><div><div></div><div></div></div><div>178740</div></div> <td><p>WARNING</p><p>Cutting hazard. Keep hands and feet away from blades. Always replace blade guard.</p></td>	<p>WARNING</p> <p>Cutting hazard. Keep hands and feet away from blades. Always replace blade guard.</p>
M	<div><div><div></div><div>① </div><div>② </div><div>③ </div><div>④ </div><div>⑤ </div><div>⑥ </div><div></div><div>① </div><div>② </div><div>③ </div></div><p>To start the machine:</p><ol style="list-style-type: none">1. Open the fuel flow valve.2. Close the choke.3. Push or turn engine switch to ON position.4. Place throttle in the IDLE position.5. Pull the rewind starter.6. Open the choke.<p>To stop the machine:</p><ol style="list-style-type: none">1. Press the stop button.2. Push or turn engine switch to OFF position.3. Close the fuel flow valve.</div>	

3 Lifting and Transporting

3.1 Lifting the Machine

**WARNING**

Personal injury hazard. **NEVER** lift the machine solely by the handle. The component may fail, causing the machine to fall, possibly injuring bystanders.

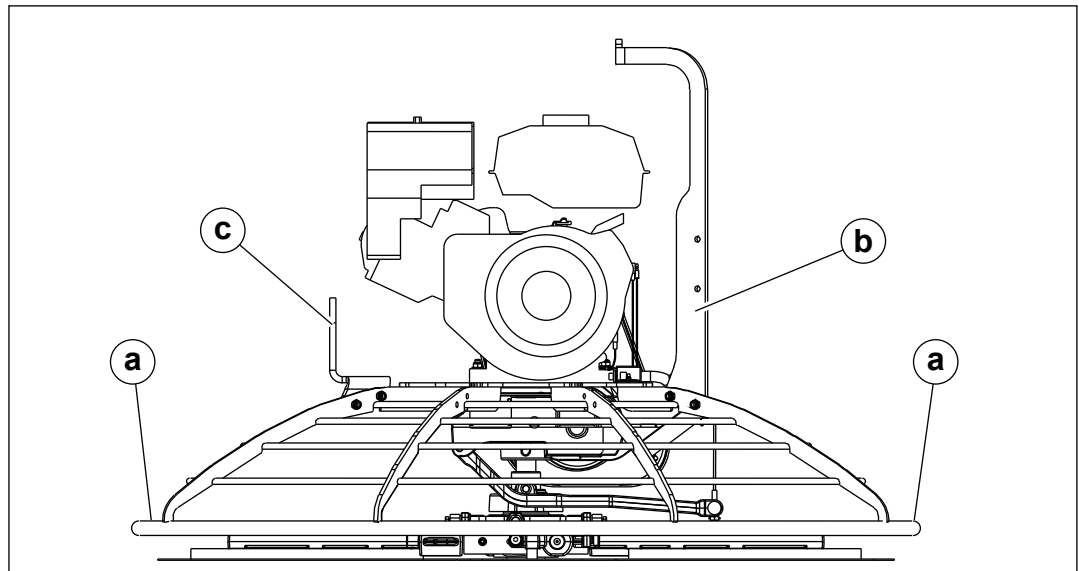
Manual lifting requirements

- Motor stopped
- A partner to help lift

Manual lifting

To manually lift the machine, perform the procedure below.

1. Stop the engine.
2. Grip the machine by the guard ring **(a)** or attach and grip the optional lifting bracket **(c)**.
 - a. Attach the optional lifting bracket to the trowel with screws and locknuts. Torque the screws to 25 Nm (18 ft.lbs.).
 - b. Insert a 2x4 or other suitable lumber into the bracket. The lumber must be long enough to extend past the ring guard.
 - c. Grip the machine by the handle and the lumber.



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3. Balance the weight between the partners
4. Lift the machine.

**WARNING**

To reduce risk of back injury while lifting, keep your feet flat on ground and shoulder width apart. Keep your head up and back straight.

Mechanically lifting requirements

- Motor stopped
 - Machine unplugged
 - Lifting equipment (crane, hoist, or fork truck) capable of supporting the machines weight
 - Lifting devices (hooks, chains, and shackles) capable of supporting the machines weight.
-

Mechanical lifting

To lift the machine mechanically, perform the procedure below.

1. Attach the optional lifting bracket **(b)** to the trowel with screws and locknuts. Torque to 25 Nm (18 ft.lbs.).
 2. Attach the lifting devices and equipment to the lifting bracket. Do not attach lifting devices to any other part of the machine.
 3. Lift the machine a small distance.
-



WARNING

Crushing hazard. An unstable machine may cause the lifting devices and equipment to fail. You may be crushed if the lifting devices and equipment fail.

- Check for stability before continuing.
-

4. Check for stability. If necessary, lower the machine, reposition the lifting devices and lift the machine a small distance again.
 5. Continue lifting the machine when it is stable.
-



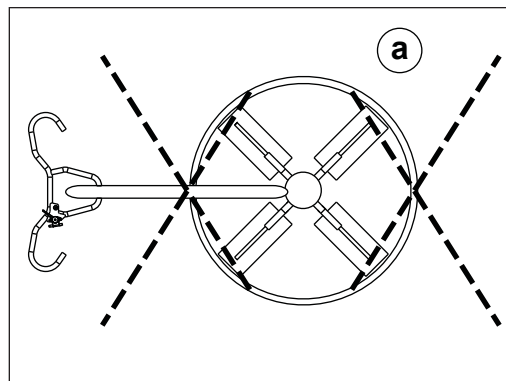
WARNING

Personal injury hazard. Do not lift the trowel overhead with a float pan attached, as the pan could fall off and strike personnel working in the vicinity.

3.2 Transporting the Machine

- Requirements**
- Transport vehicle capable of handling the weight of the trowel. See topic *Dimensions and Weight* for the weight of the machine.
 - Suitable ropes or chains.

- Procedure**
- Perform the procedure below to tie down and transport the machine.
1. Adjust the pitch (angle) of the trowel blades until the pitch cable is loose.
 2. Lift the trowel onto the transport vehicle.
 3. Position the handle so that it does not protrude outside of the transport vehicle.
 4. Connect the ropes/chains to the ring guard of the trowel as follows.
 - a. Connect them as low on the ring guard as possible to minimize stress on the gearbox output shaft.
 - b. Use a crossing pattern (a).



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5. Connect the ropes/chains to the transport vehicle. Do not overtighten them.

Result The machine is now ready to be transported.

4 Operation

4.1 Preparing the Machine for First Use

1. Make sure all loose packaging materials have been removed from the machine.
2. Check the machine and its components for damage. If there is visible damage, do not operate the machine! Contact your Wacker Neuson dealer immediately for assistance.
3. Take inventory of all items included with the machine and verify that all loose components and fasteners are accounted for.
4. Attach component parts not already attached.
5. Add fluids as needed and applicable, such as fuel and engine oil.
6. Move the machine to its operating location.

4.2 Recommended Fuel

The engine requires regular grade unleaded gasoline. Use only fresh, clean gasoline. Gasoline containing water or dirt will damage the fuel system. Consult the engine owner's manual for complete fuel specifications.

Use of oxygenated fuels

Some conventional gasolines are blended with alcohol. These gasolines are collectively referred to as oxygenated fuels. If you use an oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirement.

Before using an oxygenated fuel, confirm the fuel's contents. Some states and provinces require this information to be posted on the fuel pump.

The following is the Wacker Neuson approved percentage of oxygenates:

ETHANOL - (ethyl or grain alcohol) 10% by volume. You may use gasoline containing up to 10% ethanol by volume (commonly referred to as E10). Gasoline containing more than 10% ethanol (such as E15, E20, or E85) may not be used because it could damage the engine.

If you notice any undesirable operating symptoms, try another service station, or switch to another brand of gasoline.

Fuel system damage or performance problems resulting from the use of an oxygenated fuel containing more than the percentages of oxygenates mentioned above are not covered under warranty.

4.3 Refueling the Machine

- Requirements**
- Machine shut down
 - Engine cool
 - Machine/fuel tank level with the ground
 - Fresh, clean fuel supply

Procedure Perform the procedure below to refuel the machine.

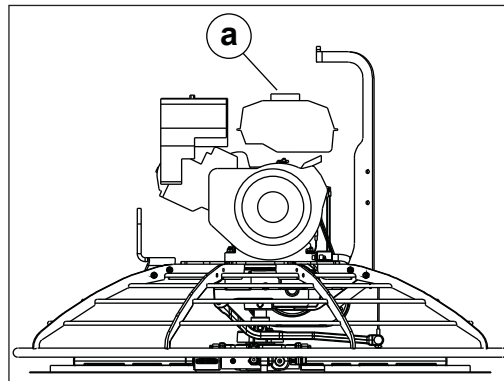


WARNING

Fire hazard. Fuel and its vapors are extremely flammable. Burning fuel can cause severe burns.

- Keep all sources of ignition away from the machine while refueling.
- Do not refuel if the machine is positioned in a truck fitted with a plastic bed liner. Static electricity can ignite the fuel or fuel vapors.
- Refuel only when the machine is outdoors.
- Clean up spilled fuel immediately.

1. Remove the fuel cap (a).



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2. Fill the fuel tank to the base of the neck.



CAUTION

Fire and health hazard. Fuel expands when heated. Expanding fuel in an over-filled tank can lead to spills and leaks.

- Do not overfill the fuel tank.

3. Re-install the fuel cap.

Result The procedure to refuel the machine is now complete.

4.4 Installing the Blades

Background Four types of blades are available for the trowels.

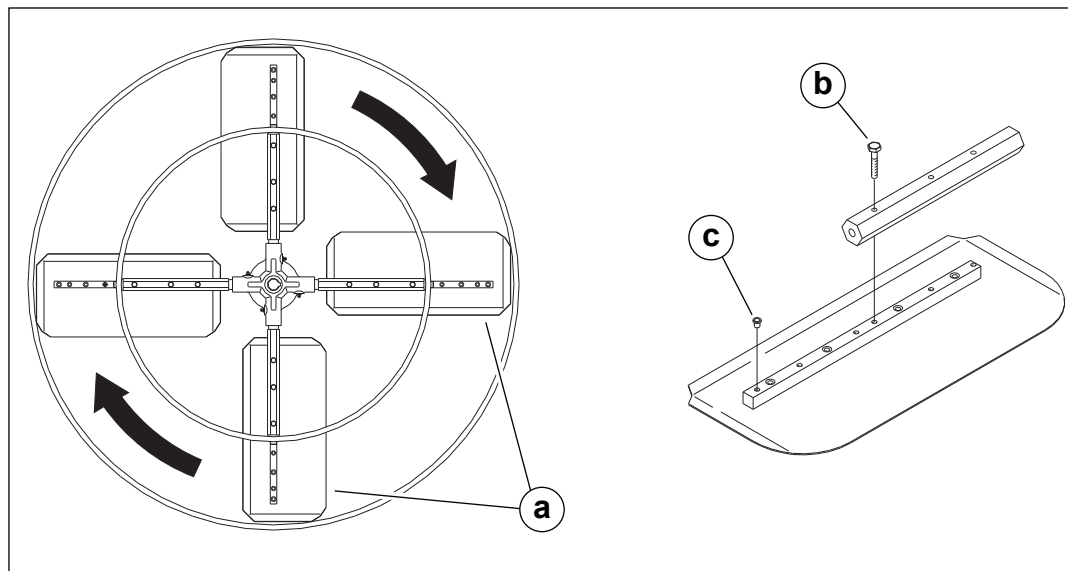
Blade	When to Use	Description
Float blade	Early stages	<ul style="list-style-type: none"> ■ Not pitched ■ Clips on over finish or combination blades
Combination	Used throughout	<ul style="list-style-type: none"> ■ Used in place of the other blades ■ Cannot be mixed with finish or float blades
Finish	Final stages	<ul style="list-style-type: none"> ■ Pitched ■ Flat on both edges ■ Can be installed in either direction
Float pan	Used throughout	<ul style="list-style-type: none"> ■ Not pitched ■ Hooks over finish or combination blades

Note: Trowel blades must NOT be interchanged, i.e., do NOT put larger diameter blades on a smaller diameter trowel.

Procedure

Perform the procedure below to install the blades.

1. Orient blades as shown (a). This positions the raised edges of the blade correctly for the clockwise rotation of the trowel arms.



wc_gr001097

This procedure continues on the next page.

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2. Secure the blades to the trowel arms with screws **(b)**.

Note: Dip the threads of the screws in grease prior to installation. This will prevent concrete from cementing the screws in place and will make removal of the blades easier.

3. Plug the remaining threaded holes in the blade brace with plastic plugs **(c)** to prevent them from filling with concrete.

Result

The blades are now installed.

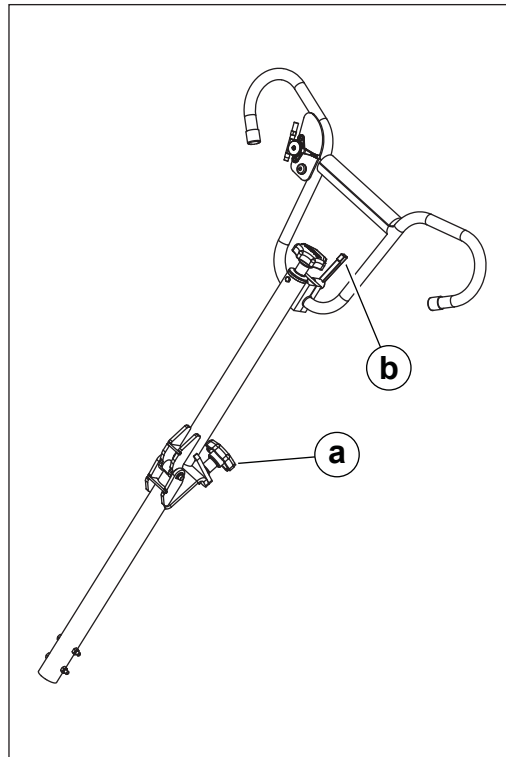
4.5 Adjusting the Handle—CT 36-5A

Background

On new machines, the handle comes folded and must be unfolded before use.

Procedure

1. Straighten the foldable handle.
2. Tighten the knob **(a)** to secure the handle in position.



wc_gr012093

3. Position the adjustable handle by loosening the lever **(b)** and adjusting the handle up or down to suit the operator.
4. Tighten the lever to secure the handle in position.

NOTICE: Do not fully pitch the trowel blades and fold the handle. This will result in binding the pitch cable and possibly damaging the pitch assembly. Flatten the trowel blades before folding the handle.

Result

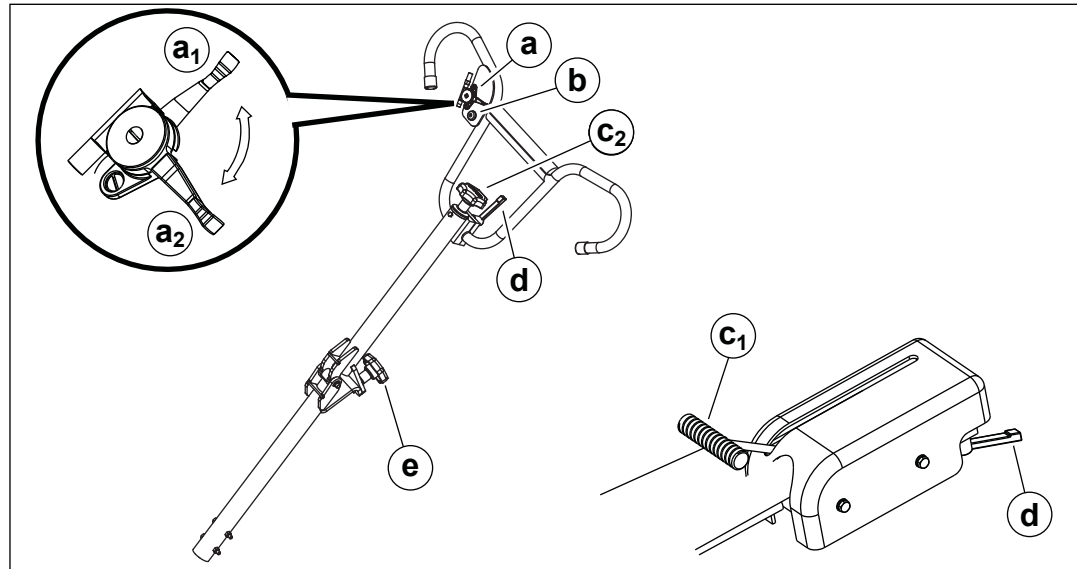
The handle is now installed.

4.6 Installing and Adjusting the Handle

Background On new machines, the handle comes folded and must be unfolded before use.

Procedure Perform the following procedure to unfold and adjust the handle.

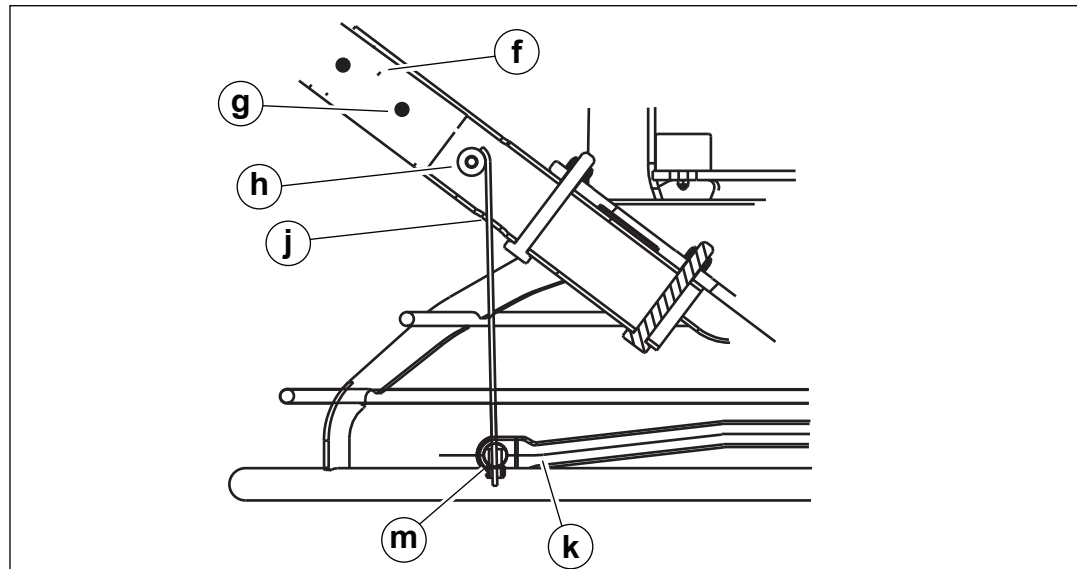
1. On machines with the foldable handle, straighten the handle and tighten the knob **(e)** to secure the handle in position.



wc_gr012094

Installing the pitch control cable

2. Pull the pitch control cable **(j)** from the bottom end of the tube.



wc_gr001758

3. Remove the cable nut **(m)** from the pitch control cable.

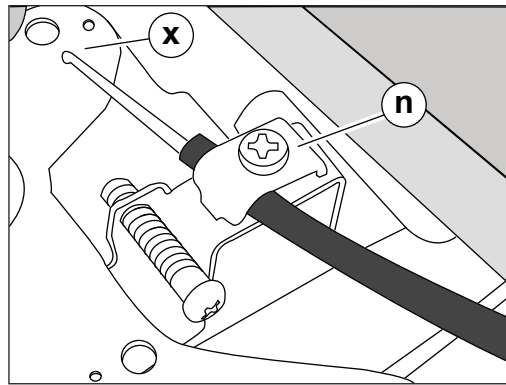
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4. Thread the pitch control cable through the handle base **(f)** and over the pulley **(h)**.
5. Attach the pipe handle to the handle base with two M8x65 screws **(g)**. Torque the screws to 25 Nm (18 ft.lbs.).
6. Push the *Pro-Shift*® handle **(c1)** all the way forward (away from the operator) OR turn the twist pitch control handle **(c2)** counterclockwise as far as possible.
7. Connect the pitch control cable to the fork **(k)** and adjust the cable nut so the cable is snug and the trowel blades lay flat (0° pitch).

Installing the throttle cable

8. Move the throttle to the idle position **(a1)**.
9. Remove the air cleaner cover.
10. Connect the throttle cable to the engine throttle bracket by placing the z-bend through hole in the throttle plate **(x)**. Connect the throttle cable into the throttle casing bracket with the clamp **(n)**.



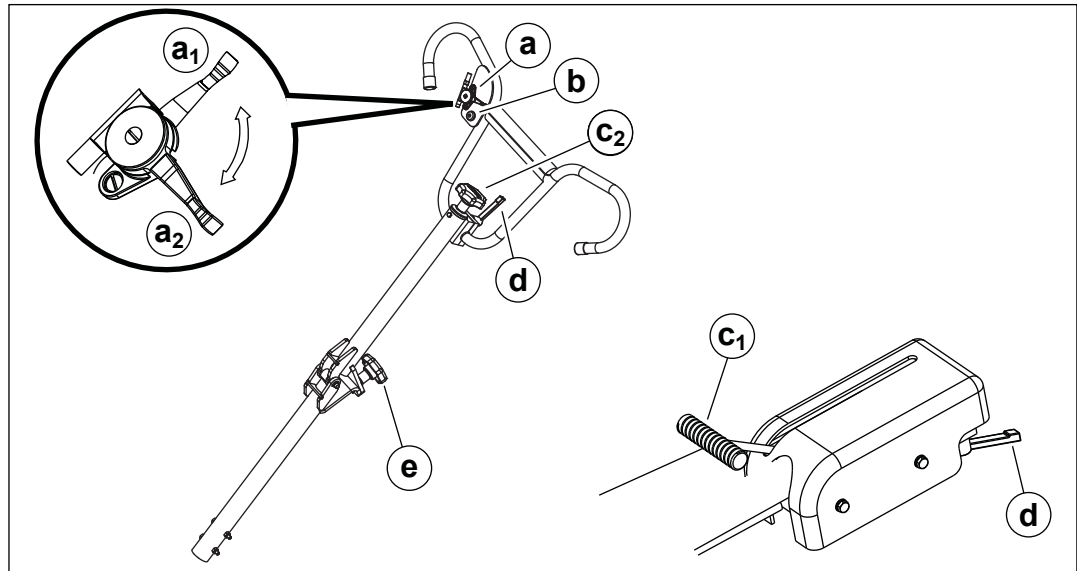
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11. Re-install the air cleaner cover.
 12. Connect the electrical wire on the handle to both ends of the engine wire. See handle instruction sheet for additional detail on installation.
- Note:** Do not connect wires in the bag on the engine to the wires on the handle.
13. On machines with an adjustable handle, position the handle by loosening the knob **(d)** and adjusting the handle up or down to suit the operator. Tighten the knob to secure the handle in position.

Result

The handle is now installed.

4.7 Controls



wc_gr012094

Ref.	Description	Ref.	Description
a	Throttle lever	d	Handle height adjustment (if equipped)
b	Stop button—when pressed, shuts off engine.	e	Foldable handle adjustment (if equipped)
c	Twist pitch control or Pro-Shift® pitch control	—	—

4.8 Braking System

The braking system of the trowel is spring-loaded.

- The brake is engaged when the input shaft of the gearbox is not rotating and/or there is no resistance against the blades of the trowel.
- The brake is released when the input shaft is rotating while there is resistance on the blades.

Note: *If there is no or low resistance against the blades, the brake may not release. Resistance against the blades allows the brake to release. If the machine is suspended or on a highly polished, slippery surface, the brake will not release and the belt could slip.*

4.9 Testing the Engine Control Module

Background To prevent uncontrolled spinning of the trowel, the trowel is equipped with an engine control module designed to shutoff the engine if the operator loses his/her grip on the trowel handle. The engine control module senses that the machine is spinning and shuts down the engine. The momentum of the spinning trowel engages the brake and stops the handle from spinning past 270°.

Procedure Perform the following procedure to test the engine control module.

1. Start the engine.
2. Jerk the handle to the right.
 - ▶ If the engine stops, the engine control module is functioning.
 - ▶ If the engine does not stop, repeat the jerking motion until the engine stops. If the engine still does not stop, push the stop button and turn the engine off. **DO NOT** operate the machine until the engine control module is replaced.



WARNING

Personal injury hazard. The uncontrolled spinning of the trowel may cause injury to the operator and others in the vicinity.

- ▶ Do not operate the trowel if the engine control module is disconnected or not functioning properly.

4.10 Position of the Operator

Background Safe and efficient use of this machine is the operator's responsibility. Full control of the machine is not possible unless the operator maintains the proper working position at all times.

While operating this machine the operator must:

- stand or walk behind the machine, facing forward;
- have both hands on the control handle;
- and guide the motion of the trowel by applying downward pressure to the control handle.

4.11 Optional Weights

Background Wacker Neuson supplies weight kits in order to add weights to the trowel guard rings to increase the burnishing force.

Procedure Perform the following procedure to add weights to the trowel.

1. Place an equal number of weights in both the front and rear of the guard ring in the designated area.
2. Tighten the screw to keep weights in place.



WARNING

Personal injury hazard. Using weights not authorized by Wacker Neuson could lead to personal injury or machine damage.

- Do not use any object as additional weight other than the weights recommended by Wacker Neuson.
-

4.12 Before Starting the Machine

Before starting the machine, perform each item on the following checklist.

Pre-operation checks

- ☐ Read and understand the engine owner's manual.
- ☐ Review and follow the safety instructions found in the front of this Operator's Manual.
- ☐ Know the label locations and meanings.

External checks

- ☐ Make sure the motor box, switch box, and terminal box covers are tight.
- ☐ Check the condition of the trowel arms and blades.
- ☐ Check the condition of the ring guard.
- ☐ Check that the handle height suits the operator.
- ☐ Make sure the adjustable lever is tight.
- ☐ Check the condition of the fuel lines.

Internal checks

- ☐ Check oil level in the gearbox.
- ☐ Check oil level in the engine.
- ☐ Check fuel level.
- ☐ Check the condition of the air filter.

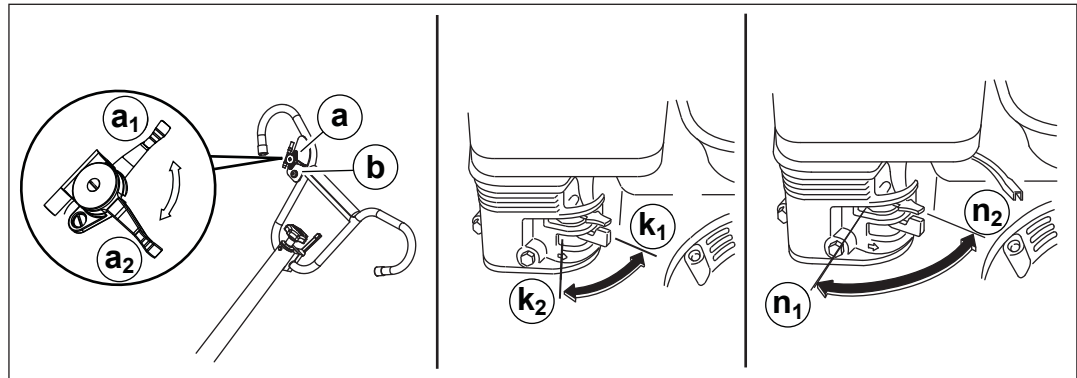
4.13 Starting, Operating, and Stopping the Machine

- Requirements**
- Fuel in fuel tank
 - Oil in the engine

Starting the machine

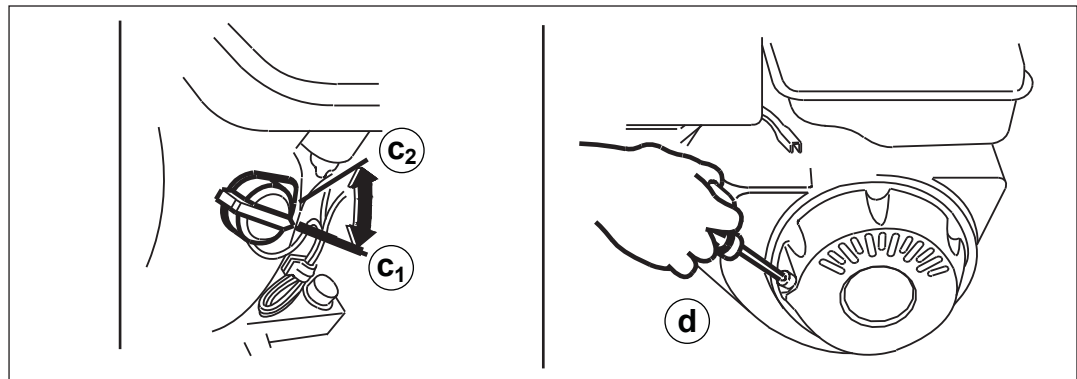
Perform the procedure below to start the machine.

1. Open the fuel valve by moving the lever to the right (**k1**).
 - If the engine is cold, move the choke to the closed position (**n1**).
 - If the engine is warm, move the choke to the open position (**n2**).



wc_gr001098

2. Turn the ON/OFF switch to the ON position (**c1**).



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3. Move the throttle to the idle position (**a1**).

Note: The engine does not start unless the throttle is in idle position.



WARNING

Personal injury hazard. Placing foot on the ring guard when starting the engine may cause severe injury if the foot slips through the ring guard.

- Do not place foot on the ring guard when starting the engine.

4. Pull the starter rope (**d**) until the engine starts.

This procedure continues on the next page.

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5. Open the choke as the engine warms **(n2)**.

**WARNING**

Personal injury hazard. ALWAYS test the function of the engine control module before operating the trowel.

- DO NOT operate the trowel if the engine control module is not functioning properly.

6. Test the engine control module. See the topic *Testing the Engine Control Module*.

7. Open the throttle to operate the trowel **(a2)**.

Notes

- When operating on soft concrete, do not let the trowel stand in one spot too long. Always lift the trowel from the slab when operation is complete.
- “Left” and “Right” references are made from the operator's position.

**WARNING**

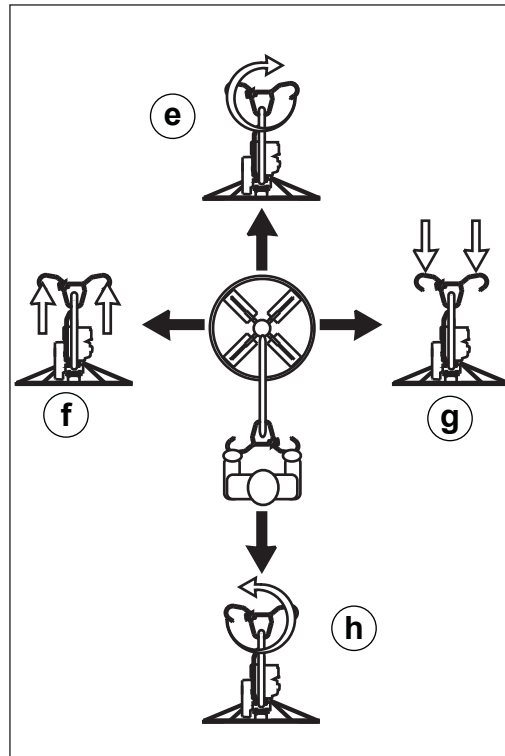
Personal injury hazard. Personnel other than the trowel operator should not be allowed in the work area, as severe injury can occur from contact with operating trowel blades.

- Only allow trowel operator in the area during trowel operation.

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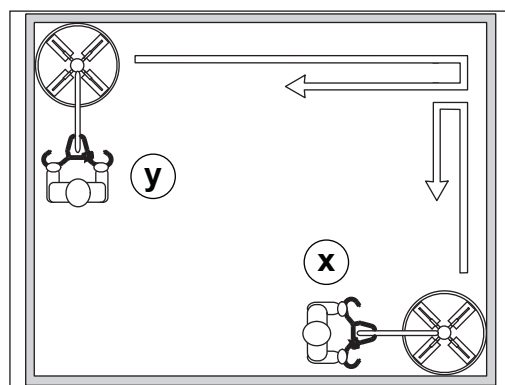
8. Move the trowel in the desired direction.
 - a. To move trowel forward, twist handle clockwise **(e)**.



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- b. To move backward, twist handle counterclockwise **(h)**.
 - c. To move to the left, lift up slightly on the handle **(f)**.
 - d. To move to the right, press down slightly on the handle **(g)**.

Note: To prevent the creation of valleys in the slab surface, it is recommended that each set of work passes **(x)** be 90° to the previous set of work passes **(y)**.



wc_gr003239

This procedure continues on the next page.

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Stopping the machine

9. Move the throttle to the idle position **(a1)**.
10. Push the stop button **(b)**.
11. Turn the ON/OFF switch to the OFF position **(c2)**.
12. Close the fuel valve by moving the lever to the left **(k2)**.
13. Allow the machine to cool.
14. Clean the trowel after each use by flushing with water to remove concrete splatter. Do not use a high pressure washer to clean electrical equipment.

Note: *Do not attempt to clean, service or perform adjustments on the trowel while it is running.*



WARNING

Personal injury hazard. Touching a hot motor could burn the operator.

- Allow the motor to cool before cleaning or servicing the machine.
-

4.14 Emergency Shutdown Procedure

Procedure

If a breakdown or accident occurs while the machine is operating, follow the procedure below:

1. Stop the engine.
2. Close the fuel valve.
3. Remove the machine from the job site using correct lifting techniques.
4. Clean concrete from the blades and the machine.
5. Contact the rental yard or machine owner for further instructions.

5 General Maintenance



WARNING

A poorly maintained machine can malfunction, causing injuries or permanent damage to the machine.

- Keep the machine in safe operating condition by performing periodic maintenance and making repairs as needed.

5.1 Maintaining the Emission Control System

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 dealer/service center authorized by the engine manufacturer. See the supplied engine owner's manual for the applicable emission warranty information.

5.2 Periodic Maintenance Schedule

The table below lists basic machine maintenance. Tasks designated with check marks may be performed by the operator. Tasks designated with square bullet points require special training and equipment.

	Daily	Every 50 hr	Every 100 hr
Check external hardware.	✓		
Clean trowel after each use to remove concrete splatter.	✓		
Grease blade arms as needed.		■	
Check drive belt.			■

5.3 Belt Replacement

Background The trowel is equipped with a self-adjusting clutch. This clutch automatically tightens the belt and compensates for belt wear. Replace the belt if the clutch can no longer tighten the belt enough to engage gearbox without slipping.

Procedure Perform the following procedure to replace the belt.

1. Shut off the engine.
2. Disconnect the spark plug lead.

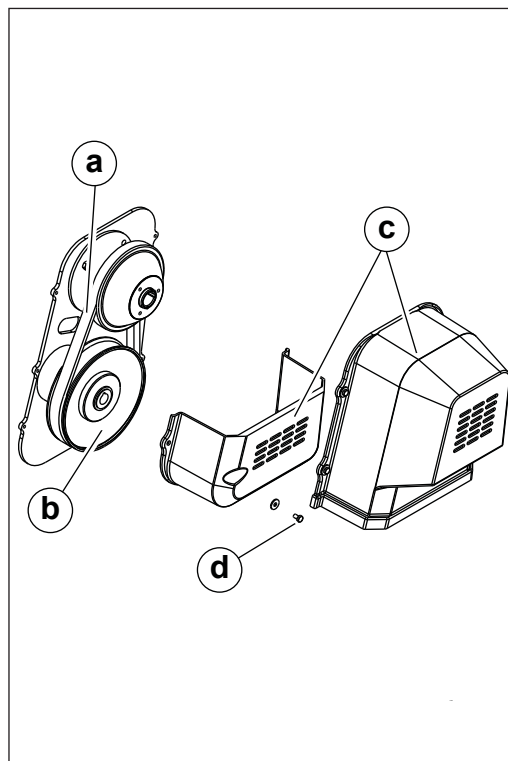


WARNING

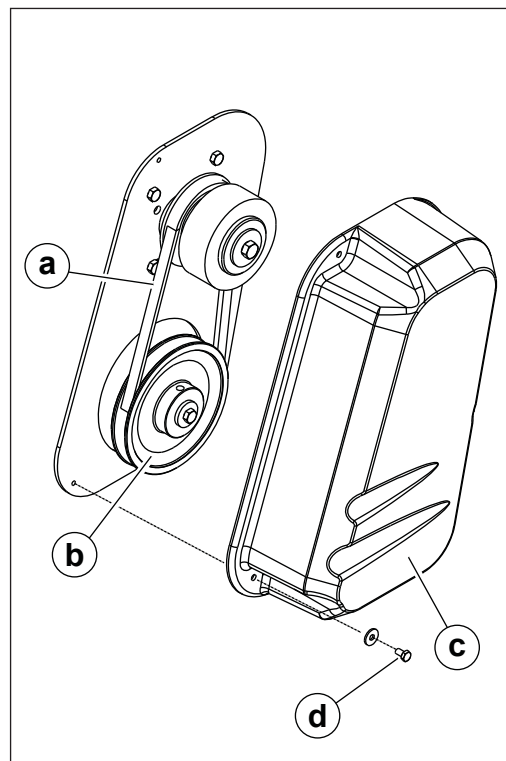
Personal injury hazard. Working on the machine with the spark plugs in may cause accidental starting of the machine which may lead to severe injury.

► Always disconnect the spark plug lead before working on the machine.

3. Loosen the screws **(d)** and remove the belt guard **(c)**.



wc_gr003221



wc_gr002380

4. Slowly turn the pulley **(b)** and roll the belt **(a)** off.

Note: The clutch and the pulley are aligned at the factory and neither should be removed during belt replacement.

5. Install the new belt.
6. Re-install the belt guard with washers and screws. Torque the screws to 5 Nm (3.7 ft.lbs.).

5.4 Trowel Lubrication

Trowel part	Instructions
Trowel arms	Grease with Lithium #2 (Shell Gadus S2) or equivalent as needed.
Pitch control cable	Oil as needed.
Gearbox	Oil should not require replacement unless it was drained to service gearbox. Check quantity through plug located on the side of the gearbox. Oil level should be to the bottom of the plug threads. See chapter <i>Technical Data</i> for oil quantity and type.

5.5 Long-Term Storage

Introduction Extended storage of equipment requires preventive maintenance. Performing these steps helps to preserve machine components and ensures the machine will be ready for future use. While not all of these steps necessarily apply to this machine, the basic procedures remain the same.

When Prepare your machine for extended storage if it will not be operated for 30 days or more.

Preparing for storage Perform the procedures below to prepare your machine for storage.

- Complete any needed repairs.
- Replenish or change oils (engine, exciter, hydraulic, and gearcase) per the intervals specified in the Scheduled Maintenance table.
- Grease all fittings and, if applicable, repack bearings.
- Inspect engine coolant. Replace coolant if it appears cloudy, is more than two seasons old, or does not meet the average lowest temperature for your area.
- If your machine has an engine equipped with a fuel valve, start the engine, close the fuel valve, and run the engine until it stops.
- Consult the engine owner's manual for instructions on preparing the engine for storage.

Stabilizing the fuel After completing the procedures listed above, fill the fuel tank completely and add a high-quality stabilizer to the fuel.

- Choose a stabilizer that includes cleaning agents and additives designed to coat/protect the cylinder walls.
- Make sure the stabilizer you use is compatible with the fuel in your area, fuel type, grade and temperature range. Do not add extra alcohol to fuels which already contain it (for example, E10).
- For engines with diesel fuel, use a stabilizer with a biocide to restrict or prevent bacteria and fungus growth.
- Add the correct amount of stabilizer per the manufacturer's recommendations.

Storing the machine

Perform these remaining steps to store your machine.

- Wash the machine and allow it to dry.
- Move the machine to a clean, dry, secure storage location. Block or chock wheels to prevent machine movement.
- Use touch-up paint as needed to protect exposed metal against rust.
- If the machine has a battery, either remove or disconnect it.

NOTICE: Allowing the battery to freeze or completely discharge is likely to cause permanent damage. Periodically charge the battery while the machine is not in use. In cold climates, store and charge the battery indoors or in a warm location.

- Cover the machine. Tires and other exposed rubber items should be protected from the weather. Either cover them or use a readily available protectant.

5.6 Machine Disposal / Decommissioning

Introduction

This machine must be properly decommissioned at the end of its service life. Responsible disposal of recyclable components, such as plastic and metal, ensures that these materials can be reused—conserving landfill space and valuable natural resources.

Responsible disposal also prevents toxic chemicals and materials from harming the environment. The operating fluids in this machine, including fuel, engine oil, and grease, may be considered hazardous waste in many areas. Before decommissioning this machine, read and follow local safety and environmental regulations pertaining to the disposal of construction equipment.

Preparation

Perform the following tasks to prepare the machine for disposal.

- ☐ Move the machine to a protected location where it will not pose any safety hazards and cannot be accessed by unauthorized individuals.
- ☐ Ensure that the machine cannot be operated from the time of final shutdown to disposal.
- ☐ Drain all fluids, including fuel, engine oil, and coolant.
- ☐ Seal any fluid leaks.

Disposal

Perform the following tasks to dispose of the machine.

- ☐ Disassemble the machine and separate all parts by material type.
- ☐ Dispose of recyclable parts as specified by local regulations.
- ☐ Dispose of all non-hazardous components that cannot be recycled.
- ☐ Dispose of waste fuel, oil, and grease in accordance with local environmental protection regulations.

6 Engine Maintenance

6.1 Periodic Maintenance Schedule: Wacker Neuson WM170

The table below lists basic machine and engine maintenance. Tasks designated with check marks may be performed by the operator. Tasks designated with square bullet points require special training and equipment.

Refer to the engine owner's manual for additional information.

	Daily before starting	After first 20 hours	Every 2 weeks or 50 hrs.	Every month or 100 hrs.	Every year or 300 hrs.	Every 500 hrs.
Check fuel level.	■					
Check engine oil level.	■					
Inspect fuel lines.	■					
Inspect air filter. Replace as needed.	■					
Check external hardware.	■					
Clean air cleaner elements.			■			
Change engine oil.		■*		■		
Clean sediment cup / fuel filter.				■		
Check and clean spark plug.				■		
Check and adjust valve clearance.					■	
Replace spark plug.						■

* Perform initially after first 20 hours of operation.

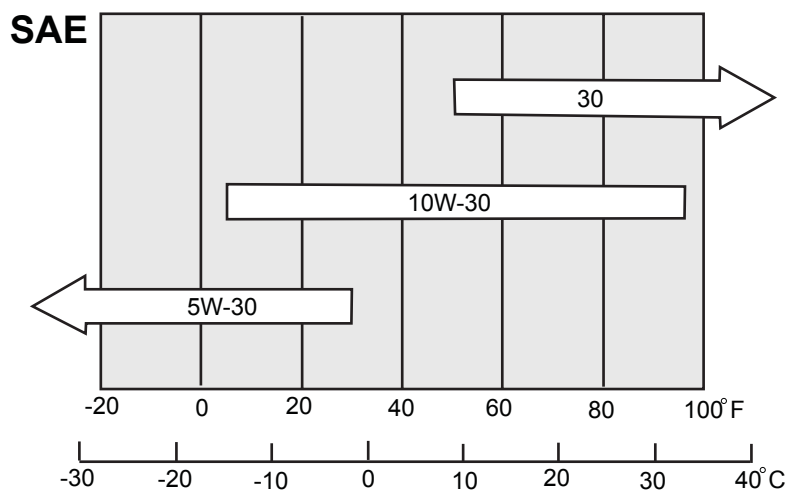
Maintenance, replacement or repair of emission control devices and systems may be performed by any repair establishment or individual.

6.2 Engine Oil: Wacker Neuson WM 170

Using engine oil of the correct grade and viscosity greatly lengthens engine life and improves performance. Too much or too little oil can result in serious engine problems, including seizure.

- Always use the automotive-type engine oil of the viscosity shown in the table. Adjust the viscosity level as temperatures dictate.
- Check engine oil level before each use of the engine. Change engine oil according to the maintenance schedule.

Note: When using multi-grade engine oil, consumption rate tends to increase when the air temperature is high.



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6.3 Periodic Maintenance Schedule: Honda GX 160

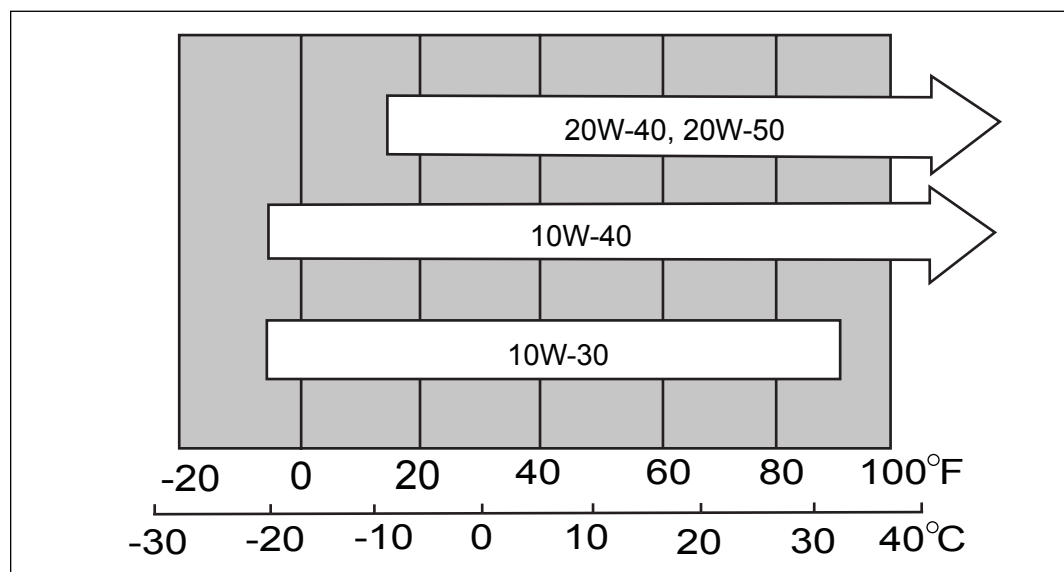
The engine maintenance schedule(s) in this chapter are reproduced from the engine owner's manual. For additional information, see the engine owner's manual.

Item: Perform at ever indicated month or operating hour interval, whichever comes first.	Daily before starting	First mo or 20 hr	Every 3 mo 50 hr	Every 6 mo 100 hr	Every year or 300 hr
Check the engine oil level.	■				
Check the reduction gear oil (applicable models only).	■				
Check the air cleaner.	■				
Change the engine oil.		■		■	
Change the reduction gear oil (applicable models only).		■			■
Clean the air cleaner. ¹			■		
Clean the sediment cup.				■	
Clean/readjust the spark plug.				■	
Clean spark arrester (optional part).				■	
Check/readjust the valve clearance. ²					■
Clean the fuel tank and strainer. ²					■
Check condition of the fuel lines. Replace when necessary. ² — every 2 years					
¹ Service more frequently in dusty conditions. ² These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual..					

6.4 Oil recommendations

Use Honda 4-stroke oil, or an equivalent high-detergent, premium-quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for Service Classification SG•SF/CC•CD. (Motor oils classified SG•SF/CC•CD will show this designation on the container.)

SAE 10W-30 is recommended for general, all-temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.



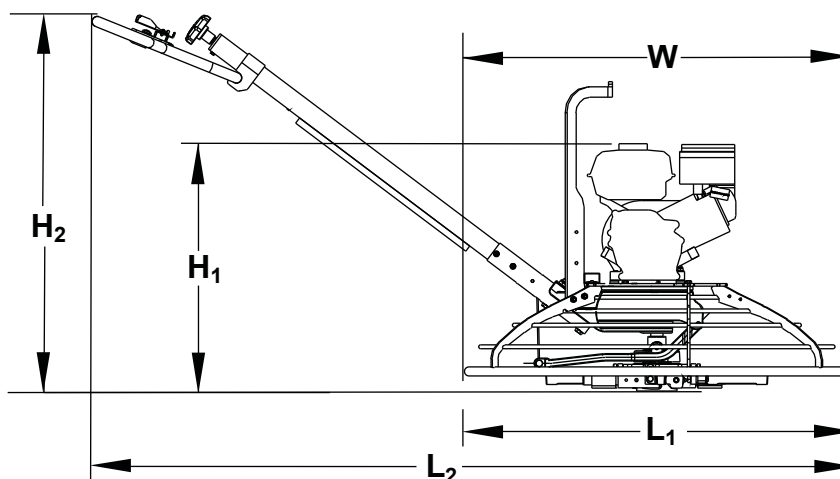
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Notes

- Engine oil is a major factor affecting engine performance and service life. Nondetergent oils and 2 stroke engine oils are not recommended because they have inadequate lubricating characteristics.
- Be sure to check the engine on a level surface with the engine stopped.

7 Technical Data

7.1 Dimensions



wc_gr001757

Model	Without handle	With handle		
	$L_1 \times W \times H_1$ mm (in.)	$L_2 \times W \times H_2$ mm (in.)	without weight kit kg (lb)	with weight kit kg (lb)
CT 36-5A	915x915x607 (36x36x24)	2005x915x1040 (79x36x41)	85 (183)	91 (201)
CT 36-8A	915x915x686 (36x36x27)	2005x915x1040 (79x36x41)	94 (208)	103 (226)
CT 36-8A-V	915x915x686 (36x36x27)	2005x915x1040 (79x36x41)	94 (208)	103 (226)
CT 48-8A	1220x1220x686 (48x48x27)	2160x1220x1040 (85x48x41)	105 (234)	114 (252)
CT 48-11A	1220x1220x712 (48x48x28)	2160x1220x1040 (85x48x41)	113 (250)	122 (268)
CT 48-13A-V	1220x1220x712 (48x48x28)	2160x1220x1040 (85x48x41)	121 (268)	130 (286)
CT 36-6	915x915x607 (36x36x24)	2005x915x1040 (79x36x41)	85 (183)	91 (201)
CT 36-9	915x915x686 (36x36x27)	2005x915x1040 (79x36x41)	90 (199)	98 (217)
CT 36-9-V	915x915x686 (36x36x27)	2005x915x1040 (79x36x41)	90 (199)	98 (217)
CT 48-9	1220x1220x686 (48x48x27)	2160x1220x1040 (85x48x41)	105 (234)	114 (252)

7.2 Engine: Honda

Engine Power Rating

Net power rating per SAE J1349. Actual power output may vary due to conditions of specific use.

Item No.		CT 36-5A 5000009438, 5000620106, 5000620829, 5200016256
Engine		
Engine make		Honda
Engine model		GX 160 K1 QX2
Max. rated power @ rated speed	kW (hp)	4.3 (5.7) @ 3800 rpm
Spark plug		NGK BPR 6ES
Electrode gap	mm (in.)	0.7–0.8 (0.028–0.031)
Operating speed	rpm	3800 ± 100
Engine speed - idle	rpm	1450 ± 100
Clutch engagement	rpm	1800
Valve clearance (cold) intake: exhaust:	mm (in.)	0.15 (0.006) 0.20 (0.008)
Air cleaner	type	Dual element
Engine lubrication	oil grade	SAE 10W30 SG or SF
Engine oil capacity	L (oz.)	0.6 (20)
Fuel	type	Regular unleaded gasoline
Fuel tank capacity	L (qt)	3.6 (3.8)
Fuel consumption	L (qt) /hr	1.8 (1.9)
Running time	hr	2

Item No.		CT 36-8A 5000009439 5000620831	CT 48A-8A 5000009449 5000620837
Engine			
Engine make		Honda	
Engine model		GX 240 K1 QA	
Max. rated power @ rated speed	kW (hp)	6.2 (8.3) @ 3800 rpm	
Spark plug		NGK BPR 6ES	
Electrode gap	mm (in.)	0.7–0.8 (0.028–0.031)	
Operating speed	rpm	3800 ± 100	
Engine speed - idle	rpm	1450 ± 100	
Clutch engagement	rpm	1800	
Valve clearance (cold) intake: exhaust:	mm (in.)	0.15 (0.006) 0.20 (0.008)	
Air cleaner	type	Dual element	
Engine lubrication	oil grade	SAE 10W30 SG or SF	
Engine oil capacity	L (oz.)	1.1 (37)	
Fuel	type	Regular unleaded gasoline	
Fuel tank capacity	L (qt)	6.0 (6.4)	
Fuel consumption	L (qt) /hr	2.7 (2.8)	
Running time	hr	2.25	

Item No.		CT 48-11A 5000009450 5000620835	CT 48-13A-V 5000009452 5000620836
Engine			
Engine make		Honda	
Engine model		GX 340 K1 QA	GX 390 U1 QA
Max. rated power @ rated speed	kW (hp)	8.7 (11.6) @ 3800 rpm	10 (13.4) @ 3800 rpm
Spark plug		NGK BPR 6ES	
Electrode gap	mm (in.)	0.7–0.8 (0.028–0.031)	
Operating speed	rpm	3800 ± 100	
Engine speed - idle	rpm	1450 ± 100	
Clutch engagement	rpm	1800	
Valve clearance (cold) intake: exhaust:	mm (in.)	0.15 (0.006) 0.20 (0.008)	
Air cleaner	type	Dual element	
Engine lubrication	oil grade	SAE 10W30 SG or SF	
Engine oil capacity	L (oz.)	1.1 (37)	
Fuel	type	Regular unleaded gasoline	
Fuel tank capacity	L (qt)	6.0 (6.4)	
Fuel consumption	L (qt) /hr	2.7 (2.8)	
Running time	hr	2.25	

7.3 Engine: Wacker Neuson

Engine Power Rating

Net power rating per SAE J1349. Actual power output may vary due to conditions of specific use.

Item No.		CT 36-6
Engine		
Engine make		Wacker Neuson
Engine model		WM170
Max. rated power @ rated speed	kW (hp)	4.2 (5.6) @ 3800 rpm
Spark plug		NGK BR6HS Champion RL86C
Electrode gap	mm (in.)	0.6–0.7 (0.024–0.028)
Operating speed	rpm	3800 ± 100
Engine speed - idle	rpm	1400 ± 100
Clutch engagement	rpm	1800
Valve clearance (cold) intake: exhaust:	mm (in.)	0.07–0.13 (0.0028–0.0051) 0.17–0.23 (0.0067–0.0091)
Air cleaner	type	Dual element
Engine lubrication	oil grade	SAE 10W30 SJ or higher
Engine oil capacity	L (oz.)	0.6 (20)
Fuel	type	Regular unleaded gasoline
Fuel tank capacity	L (qt)	3.6 (3.8)
Fuel consumption	L (qt) /hr	1.52 (1.6)
Running time	hr	2.4

Item No.		CT36-9 CT 36-9-V	CT 48-9
Engine			
Engine make		Wacker Neuson	
Engine model		WM270	
Max. rated power @ rated speed	kW (hp)	6.5 (8.7) @ 3800 rpm	
Spark plug		NGK BR6HS Champion RL86C	
Electrode gap	mm (in.)	0.7 – 0.8 (0.028 – 0.031)	
Operating speed	rpm	3800 ± 100	
Engine speed - idle	rpm	1400 ± 100	
Clutch engagement	rpm	1800	
Valve clearance (cold) intake: exhaust:	mm (in.)	0.07–0.13 (0.0028–0.0051) 0.17–0.23 (0.0067–0.0091)	
Air cleaner	type	Dual element	
Engine lubrication	oil grade	SAE 10W30 SJ or higher	
Engine oil capacity	L (oz.)	1.1 (37)	
Fuel	type	Regular unleaded gasoline	
Fuel tank capacity	L (qt)	6.0 (6.4)	
Fuel consumption	L (qt) /hr	2.5 (2.6)	
Running time	hr	2.4	

7.4 Trowel

Model	Trowel Diameter* mm (in.)	Number of Blades	Gear Box Lubrication type/ml (oz.)	Speed Range rpm	Pitch Range degrees	
Trowel						
CT 36-6	915 (36)	4	Mobil Glygoyle 460 Approx. 620 (21)	60–125	0–30	
CT 36-9						
CT 36-5A						
CT 36-8A						
CT 36-9-V				25–200		
CT 36-8A-V						
CT 48-9	1220 (48)					60–125
CT 48-8A						
CT 48-11A						
CT 48-13A-V				25–200		

* Trowel blades must NOT be interchanged, i.e., do NOT put larger diameter blades on a smaller diameter trowel.

7.5 Sound and Vibration Specifications

The required sound specification, Paragraph 1.7.4.2.u of 2006/42/EC Machinery Directive, is:

- the sound pressure level at operator's location (L_{pA}) : "**A**" dB(A)
- the guaranteed sound power level (L_{WA}) = "**B**" dB(A)

These sound values were determined according to ISO 3744 for the sound power level (L_{WA}) and ISO 6081 for the sound pressure level (L_{pA}) at the operator's location.

ISO 5349 Part 1 Annex F states, "The vibration characteristics of a vibrating tool can be highly variable. It is therefore important that the range of vibration conditions associated with different work pieces, materials, working conditions, methods of use of the tool, and exposure duration patterns be reported."

- The average hand and arm vibration value obtained for the entire operating rpm range is "**C**" m/s².
- The maximum hand and arm vibration value obtained within the entire operating rpm range is "**D**" m/s².
- The minimum hand and arm vibration value obtained within the entire operating rpm range is "**E**" m/s².

Products are tested for hand/arm vibration (HAV) level in accordance with ISO 5349 Part 1 and ISO 8662 Part 1.

Model	A	B	C	D	E
CT 36-5A	103	89	4.8	7.3	3.7
CT 36-8A	109	95	5.9	7.9	4.8
CT 36-8A-V	109	95	3.4	4.1	2.6
CT 48-8A	109	95	3.9	5.2	3.2
CT 48-11A	113	96	8.4	9.1	6.9
CT 48-13A-V	115	98	5.7	9.0	3.8
CT 36-6	103	89	6.3	8.4	4.7
CT 36-9	109	95	3.9	6.9	2.9
CT 36-9-V	109	95	3.5	2.9	5.1
CT 48-9	109	95	5.4	8.1	3.0

The sound and vibration specifications were obtained on wetted and cured concrete using the most commonly sold machine configurations. Vibration values will vary depending on throttle position, operating conditions, and handle option.

HAV Uncertainties

Hand-transmitted vibration was measured per ISO 5349-1. This measurement includes an uncertainty of 1.5 m/s².

8 Troubleshooting

Problem / Symptom	Reason	Remedy
Trowel does not develop full speed.	<ul style="list-style-type: none"> ■ Buildup in engine cylinder and engine head ■ Engine speed too low ■ Dirty or damaged air filter ■ Debris in moving parts and trowel blades ■ Cold engine ■ Damaged throttle lever or cable 	<ul style="list-style-type: none"> ■ Remove deposits from engine cylinder and engine head. ■ Adjust speed. ■ Clean or replace air filter. ■ Clean debris from moving parts and trowel blades. ■ In cold weather, warm the engine in idle for 3 or 4 minutes. ■ Check throttle lever and cable for proper operation.
Engine runs; poor trowel operation.	<ul style="list-style-type: none"> ■ Damaged or worn belt ■ Damaged or worn clutch ■ Debris in moving parts and trowel blades 	<ul style="list-style-type: none"> ■ Check belt for wear or damage. ■ Check clutch for wear or damage. ■ Clean debris from moving parts and trowel arms.
Engine does not start or runs erratically.	<ul style="list-style-type: none"> ■ Low fuel level ■ Closed fuel valve ■ Dirty air filter ■ Damaged spark plug ■ Damaged in-line fuel filter ■ Low oil level ■ Engine stop button is stuck ■ Throttle not in idle position at startup 	<ul style="list-style-type: none"> ■ Check fuel level. ■ Open fuel valve. ■ Clean air filter. ■ Check/replace spark plug. ■ Check in-line fuel filter. ■ Check engine oil level. ■ Check engine stop button. ■ Check that throttle is in idle position when starting machine.
Trowel handle tends to rotate when idling.	<ul style="list-style-type: none"> ■ High engine speed ■ Belt alignment off 	<ul style="list-style-type: none"> ■ Check engine idle speed. ■ Check belt alignment.

9 Emission Control Systems Information and Warranty

The Emission Control Warranty and associated information is valid only for the U.S.A., its territories, and Canada.

9.1 Emission Control Systems Warranty Statement

See the supplied engine owner's manual for the applicable exhaust and evaporative emission warranty statement.



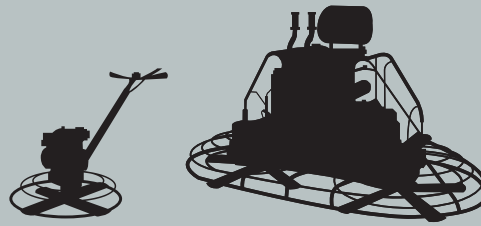
**CONCRETE
POWER TROWELS**

www.aem.org



SAFETY MANUAL

FOR OPERATING AND MAINTENANCE PERSONNEL



SAFETY ALERT SYMBOL



This Safety Alert Symbol means
ATTENTION is required!

The Safety Alert Symbol identifies important safety messages on machines, safety signs, in manuals or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to YOU?

3 BIG REASONS

- **Accidents KILL or DISABLE**
- **Accidents COST**
- **Accidents CAN BE AVOIDED**

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WORD OF EXPLANATION

The following is a partial list of reference material on safe operating practices:

U.S. Department of Labor publishes Safety and Health Regulations and Standards under the authority of the Occupational Safety and Health Act for the General Construction and Mining Industries. Its address is: U.S. Department of Labor, Washington, DC 20210 (www.OSHA.gov and www.MSHA.gov).

ANSI – American National Standards Institute, c/o The American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017 (www.ANSI.org).

ISO – International Standards Organization, 1, rue de Varembé Case postale 56, CH-1211 Geneva 20, Switzerland (www.ISO.ch).

SAE – Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, publishes a list, "Operator Precautions" SAE J153 MAY 87 (www.SAE.org).

AEM – Association of Equipment Manufacturers, 111 East Wisconsin Avenue, Milwaukee, WI 53202 (www.AEM.org).

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3

FOREWORD

This safety manual is intended to point out some of the basic situations which may be encountered during the normal operation and maintenance of your walk-behind or ride-on concrete power trowel and to suggest possible ways of dealing with these conditions.

Additional precautions may be necessary, depending on application and attachments used and conditions at the work site or in the maintenance area.

The trowel manufacturer has no direct control over machine application, operation, inspection, lubrication, or maintenance. Therefore, it is your responsibility to use good safety practices in these areas.

Do not use the trowel for any purpose other than its intended purposes or applications.

The information provided in this manual supplements the specific information about your machine and its application that is contained in the manufacturer's manual(s).

Other information which may affect the safe operation of your machine may be displayed on safety signs, or in insurance requirements, employer's safety programs, safety codes, local, state/provincial, and federal laws, rules, and regulations.

If you do not understand any of this information, or if errors or contradictions seem to exist, consult with your supervisor before operating your trowel!

IMPORTANT: If you do not have the manufacturer's manual(s) for your particular machine, get a replacement manual from your employer, equipment dealer, or manufacturer of your machine. Keep this safety manual and the manufacturer's manual(s) accessible to the operator and maintenance personnel.

Remember that **YOU** are the key to safety. Good safety practices not only protect you but also protect the people around you. It is your responsibility to study this manual and the manufacturer's manual(s) for your specific machine before operating your machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for concrete power trowels only. Practice all other usual and customary safe working precautions, and above all –

**REMEMBER – SAFETY IS UP TO YOU
YOU CAN PREVENT SERIOUS
INJURY OR DEATH**



5

FOLLOW A SAFETY PROGRAM

EQUIPMENT/CLOTHING

Consult your supervisor for specific instructions on a job, and the personal safety equipment required. For instance, you may need:

- Hard Hat
- Heavy Gloves
- Eye Protection
- Ear Protectors
- Safety Shoes
- Dust Mask or Respirator

Do not wear loose clothing or any accessory – flopping cuffs, dangling neckties and scarves, or jewelry – that can catch in moving parts.

DUST PRECAUTION

Some dust created by construction activities may cause silicosis or respiratory harm.

Your risk of exposure varies depending on how often you do this type of work. To reduce your risk, work in a well ventilated area, use a dust control system, and wear approved personal safety equipment such as a dust/particle respirator designed to filter out microscopic particles.



PREPARE FOR SAFE OPERATION

LEARN TO BE SAFE

- Read the operator's manual. If one has not been provided, get one and study it before operating the equipment.
- Learn the location and understand the functions of all controls before attempting to operate the equipment.
- Know the meaning of all identification symbols on the controls and gauges.
- Check to determine that the manufacturer's furnished safety warning labels are securely attached to the trowel and all warnings can clearly read. Replace labels and decals if they are missing or become worn or unreadable.
- Know the location and type of emergency shut-down control the trowel is equipped with.
- Never start or operate the trowel without protective guards and panels in place.
- Know the capabilities and limitations of the trowel.



SAFETY DEVICES

Know what safety devices your trowel is equipped with ... and see that each item is securely in place and in operating condition.

For example:

- Emergency stop switch or other "Shut-Down" devices
- Guards, Shields & Panels
- Alarms or Warning Lamps
- Drain Covers, Plugs, and Caps
- Pressure Relief Devices
- Lights



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PREPARE FOR SAFE OPERATION

PRE-OPERATIONAL CHECKS

Walk around the trowel. Carefully inspect for evidence of physical damage, such as cracks, bends, or deformation of plates and welds. Check for loose, broken or missing parts on the trowel, including brackets, vibration isolators, nuts and bolts. Hardware should be replaced with original equipment manufacturer's (OEM) parts, and should be properly tightened to the manufacturer's recommendations.

Remove all trash and debris from the trowel. Make sure oily rags, leaves, or other flammable material are removed and not stored on the trowel. Avoid potential fire hazards!

Clean all oil or grease from operator areas such as control handles, foot pedals, or platforms to prevent slipping.

Check for fuel, oil, and hydraulic fluid leaks. All leaks must be corrected before the trowel is operated.



Inspect all hydraulic hoses for cracks or signs of wear and replace if necessary. Secure all caps and filler plugs for all systems.

Always use a flashlight or shielded trouble light when checking for leaks – never use an open flame. Never check for hydraulic leaks with your hand. Hydraulic systems are under high pressure and leaks in these systems can penetrate the skin which can result in serious injury or even death. Always use a piece of cardboard or wood when looking for hydraulic leaks.

Be sure the trowel is properly lubricated. See that the fuel, lubricating oil, coolant and hydraulic reservoirs are filled to the proper levels with the correct fluids according to the manufacturer's instructions and recommendations.



PREPARE FOR SAFE OPERATION

FIRE PREVENTION

Always stop the engine and allow it to cool before refueling.

Never refuel –

- When engine is running
- Near open flame or sparks
- While smoking
- In poorly ventilated areas



Never overfill fuel tanks or fluid reservoirs. In the event of a fuel spill, do not attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry. Replace fuel cap securely after refueling.



Inspect electrical wiring for damage or wear.

Batteries produce explosive gas. Keep open flame or sparks away.

In case of accident or fire, be ready to act quickly, yet calmly. Do not panic. Knowing ahead of time where to locate a first aid kit, fire extinguisher, or to get assistance will help should an emergency situation come up.

CHECK THE WORK AREA

Learn – beforehand – as much about your working area as possible.

Be observant of other workers, bystanders and other machinery in the area. Keep all unauthorized, untrained people and children out of the area while the trowel is in operation.



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PREPARE FOR SAFE OPERATION

CHECK THE AREA

Thoroughly check the area for unusual or dangerous conditions, such as tools, or items that may damage the trowel or be propelled by the trowels rotating blades. Note where pipes and forms are located. Locate and mark protrusions (rebar, anchor bolts, floor drains, etc.) in the concrete.

GETTING ON AND OFF A RIDE-ON TROWEL

If operating a ride-on trowel, mount and dismount carefully. Use the steps and hand holds provided. Do not use control levers as hand holds and never use guard rings as steps. Watch for surfaces that may be slippery. Never jump off a ride-on trowel.

OPERATING ON AN ELEVATED DECK (MULTI-STORY OPERATION)

Consult local/state regulations before you operate equipment on an elevated deck. If operating on an elevated deck, ensure perimeter safety cabling of proper size and strength is in place. Do not operate the trowel close to the edge of the deck.

TRANSPORTING THE TROWEL

Never transport the trowel with float pans attached unless safety catches are used and are specifically cleared for such transport by the manufacturer. Under no circumstances hoist the trowel more than three feet off the ground with float pans attached. Always consult the manufacturer's operation manual for specific information on transporting the trowel.

START CORRECTLY – START SAFELY

Before starting, check for proper functioning of all operation and shutdown controls. Check all controls to be sure they are in the correct startup position. Know the proper starting procedure for your trowel. Follow the manufacturer's operational instructions.

WALK-BEHIND TROWELS

- Ensure that the operator is familiar with the trowel and is trained on its operation.
- Ensure the operator is well rested, not fatigued, is alert, and not impaired in any way (medications, drugs, alcohol, etc.).
- Do not start or operate the trowel if the drive train will not disengage. Centrifugal force between the trowel and surface when starting can cause uncontrolled handle movement that can cause serious injury. The handle must not move while pulling the engine recoil starter.
- Visually check to be sure that the blades are free of obstructions and the area is clear for operation.
- For trowels that use this feature, ensure that the emergency stop switch is in the ON position.
- Move the throttle to the idle position.
- Switch the engine ON/OFF switch to the ON position.
- Never place your foot on the ring guard when starting the engine or severe injury can occur if your foot slips through the ring guard as the blades start to spin.
- While firmly holding the handle with one hand, start the engine following the guidelines in the engine manufacturer's instruction manual.
- Hold the handle bar firmly with both hands while the trowel is "throttled-up".
- If control of the trowel is lost, stay clear and do not attempt to regain control until the trowel has stopped moving. Depending on the engine speed, the trowel handle can swing around before it stops completely.
- You are ready to operate the trowel!

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START SAFELY

RIDE-ON TROWELS

- Ensure that the operator is familiar with the trowel and is trained on its operation.
- Ensure the operator is well rested and not fatigued, is alert, and not impaired in any way (medications, drugs, alcohol, etc.).
- Adjust the seating if necessary and get into a comfortable position where all controls are accessible.
- Visually check to be sure that the blades are free of obstructions and the area is clear for operation.
- Start the trowel following the instructions in the engine manufacturer's operation manual. For diesel powered trowels, follow the instructions for glow plug and cold start operation.
- Observe any gauges and warning lights to ensure they are functioning and their readings are within the manufacturer's normal operating range.
- Check operation of controls. Make certain they operate properly.
- You are ready to operate the trowel!



SAFE WORKING PROCEDURES

DANGER – CARBON MONOXIDE

Exhaust from the engine contains poisonous carbon monoxide gas that is not easily detected as it is colorless and odorless. Exposure to carbon monoxide can cause loss of consciousness and may lead to death! Do not operate your trowel indoors or in an enclosed area unless adequate ventilation is provided. Ensure that permissible carbon monoxide levels are monitored and not exceeded.



OTHER PRECAUTIONS

- Never leave the trowel unattended while it is running.
- Always keep clear of rotating or moving parts.
- Never use additional weights other than the weights recommended by the manufacturer. The use of unauthorized weights could lead to personal injury or damage to the trowel.

- Never fill the fuel tank while the engine is running. Turn the engine off and allow it to cool before refueling.

- The muffler, exhaust pipes and other engine parts will become hot during operation and will remain hot for a while after shutdown. Do not touch until allowed to sufficiently cool. Do not allow debris, rags, paper, or leaves to accumulate around these areas.



- Do not keep tools, buckets, loose materials on the trowel while it is running and never allow anyone other than the operator on or near the trowel while it is in operation.
- Do not use the trowel for any purpose other than its intended purposes or applications.

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WORK SAFELY

ELECTRICAL EQUIPMENT

Some walk-behind trowels are powered by electric motors. Electric motors and components present special hazards during operation. Read the operator's manual.

- Never operate a trowel with a damaged or worn electrical cord. When using an extension cord, be sure to use one heavy enough to carry the current load. When trowel is used outdoors, use only extension cords that are marked for outdoor use.
- Use only appropriate extension cords that have grounding-type plugs and receptacles that accept the machine's plug.



- Keep all electrical cords away from rotating elements, heat, oil, and sharp edges to avoid damaging them.
- Avoid body contact with grounded surfaces such as pipes, metal railings, radiators and metal ductwork.
- Always check the power supply before running the trowel. Using the wrong voltage supply will damage the motor.
- Always make sure the motor switch is OFF or in the stop position before plugging the trowel into the power supply.
- Do not operate an electric powered trowel in the rain or snow. Keep the motor, switch, and electrical cords dry.
- Never operate the trowel in areas exposed to flammable or explosive liquids or gases. Sparks could ignite fumes.

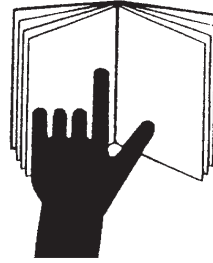
SHUT DOWN SAFELY

SHUT DOWN PROCEDURES

Never disable or disconnect the safety devices!

Always close fuel valves when the machine is not being used.

Refer to the manufacturer's manuals for specific shut down procedures.



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LOAD AND UNLOAD SAFELY

PRECAUTIONS

- Power trowels are heavy and awkward to move around.
- Do not attempt to lift the ride-on trowel by the guard rings.
- Use proper heavy lifting procedures.
- Keep all non-essential personnel clear of the area.
- Never hoist the trowel over areas where people are standing or working.
- Remove tools and loose items before lifting.
- Make sure the crossbars on the safety catches are in good condition if so equipped.
- Always consult your operator's manual for the best and proper lifting, loading, and unloading methods.

WALK-BEHIND TROWELS

Some walk-behind trowels can be lifted or moved by two people utilizing lifting tubes or other special attachments. Generally however, they must be

lifted using lifting bales (special lifting brackets), or other specific lifting points provided by the manufacturer, and cranes, hoists, or forklifts. Be certain any lifting devices used have adequate capacity.

RIDE-ON TROWELS

Ride-on trowels are very heavy. They require heavy-duty lifting devices such as cranes or heavy-duty hoists to lift them on and off the concrete slab.

Be certain any lifting devices used have adequate capacity. Some ride-on trowels are equipped with lifting bosses that are used with specialized apparatus to assist in moving the trowels around. Use extreme care when lifting or moving a ride-on trowel.

STORAGE

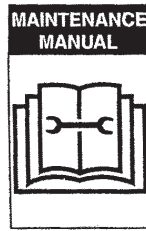
Always store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of reach of children.

PERFORM MAINTENANCE SAFELY

SERVICE AND MAINTENANCE SAFETY

Poorly maintained equipment can become a safety hazard! In order for your trowel to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

Do not attempt to clean, service, or perform adjustments on the trowel while it is running.



GOOD HOUSEKEEPING

Keep area clean and dry if possible. Oily and wet surfaces are slippery; greasy rags are a fire hazard; wet spots are dangerous around electrical equipment.



GENERAL PROCEDURES

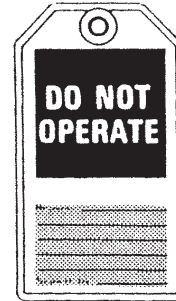
Do not perform any work on the trowel unless you are authorized to do so.

Standard maintenance procedures should always be observed. Read the manufacturer's manual or find assistance if you do not understand what you are doing.

Maintenance can be dangerous unless performed properly. Be certain that you have the necessary skill and information, correct tools and equipment to do the job correctly.

Attach a Do Not Operate tag or similar warning tag to the control panel (or handle on walk-behind trowels), and disconnect the battery (disconnect the spark plug wire on walk-behind trowels), before performing maintenance on the machine.

Disconnect the electric cord on electrical machines.



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PERFORM MAINTENANCE SAFELY

FORM GOOD DRESS HABITS

Loose clothing and jewelry can catch in moving parts and cause serious injury.

Keep hands – and clothing – away from moving parts.

GUARDS AND SAFETY DEVICES

After performing maintenance make certain all guards and panels have been reinstalled and all safety devices are functional.

BATTERY MAINTENANCE

Always wear eye and face protection.

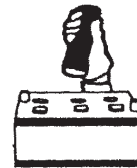
Batteries produce explosive gases. Keep open flame or sparks away. See the manufacturer's instructions when servicing the batteries, when using jumper cables, or when using a battery charger.



Use a flashlight to check battery electrolyte level. Always check with engine stopped.

Battery electrolyte is poisonous. It is strong enough to burn your skin, eat holes in clothing, and can cause blindness if splashed into eyes. Always wear eye and face protection.

Flush any contacted area with water immediately.



PERFORM MAINTENANCE SAFELY

FIRE PREVENTION

Avoid fire hazards.

Always stop the engine and allow it to cool before you refuel the trowel. Do not refuel while smoking or near open flame or sparks. Never overfill fuel tanks or fluid reservoirs.

Remove all trash or debris. Make sure oily rags or other flammable materials are not stored on or in the trowel.

Check for fuel, oil, or hydraulic fluid leaks. Repair the leaks and clean the machine before you operate it.

Inspect electrical wiring or worn or frayed insulation. Install new wiring if wires are damaged.

Do not weld or flame cut on pipes, tubes, or tanks that contain flammable fluids or gases.

Ether and starting fluid is flammable. Do not smoke when using. Always follow the instructions on the can and in the manufacturer's manual for your trowel.

Always use a safe, nonflammable solvent when you clean parts. Do not use flammable fluids or fluids that give off harmful vapors.

Store all flammable fluids and materials away from your work area.

Whenever the sparkplug is removed, do not test for spark on gasoline powered engines if engine is flooded or the smell of gasoline is present. A stray spark could ignite fumes.

Know where fire extinguishers are kept – how they operate – and for what type of fire they are intended!

Check readiness of fire suppression systems and fire detectors (if so equipped).



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PERFORM MAINTENANCE SAFELY

EXHAUST FUMES

Engine exhaust fumes can cause sickness or death.

When performing maintenance, if it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area when an exhaust pipe extension. If you do not have an exhaust pipe extension, make sure you open the doors and get outside air into the area.

Ensure that permissible carbon monoxide levels are monitored and not exceeded.



FLUID SIPHONING

Never siphon gasoline or hydraulic fluid using a hose and suction by mouth. Ingestion of these fluids even in small amounts will require immediate medical attention and can cause death.

COOLING SYSTEM

Maintain the cooling system according to the manufacturer's instructions.

Hot coolant can spray out and you can be burned if you improperly maintain or service the cooling system.

Remove filler cap only when cool.



PERFORM MAINTENANCE SAFELY

TROWEL BLADES AND PANS

- Do not attempt to clean, service or perform adjustments on the trowel while it is running.
- Do not remove while the trowel is hanging overhead. Always support the trowel securely on a flat, level surface before changing blades or pans.
- Always handle blades and pans carefully. Worn blades or pans may develop sharp edges that can cause serious cuts.
- Always replace worn or damaged parts with service parts designated by the manufacturer.
- Replace blades and pans as a complete set – even if only one blade or pan is showing wear or damage. They can wear differently depending on different jobs, and a difference in blade size will damage the finish of the slab surface.

HYDRAULIC SYSTEMS

Hydraulic fluid systems operate under high pressure. Even a small leak can have enough force to penetrate the eyes or skin. If injury occurs, seek immediate medical treatment by a physician familiar with injuries that are caused by hydraulic oil escaping under pressure.

Use a piece of wood or cardboard to find hydraulic oil leaks. Do not use your bare hands.

Wear safety glasses to prevent injuries to the eyes.

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TEST YOUR KNOWLEDGE

Do you understand this AEM manual and items such as –

- Your safety program?
- Your trowel manufacturer's manual(s)?
- Proper clothing and personal safety equipment?
- Your trowel's controls, warning signs and devices, and safety equipment?
- Proper trowel lifting and moving procedures?
- How to inspect and start your trowel?

- How to check your trowel for proper operation?
- Proper working procedures?
- Proper shut down procedures?
- Your work area and any special hazards that may exist?
- Under what conditions you should not operate your trowel?

If you do not understand any of these items, consult with your supervisor before operating your trowel.

A FINAL WORD TO THE USER

Remember that **YOU** are the key to safety. Good safety practices not only protect you but protect the people around you.

You have read this safety manual and the manufacturer's manual(s) for your specific trowel. Make them a working part of your safety program. Keep in mind that this safety manual is written for only this type of machine.

Practice all other usual and customary safe working precautions, and above all –

REMEMBER – SAFETY IS UP TO YOU

**YOU CAN PREVENT SERIOUS
INJURY OR DEATH**

This manual is another in a series on the safe operation of machinery published by AEM.
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