

Foreword

This manual has been written to help you operate your concrete finisher safely. It is intended primarily for dealers and operators of ESI concrete finishers. It is recommended that you keep this manual or a copy of it with the machine, so that it is readily available for reference.

Before you operate or carry out any maintenance on this machine, YOU MUST READ and UNDERSTAND this manual.

Should you have ANY QUESTIONS about the safe use or maintenance of this machine after reading this manual, ASK YOUR SUPERVISOR or CONTACT:
ESI Equipment Synergy International at 1-866-648-7101 (toll free)

ESI reserves the right to change machine specification without prior notice or obligation.

Safety Notation Explanation

Texts in this manual to which special attention must be paid are shown in the following way:



CAUTION

This CAUTION sign indicates a potential hazard, which if ignored, could result in injuries to the operator and/or those close by, as well as damaging the machine.



WARNING

This WARNING sign indicates a potential hazard, which if ignored could result in the DEATH of the operator and/or those close by.

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Safety Information

For your own personal protection and for the safety of those around you, please read and ensure you fully understand the following safety information. It is the responsibility of the operator to ensure that he/she fully understands how to operate this equipment safely. If you are unsure about the safe and correct use of the concrete finisher, consult your supervisor or ESI.



CAUTION

Improper maintenance can be hazardous. Read and understand this section before you perform any maintenance, service or repairs.

General Safety

- The owner of this machine must observe, and also train the user of the machine to observe, the effective labour protection laws in the country of application.
- This machine is to be used for its intended application only.
- This machine must only be operated by well-trained personnel.
- Personal Protective Equipment (PPE) must be worn by the operator whenever the equipment is being used.
- Cordon off the work area and keep members of the public and unauthorised personnel at a safe distance.
- Do not lift the machine with the float pans on the blades, remove pans first before lifting.
- Make sure you know how to safely switch this machine OFF before you switch it ON in case you run into any difficulties.
- Always switch OFF the engine before servicing it.
- During use, the engine becomes very hot. Always allow the engine to cool down before touching it or adding fuel.
- Never leave the engine running and unattended.
- Never remove or tamper with any fitted guards; they are there for your own protection. If they are damaged or missing, DO NOT USE THE MACHINE until the guard has been replaced or repaired.
- Always switch OFF the engine before transporting it, moving it around site or servicing it.
- Do not operate the machine when you are ill, feeling tired or when under the influence of alcohol or drugs.
- This machine is designed to eliminate the possible risks arising from the use of it. However, risks DO reside, and these residual risks are not always clearly recognizable and may cause personal injury or property damage, and possibly death. If such unpredictable and unrecognizable risks become apparent, the machine must be stopped immediately, and operator or his supervisor must take appropriate measure to eliminate such risks. It is

sometimes necessary that the manufacturer must be informed of such an event for future countermeasures.

Fuel Safety



Fuel is flammable. It may cause injury and property damage. Shut down the engine, extinguish all open flames and do not smoke while filling the fuel tank. Always wipe up any spilled fuel.

- Before re-fuelling, switch off the engine and allow it to cool.
- When re-fuelling, use a proper funnel, and avoid spilling over the engine.
- When re-fuelling, DO NOT smoke or allow naked flames in the area.
- Spilt fuel must be made safe immediately by using the appropriate absorbent. If fuel is spilt on your clothes, change them.
- Store fuel in an approved, purpose made container away from heat and sources of ignition.

Health & Safety

Fuel

Do not ingest fuel or inhale fuel vapors and avoid contact with your skin. Wash fuel splashes immediately. If you get fuel in your eyes, irrigate with a large amount of water and seek medical attention as soon as possible.

Exhaust Fumes



The exhaust fumes produced by this machine are highly toxic and can kill! Make sure the work area is adequately ventilated.

PPE (Personal Protective Equipment)

Suitable PPE must be worn when using this equipment i.e. safety goggles, gloves, ear defenders, dust mask and steel toe-capped footwear (with anti-slip soles for added protection). Wear clothing suitable for the work you are doing.

Environment

In order to protect the environment please recycle any discarded apparatus or accessories. The table beside provides you with a list of the machine's components and their respective materials. Take the discarded apparatus to the relevant recycling facilities.

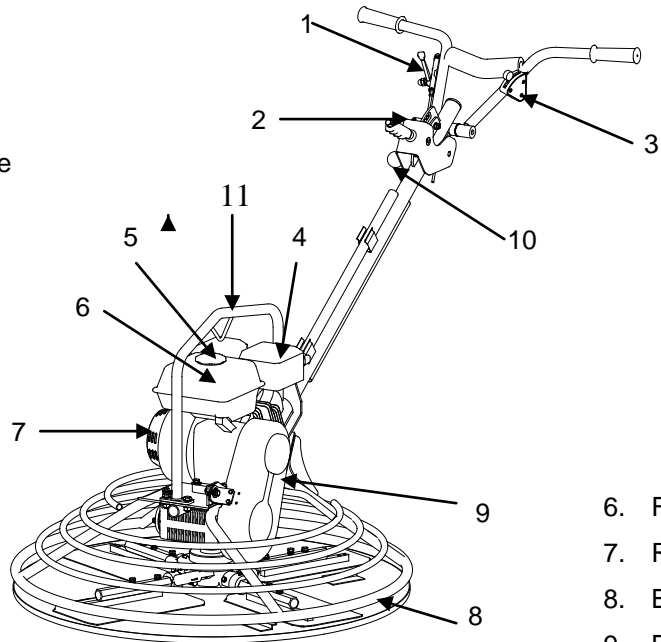


Component	Material
Operator Handle	Steel
Belt Guard	Glass Fiber
Blade Guard	Steel
Bedplate	Steel
Hand Grips	Rubber
Engine	Aluminum & Steel
Gearbox	Aluminum, Steel & Phosphor Bronze
Spider Assembly	Cast Iron, Steel & Phosphor Bronze
Various Parts	Steel & Aluminum

Machine Description

EWT90

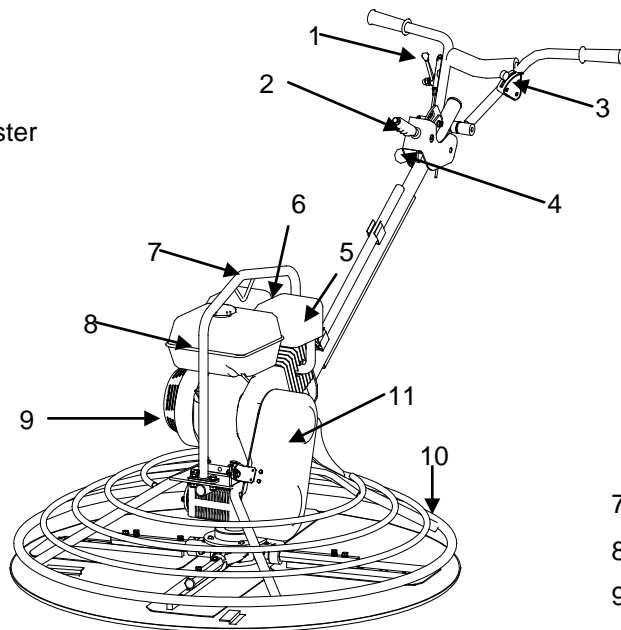
1. Throttle Lever
2. Pitch Control Lever
3. Cutout Switch Handle
4. Exhaust Guard
5. Air Filter



6. Fuel Tank
7. Recoil Starter
8. Blade Guard
9. Belt Guard
10. Handle Height Adjuster
11. Lifting Bar

EWT120

1. Throttle Lever
2. Pitch Control Lever
3. Centri-safety Switch Handle
4. Handle Height Adjuster
5. Exhaust Guard
6. Air Filter



7. Lifting Bar
8. Fuel Tank
9. Recoil Starter
10. Blade Guard
11. Belt Guard

Pre-Start Checks

The following pre-start inspection must be performed before the start of each work session. Please refer to the service & maintenance section for detailed guidance. If any fault is discovered, the concrete finisher must not be used until the fault is rectified.

1. Thoroughly inspect the machine for signs of damage. Make sure all guards are in place and secured.
2. Check hoses, filler openings, drain plugs and any other areas for signs of leakage. Fix any leaks before operating.
3. Check the engine oil level and top up as necessary. Use proper engine oil with the proper viscosity (SAE 10W-30 recommended).
4. Check the engine fuel level and top up as necessary. Use clean fuel. Use of contaminated fuel would damage the fuel system. Do not overfill fuel tank, this may cause fuel spillage.
5. Check that air filter is clean. Excessive dirt/dust accumulation within the filter element will cause erratic engine operation. Clean the air filter element when it is contaminated. (See Service & Maintenance Section)
6. Check for fuel and oil leaks.

Start and Stop Procedure



CAUTION

Improper operation can be hazardous. Read and understand this section before you start the machine.

Before starting the engine, make sure that the centri-safety switch is in the ON position and the Throttle Lever is set to the IDLE position.

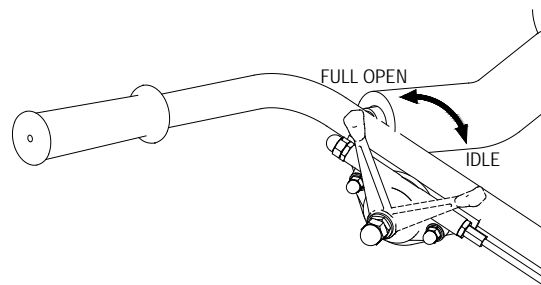


Figure 1 – Throttle Lever

1. Verify the correct blades for the job have been chosen and that they are properly installed. Inspect the blades carefully for damage. Never use any questionable blades.
2. Check to be sure the blades are free of obstructions and the area is clear for operation.
3. Visually inspect the concrete finisher. Check that all fasteners are secured and mechanical parts are in proper working order.

Before Starting Gasoline Engine

1. Check the oil in the engine crankcase. Be sure to maintain the proper level per the engine manufacturer specifications. If the oil is dirty and in need of changing, follow the Engine User Manual instructions.
2. Check the fuel supply. Refer to Engine User Manual.

Operation

Before Starting the Engine

1. Visually check to be sure that the blades are free of obstructions and the area is clear for operation.
2. Grip the operator's handle, then pull the recoil starter knob in order to start the engine.

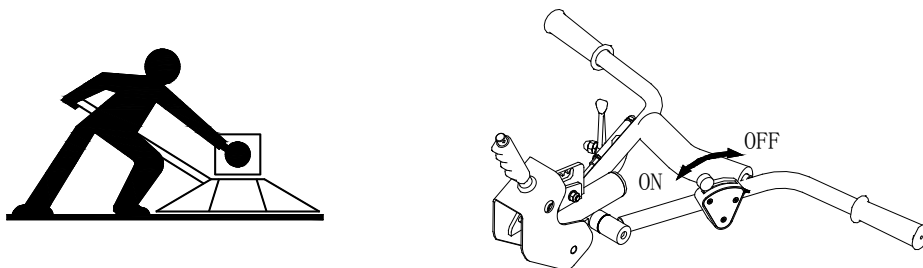


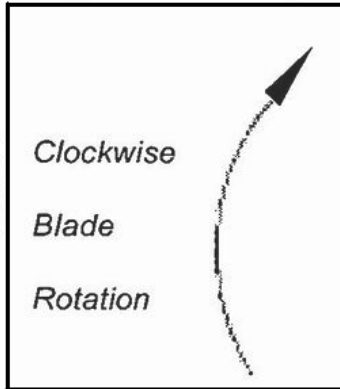
Figure 2 – Correct starting procedure and centri-safety switch

Note: Before starting the engine, you should grip the operator's handle always. The concrete finisher is fitted with a centri-safety switch which automatically cuts out power to the engine if control is lost. If the operator happens to let go or lose control of the handle, the centrifugal force will cause the switch to move to the OFF position stopping the concrete finisher within one and a half turns. (Figure 2)

3. The operator of the concrete finisher shall take care that nobody stays or gets into danger area during operation.

Moving the Concrete Finisher

Get into the operator's position behind the centre of handle with good footing and apply the throttle slowly until desired speed is obtained. The blades of the concrete finisher spin in a clockwise direction. All ESI concrete finisher are directed left or right by applying a slight upward (lifting) or downward (lowering) pressure on the handle (respectively).



- Push handle down and machine will move to the right.
- Lift handle up and machine will move to the left.
- Slightly twist to the right and the machine will move forward.
- Slightly twist to the left and the machine will move backward.
- Holding the handle in neutral position, the machine will remain stationary.

Preparation of Concrete Surface

Use of a mechanical or air vibrating screeding machine to strike the concrete surface to level will provide good compaction to the slab and produce an ideal surface for finishing. It should be remembered floating/finishing machines will not repair or correct a poorly screeded slab.

Floating Operation

Floating can be performed by using either the combination blades (furnished with the machine) or the optional Float Pan. If using the float pan before starting the floating operation, be sure that the pan is correctly mounted on the concrete finisher blades. The slab will be ready to work for the first floating operation when the heel of your shoes leave a print of 2~3mm on the surface of the slab. If combo blades are brought to use for floating they should be flat. After the floated slab has set and your footprint is only slightly visible, it is ready to start the finishing operation. The timing of all these operations is dependent on weather conditions. After each operation, the engine should be stopped.

Never park the machine with the engine running, especially during the floating operation when the concrete is relatively soft. Considering the machine is heavy it should never be left running or parked on the soft concrete in the same spot, this will cause damage to the finished floor tolerances.

Finishing Operation

After the floating operation, the first thing to do is to remove the float pan (if used) from the concrete finisher blades. Clean the blades, spider plate and protection ring of cement/concrete

paste collected during the floating operation. Increase the blade pitch up to 10mm for the first finishing operation and then continue to increase the pitch on the following finishing operations.

Continue the finishing passes until you obtained the desired finished floor surface. The time required between each finishing pass is dependent on the weather conditions, cement and water content of the concrete. If some areas of the concrete set harden too fast, you may apply a small amount of water with a brush to help achieve a finish. Be careful when running the concrete finisher on areas where water has been applied because the machine will tend to skate away. Be sure to maintain control of the concrete finisher at all times.

Pitch Adjustment

The pitch control knob or the optional blade pitch lever is in easy reach of the operator. The pitch adjustment has a limited pitch variation. Rotate the pitch control knob clockwise to tilt the blades and counterclockwise to flatten the angle of the blades. Adjustment is based on the desired performance for the specific job application. With the blade pitch lever, blade pitch can be adjusted by depressing the spring-loaded button in the adjustment lever and moving the lever to the desired pitch.

Spider Plate

By experience, we know that 2 major problems with the concrete finisher's arms are lack of lubrication and bent arms due to the machine being dropped. Greasing should be carried out on a weekly basis using the grease nipple provided (Figure 3). If an arm becomes jammed, this is probably due to the arm being bent and will require replacement.

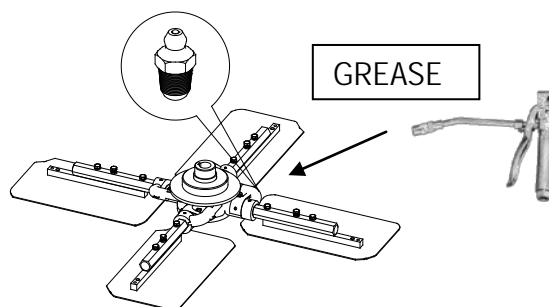


Figure 3 - Lubrication

Service and Maintenance



Before carrying out any maintenance on this machine, ensure the engine has been switched off. The engine should also be allowed to cool as parts of the engine become hot during use.

Maintenance

The ESI concrete finisher is designed to give many years of trouble-free operation. It is, however, important that the simple regular maintenance listed in this section is carried out. It is recommended that an approved ESI dealer carry out all major maintenance and repairs. Always use genuine ESI replacement parts, the use of non-genuine ESI parts may void your warranty. Before any maintenance is carried out on the machine, switch off the engine and disconnect the spark plug. Always set the machine on level ground to ensure any fluid levels will be correctly read. Only use recommended oils.

Running In Period

When the concrete finisher is used for the very first time the engine oil must be changed after the initial running in period. (See engine manual for full details).

Machine Cleaning

Clean the machine after it has been used to prevent the collection of hardened cement. The blades can usually be cleaned with a high-pressure hose and water while the concrete is still wet. Hard cement/concrete is very difficult to remove. Immediately replace any labels/stickers should you notice that they are worn, missing, or damaged.

Changing Blades

Be sure the spark plug is disconnected before changing the blades. Make sure the machine is on a flat surface; adjust the pitch control so that the blades are flat on the surface.



Be careful when replacing old blades with new blades. Due to the way the blades wear, the old blades become very sharp and can cut easily. Wear heavy duty gloves to avoid injury. **BLADES MUST BE REPLACED AS A SET!!!**

Remove bolts and lock washers on each concrete finisher arm and remove the blades. Before fitting new blades, clean all cement/concrete from bottom and side of the concrete finisher. Be sure the concrete finisher's edge of the blade is behind the concrete finisher arm. Install bolts and lock washers on each of the concrete finisher arms and fasten them.

Drive Belt

Remove the belt guard then check the belt tension by placing light finger pressure on the top of the belt, as near central between the engine drive and gearbox pulley. The belt should deflect by between 10mm ~ 15mm. If the belt tension requires adjustment, loosen the four engine mount bolts enough to allow the engine to be moved. Adjust the engine's position by turning the tension bolt clockwise to increase belt tension, anti-clockwise to decrease. Once set, retighten the engine mount bolts and check the belt tension a second time. Finally, replace the belt guard ensuring it is correctly and securely fitted.

Routine maintenance		Daily	After first 4 hrs / weekly	First month / 20 hours	Every 3 months / 50 hrs	Every 6 months / 100 hrs
Air Filter	Check condition			•		•
	Clean/Replace				•	
Engine Oil	Check level		•			
	Change			•	•	
Centri-safety Switch	Check	•				
Belt Tension	Check		•			
Spark Plug	Check/Clean					•

Oil/Fuel Type & Quantity				
	Oil Type	Oil Quantity (litres) [qt]	Fuel Type	Fuel Capacity (litres) [qt]
GX100	SAE	0.4 [.4]	Unleaded Petrol / Gasoline	0.77 [.8]
GX160	10W-30	0.6		2.5 [2.6]
Gearbox	EP90 90 Weight	EWT90 (0.35) [.37] EWT120 (0.6) [.6]	N/A	

Note:

- Check the gearbox oil at regular intervals and top-up when necessary. Make sure the oil is at the centre of the sight glass.
- Grease Spider Arm Assembly prior to storage and at regular intervals.

Trouble Shooting

Problems	Possible Causes	Countermeasures
Engine stops suddenly or does not run.	<ul style="list-style-type: none"> a. No fuel. b. Engine is switched off. c. Spark plug is fouled. d. Engine is cold. e. Engine is flooded. 	<ul style="list-style-type: none"> a. Open fuel cap, fill fuel tank. b. Switch engine on. c. Clean & reset plug gap. d. Close choke. e. Open choke, fully open throttle, pull recoil starter until engine fires.
Centri-safety switch wire disconnected.		Reconnect wire.
Concrete finisher is powerless or unstable.	<ul style="list-style-type: none"> a. Insufficient oil in gearbox. b. Rotation speed of engine is too slow. c. Speed output of engine is too slow. d. Too much cement/concrete accumulated on concrete finisher. e. V-belt is loose. 	<ul style="list-style-type: none"> a. Add oil to the recommended level. b. Keep speed high. c. Clean air filter. d. Remove cement/concrete on concrete finisher. e. Retighten V-belt.
Machine engine runs but machine does not.	<ul style="list-style-type: none"> a. Presence of water in the clutch. b. Speed output of engine is slow. c. Engine is overloaded. 	<ul style="list-style-type: none"> a. Dismantle and dry clutch. b. Clean air filter. (Refer to Engine User Manual) c. Check all parts like gears and springs.
Leaving swirls in concrete, rolling concrete, bouncing.	Main shaft	When the machine has a rolling motion, check the main shaft of the gearbox.
	Spider plate	Check spider plate for bent concrete finisher arms. If one is bent, replace it.
	Blades	<ul style="list-style-type: none"> a. Check the adjustment on concrete finisher arms at adjustment lever, and ensure all concrete finisher arms are adjusted equally. b. Blades should be of the same measurement/dimension and designed to fit the machine. c. Excessively worn blades should not be used.

Technical Data

MODEL	EWT90	EWT120
DIMENSION (LxWxH) – mm (in)	76.5 x 39.1 x 44.1 (1,944 x 992 x 1,120)	80.8 x 47.2 x 44.7 (2,053 x 1,200 x 1,135)
GUARD RING DIAMETER - in (mm)	39.1 (992)	47.2 (1,200)
OPERATING WEIGHT - lb (kg)	170 (77)	209 (95)
HANDLE TYPE	STRAIGHT	STRAIGHT
GEARBOX	HEAVY-DUTY	HEAVY-DUTY
MAX. BLADE PITCH ANGLE - °	15	15
NO. OF BLADES	4	4
BLADE OPERATING SPEED - rpm	50 – 150	50 – 150
ENGINE	HONDA GX160	HONDA GX270
ENGINE TYPE	4-STROKE GASOLINE	4-STROKE GASOLINE
MAX. POWER OUTPUT - kW (hp)	GX160 @ 3.6 (4.8)	GX270 @ 6 (8)

Transportation and Storage



CAUTION

Extreme care must be taken when transporting, loading or unloading this machine.

- For long-term storage, empty the fuel in the carburetor by running the engine with the fuel tap closed.
- The chemical composition of the fuel will deteriorate after prolonged storage. When the machine needs to be stored for a long time, remove all the fuel from the fuel tank and the water from the water tank. Also remove the fuel from the float chamber of the carburetor by draining the fuel out from the drain plug.
- Wash away concrete accumulated on the concrete finisher. Clean the engine mounting plate. Apply a light coat of oil on arbor shaft, blade retaining cap and backing plate to prevent rust formation. Cover the machine and store it in a dry place.
- Where applicable, always use the lifting hook for hoisting purposes. Use proper hoisting equipment and techniques.
- Be certain the area surrounding the machine is clear of personnel before hoisting.
- The operation handle can be disengaged for easy storage. Loosen the bolts on the connecting point on the base plate and release the operation handle from the slot.

Warranty

Your new ESI concrete finisher is warranted to the original purchaser for a period of one-year (12 months) from the original date of purchase.

The ESI warranty covers defects in design, materials and workmanship.

The following are not covered under the ESI warranty:

1. Damage caused by abuse, misuse, dropping or other similar damage caused by or as a result of failure to follow assembly, operation or user maintenance instructions.
2. Alterations, additions or repairs carried out by persons other than ESI or their recognized agents.
3. Transportation or shipment costs to and from ESI or their recognized agents, for repair or assessment against a warranty claim, on any machine.
4. Materials and/or labour costs to renew, repair or replace components due to fair wear and tear.
5. The engine, air filter and the engine spark plug. The engine will be warranted by the engine manufacturer. Please contact the nearest engine dealer for engine warranty

Liability

ESI declines any liability for possible damages to persons and/or things, which might arise from improper or wrong use of the machine or non-observance of the operating instructions in this manual.

ESI and/or their recognized agents, directors, employees or insurers will not be held liable for consequential or other damages, losses or expenses in connection with or by reason of or the inability to use the machine for any purpose.

Warranty Claims

All warranty claims should firstly be directed to the local dealer, either by telephone, by fax, by email, or in writing.

USE ONLY GENUINE ESI PARTS AND ACCESSORIES!

For your own safety, the safety of others and the life of the machine.

Notes



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