SPECIFICATIONS

153 Specifications

Engine

	SN AB00440–AC00303	SN AC00304–AE00004	SN AE00005 and up
Model	Yanmar 3TNE68-ENSR	Yanmar 3TNE74-ENSR2	Yanmar 3TNV76-SNS
Type	Water-cooled 3-cylinder diesel engine		
Capacity	47.6 cu. in. (0.78 L)	61.4 cu. in. (1.01 L)	68.1 cu. in. (1.12 L)
Horsepower (DIN)	19.4 hp (14.5 kW)	23.7 hp (17.7 kW)	17.9 hp (13.2 kW)
Revolutions Per Minute	2200 rpm		2375 rpm
Battery	12V/45Ah		
Fuel Tank	6.5 gal. US (24 L)		
Engine Oil	2.9 qts. US (2.7 L)	2.4 qts. US (2.3 L)	3.6 qts. US (3.4 L)
Coolant Capacity	3 qts. US (2.7 L)		4.8 qts. US (4.5 L)

Hydraulic System

Pump	Double axial piston pump and 2 gear pumps
Pump Capacity	6.5 gpm US (23.9 L/min) + 6.5 gpm US (23.9 L/min) + 5.0 gpm US (19.1 L/min) + 1.7 gpm US (6.5 L/min)
Operating Pressure (working and driving)	2,900 psi (200 bar)
Operating Pressure (swing unit)	1,813 psi (125 bar)
Hydraulic Fluid Cooler	Standard
Operating Pressure (dozer blade)	2,900 psi (200 bar)
Pilot Control Pressure	435 psi (30 bar)
Hydraulic Tank Capacity	5.5 gal. US (21 L)
Hydraulic System Capacity	7.9 gal. US (30 L)

Under carriage and Swing System

Travel Speed	
Low Speed	1.74 mph (2,8 km/h)
High Speed	3.3 mph (5,6 km/h)
Ground Clearance	7.8 in. (200 mm)
Swing Speed	10 rpm
Gradability	30° (58%)
Rubber Track Width	9 in. (230 mm)
Number of Track Rollers	3 per side
Average Ground Pressure	3.85 psi (27 kPa)

Dozer Blade

Width – Extended - Retracted	51.25 in. (1300 mm) - 39 in. (990 mm)
Height	10.25 in. (260 mm)
Maximum Lift Above Ground	10.25 in. (260 mm)
Maximum Depth Below Ground	9.00 in. (230 mm)

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MACHINE OPERATION

⚠ WARNING

- **Read and understand this entire manual. Follow warnings and instructions for operation and maintenance. Failure to follow instructions can result in injury or death.**
- **Read and understand all safety decals before operating the machine. DO NOT operate the machine unless all factory installed guards and shields are in place.**
- **Be sure you are familiar with all safety devices and controls before operating the machine.**
- **Know how to stop the machine before starting.**
- **Use only with Gehl Company approved accessories or referral attachments. The Gehl Company cannot be responsible for safety if the unit is used with non-approved attachments.**
- **Check for correct function after adjustments or maintenance.**

Pre-operation Checklist

IMPORTANT

See the list of recommended lubricants in Chapter 4 – Maintenance for proper grade of engine oil and hydraulic oil. Only use oils specified on the list.

Check the following items at the beginning of each work day or every 12 working hours:

- Seatbelt and mounting hardware.
- Safety decals. Replace as required.
- Air cleaner and intake hoses.
- Engine coolant level and system for leaks.
- Clean engine area of any flammable materials.
- Check engine oil level and fill if required.
- Check hydraulic system for leaks and check hydraulic fluid level.
- Check all pivot points for proper operation.
- Check track tension.
- Check for broken and loose parts, and repair.
- Check fuel level.

IMPORTANT

Do not run the engine until the fuel tank is completely empty. If this happens, air will enter the fuel system, and the fuel system will have to be bled. Always fill the tank with fresh fuel at the end of the working day.

⚠ WARNING

Never use ether starting aids. Glow plugs are used for cold weather starting. The glow plug can cause ether or other starting fluid to detonate, causing injury.

Engine Start and Stop

Note: *When all machine controls are stationary (no pilot control pressure), the swing motor and travel motor brakes are automatically applied. When any control is activated, the appropriate brake is automatically released.*

Note: *All hydraulic functions are locked out with the operator's seat left-hand console in the raised position.*

Engine Start Procedure

⚠ DANGER

DO NOT run an engine in an enclosed area. Be sure that there is adequate fresh air if the machine is being used in an enclosed area.

1. Adjust the operator's seat to desired settings.

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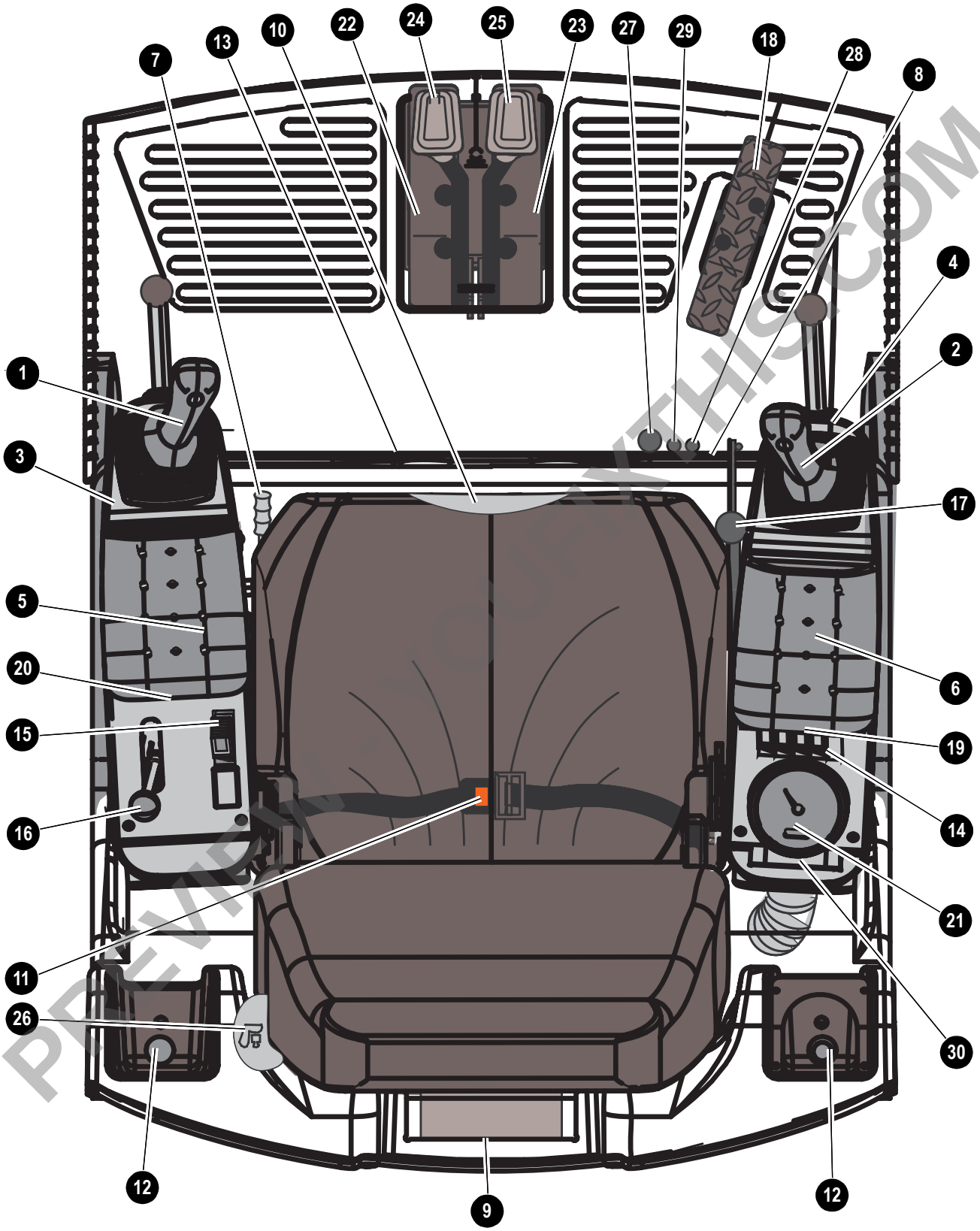


Figure 3-2 – Equipment and Controls

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Maintenance Schedule

IMPORTANT

Maintenance work must be done at regular intervals. Failure to perform scheduled maintenance work will result in excessive wear and early machine failures. The following service schedule is a recommended guide for servicing the machine.

Engine Systems

Service Activity	Daily	Weekly	Every 50 Hours	Every 125-250 Hours	Every 500 Hours	Every 1000 Hours	Annually
Check air filter	x				x		x
Check engine oil level	x						
Check fuel level	x						
Check engine for leaks	x						
Check coolant level	x						
Check engine mounting bolts		x					
Check v-belt condition and tension		x					
Clean radiator fins		x					
Check fuel filter		x					
Check exhaust system				x			
Change engine oil and filter			x*	x			x
Change fuel filter			x*	x			x
Check engine speed regulation				x			
Check valve clearance		x**			x		
Check cooling system and hoses					x		
Check electrical connections					x		
Check engine glow plug system					x		
Check coolant thermostat					x		
Check alternator and starter						x	
Clean fuel tank						x	
Check water pump						x	
Check pilot valve filter						x	

**1st engine oil change only*

*** New engine check only*

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CHAPTER 5 – TROUBLESHOOTING

GENERAL INFORMATION

Problem	Possible Cause	Corrective Action
Engine will not start.	No fuel.	Add fuel to tank; bleed air from fuel system.
	Battery power insufficient.	Charge battery or replace if necessary.
	Fuel filter contaminated.	Clean fuel filter.
	Glow plug system not working.	Replace glow plug system. Contact authorized repair center.
Insufficient engine power.	Fuel line leakage.	Replace fuel line.
	Air filter plugged.	Clean air filter.
	Engine not at operating temperature.	Warm up the engine.
	Engine overheated.	Check cooling system.

Indicator Lamps

Problem	Possible Cause	Corrective Action
Engine oil pressure indicator light comes on during operation.	Engine oil pressure too low.	Stop engine immediately. Check oil level and add oil if necessary. If oil level is correct, oil pump may have failed.
	Engine oil level too low.	Add oil.
	Oil pump not working.	Replace oil pump. Contact authorized repair center.
Water temperature display light comes on during operation.	Coolant level too low.	Add coolant.
	Fan blades rotating too slowly.	Adjust v-belt tension.
	Air filter plugged.	Clean air filter.
	Engine overheated.	Check cooling system.
Battery voltage light comes on during operation.	Alternator not charging properly.	Adjust v-belt tension.
Fuel light comes on.	Low fuel.	Add fuel.

Seals and Hoses

Problem	Possible Cause	Corrective Action
Oil, coolant or fuel leakage under engine.	Loose hose connection.	Tighten hose connections.
	Seals or hoses damaged.	Change seals or hoses and check engine oil, engine coolant or fuel levels. Add engine oil, coolant or fuel if necessary.
Hydraulic fluid losses from hydraulic system.	Loose hose fittings.	Tighten hose connections.
	Seals, hoses or lines damaged.	Change seals, hoses and/or lines.

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TORQUE SPECIFICATIONS

*Note: Use these torque values when tightening **Gehl** hardware (excluding: locknuts and self-tapping, thread forming and sheet metal screws) unless specified otherwise.*

Hydraulic fittings with various seals (light application). All torque values are in lb.-ft. (Nm) unless marked otherwise.

Thread	Straight pipe fitting with thread and screwed plug (GE)			Non-return valve with elastic seal	Identification aid outside Ø
	Sealing washer	Elastic seal	O-ring		
M10X1.0	7 (9)	13 (18)	11 (15)	13 (18)	0.4 in. (10 mm)
M12X1.5	15 (20)	18 (25)	18 (25)	18 (25)	0.5 in. (12 mm)
M14X1.5	26 (35)	33 (45)	26 (35)	26 (35)	0.6 in. (14 mm)
M16X1.5	33 (45)	41 (55)	30 (40)	37 (50)	0.6 in. (16 mm)
M18X1.5	41 (55)	52 (70)	33 (45)	52 (70)	0.7 in. (18 mm)
M22X1.5	48 (65)	92 (125)	44 (60)	92 (125)	0.9 in. (22 mm)
M27X2.0	66 (90)	133 (180)	74 (100)	107 (145)	1.0 in. (27 mm)
M33X2.0	111 (150)	229 (310)	118 (160)	155 (210)	1.3 in. (33 mm)
M42X2.0	177 (240)	332 (450)	155 (210)	266 (360)	1.7 in. (42 mm)
M48X2.0	214 (290)	398 (540)	192 (260)	398 (540)	1.9 in. (48 mm)
G1/8A	7 (9)	13 (18)	11 (15)	13 (18)	0.4 in. (9.73 mm)
G1/4A	26 (35)	26 (35)	22 (30)	26 (35)	0.5 in. (13.16 mm)
G3/8A	33 (45)	52 (70)	33 (45)	37 (50)	0.7 in. (16.66 mm)
G1/2A	48 (65)	66 (90)	41 (55)	48 (65)	0.8 in. (20.96 mm)
G3/4A	66 (90)	133 (180)	74 (100)	103 (140)	1.0 in. (26.44 mm)
G1A	111 (150)	229 (310)	118 (160)	140 (190)	1.3 in. (33.25 mm)
G1 1/4A	177 (240)	332 (450)	155 (210)	266 (360)	1.7 in. (41.91 mm)
G1 1/2A	214 (290)	398 (540)	192 (260)	398 (540)	1.9 in. (47.80 mm)

Hydraulic fittings with various seals (heavy application). All torque values are in lb.-ft. (Nm) unless marked otherwise.

Thread	Straight pipe fitting with thread and screwed plug (GE)			Non-return valve with elastic seal	Identification aid outside Ø
	Sealing washer	Elastic seal	O-ring		
M12X1.5	15 (20)	26 (35)	26 (35)	26 (35)	0.5 in. (12 mm)
M14X1.5	26 (35)	41 (55)	33 (45)	33 (45)	0.6 in. (14 mm)
M16X1.5	33 (45)	52 (70)	41 (55)	41 (55)	0.6 in. (16 mm)
M18X1.5	41 (55)	66 (90)	52 (70)	52 (70)	0.7 in. (18 mm)
M20X1.5	41 (55)	92 (125)	59 (80)	74 (100)	0.8 in. (20 mm)
M22X1.5	48 (65)	100 (135)	74 (100)	92 (125)	0.9 in. (22 mm)
M27X2.0	66 (90)	133 (180)	125 (170)	100 (135)	1.0 in. (27 mm)
M33X2.0	111 (150)	229 (310)	229 (310)	155 (210)	1.3 in. (33 mm)
M42X2.0	177 (240)	332 (450)	243 (330)	266 (360)	1.7 in. (42 mm)
M48X2.0	214 (290)	398 (540)	310 (420)	398 (540)	1.9 in. (48 mm)
G1/8A	26 (35)	41 (55)	33 (45)	33 (45)	0.5 in. (13.16 mm)
G1/4A	33 (45)	59 (80)	44 (60)	44 (60)	0.7 in. (16.66 mm)
G3/8A	48 (65)	85 (115)	55 (75)	74 (100)	0.8 in. (20.96 mm)
G1/2A	66 (90)	133 (180)	125 (170)	107 (145)	1.0 in. (26.44 mm)
G3/4A	111 (150)	229 (310)	229 (310)	192 (260)	1.3 in. (33.25 mm)
G1A	177 (240)	332 (450)	243 (330)	266 (360)	1.7 in. (41.91 mm)
G1 1/4A	214 (290)	398 (540)	310 (420)	398 (540)	1.9 in. (47.80 mm)

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Bucket (Standard)

Width	11.75 in. (300 mm)
Capacity	1.13 cu. ft. (32 L)

Noise Levels

Sound Power	93 dB(A)
Sound Pressure	77 dB(A)

General Specifications

Operating Weight w/Cab (SAE)	3,760 lbs. (1705 kg)
Height	93 in. (2380 mm)
Width	39 in. (990 mm)
Length	150 in. (3810 mm)
Max. Digging Depth	86 in. (2185 mm)
Max. Digging Height	137.8 in. (3500 mm)
Max. Dumping Height	100 in. (2545 mm)
Max. Digging Radius	148.5 in. (3770 mm)
Bucket Tooth Breakout Force	3,825 lbf (17.0 kN)
Min. Tail Swing Radius	45.75 in. (1160 mm)
Min. Arm Clearance	61.25 in. (1555 mm)
Slew Angle - Left	80°
Slew Angle - Right	45°
Adjustable Track Width – retracted/extended	39/51 in. (990/1300 mm)

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2. Be sure all levers and controls are in neutral positions.

   Insert ignition key into switch and turn right (clockwise) to the first position. Indicators for oil pressure and battery voltage will light. In cold weather, the glow plug indicator will come on while the glow plugs warm the engine.

3. Turn the key fully clockwise and hold until the engine starts, and then release the key.

Note: *The key must be returned to the OFF position between attempts to start the engine to activate the glow plug system.*

IMPORTANT

Do not engage the starter motor for longer than 20 seconds at each starting attempt. If the engine does not start, turn the key fully off, wait 30 seconds, and then attempt to start the engine again.

IMPORTANT

Indicator lamps must go out when engine starts. If they do not, turn the engine off IMMEDIATELY. Do not use machine until the problem has been identified and repaired.

4. Allow engine to warm up at idle speed for approximately 10 - 15 minutes to fully warm up all systems.

Cold-Weather Engine Start Procedure

Note: *Install an in-block or tank style engine heater, which will keep engine block and oil warm for easier cold-weather starting.*

Note: *Be sure engine oil is correct type and viscosity for the ambient (air) temperature.*

Note: *Be sure battery is fully charged.*

1. Follow all steps under Engine Start Procedure, above.
2. Advance the throttle to 1/4 engine speed for a faster warm up.
3. As the engine warms up, move the throttle lever to the idle position.

Engine Shut Down

Peform the "Mandatory Safety Shutdown Procedure" on page 2-1 before leaving the machine:

1. Lower the working equipment to the ground and support it securely.
2. Run the engine at idle speed for a few minutes to allow systems to cool after operation at full speed.
3. Turn the key fully counter-clockwise to shut off the engine.
4. Lock out controls by raising left control console.
5. Remove the ignition key and take it with you.

New Machine Break-in Procedure

A new machine requires reduced operational speed during the first 100 operating hours to properly break in various parts. If the machine is subjected to hard use during the break-in period, damage to operating systems may occur.

Perform the following when operating a new machine:

- Check all fluid levels:
  - Engine oil
  - Engine coolant
  - Hydraulic fluid
- Start engine and let it idle for 10 - 15 minutes so all components and systems can warm up.
- Operate machine at about 80% of maximum loads and speed.
- At the end of the first 100 operational hours, drain and replace the engine oil and engine oil filter.

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