Mandatory Safety Shutdown Procedure

Before cleaning, adjusting, lubricating or servicing the unit, or leaving it unattended:

1. Move the drive control handle(s) to the neutral position.
2. Lower the lift arm and attachment completely. If the lift arm *must* be left in the raised position, BE SURE to properly engage the lift arm support device (page 22).
3. Move the throttle to the low idle position, shut off the engine and remove the key.
4. Before exiting, move the lift/tilt control(s) to verify that the controls do not cause movement of the lift arm and hitch.

Safety Reminders

Before Starting

- Do not modify the ROPS/FOPS unless instructed to do so in installation instructions. Modifications such as welding, drilling or cutting can weaken the structure and reduce the protection it provides. A damaged ROPS/FOPS cannot be repaired – it must be replaced.
- To ensure safe operation, replace damaged or worn-out parts with genuine Gehl service parts.
- Gehl loaders are designed and intended to be used only with Gehl attachments and approved attachments. To avoid possible personal injury, equipment damage and performance problems, use only attachments that are approved for use on and within the operating capacity of the machine. Contact your dealer or Gehl Company for information on attachment approval and compatibility with specific machine models. Gehl cannot be responsible if the machine is used with a non-approved attachment.
- Remove all trash and debris from the machine each day, especially in the engine compartment, to minimize the risk of fire.
- Always face the loader and use the handholds and steps when getting on and off the loader. Do not jump off the loader.
- Never use starting fluid (ether).
- Walk around the machine and warn all nearby personnel before starting the machine.
- Always perform a daily inspection of the machine before using it. Look for damage, loose or missing parts, leaks, etc.

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Engine Diagnostic Chart (cont.)

No.	Item	Failure detection conditions	Operation when failure occurs	Action/ condition for recovery	Category	Number of flashes
1	Coolant temperature sensor failure	Sensor voltage is 4.8 V or more, or 0.2 V or less.	Engine runs with a coolant temperature of 30°C.	Correct failure.	Always enable	4
2	Accelerator sensor failure	Sensor voltage is 4.6 V or more, or 0.2 V or less.	[Without optional backup accelerator sensor] Engine runs at 1500 min^{-1}. (Option can change) [With optional backup accelerator sensor] Select backup accelerator sensor: No limitation Backup accelerator sensor failure: Engine runs at 1500 min^{-1}.(Option can change)	Correct failure.	Default to disable	5
3	Speed sensor failure	Engine start signal (E8) is on, but the engine speed is zero.	[With optional backup speed sensor] Backup speed sensor becomes active; speed is limited to 1800 min^{-1}.(Option can change) Backup speed sensor failed: Engine stops. [Without optional backup speed sensor] Engine stops.	Turn key off.	Always enable	6
		Engine speed decreases by 480 min^{-1} or more in 40 ms.				
4	Rack position sensor failure	Correlation between rack actuator output and rack position exceeds threshold upper limit by 0.32 sec. or more.	Engine runs with limited output and speed. (Rack position control is inactive and speed control is active).	Turn key off.	Always enable	7
		Correlation between rack actuator output and rack position exceeds threshold lower limit by 0.16 sec. or more.				
5	Rack actuator failure	Rack actuator current is too high.	Engine stops.	Turn key off.	Always enable	8
		Rack actuator current is too low.				
		Engine accelerates with minimum rack actuator output.				
		Engine stalls while rack position sensor is failed.				
6	Overspeed	Idling engine speed exceeds high idling speed plus 600 min^{-1}.	Engine stops.	Turn key off.	Always enable	9

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TORQUE SPECIFICATIONS

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

UNIFIED NATIONAL THREAD	GRADE 2		GRADE 5		GRADE 8	
	DRY	LUBED	DRY	LUBED	DRY	LUBED
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12	9	19	14	25	20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	35
7/16-14	32	24	50	35	70	55
7/16-20	36	27	55	40	80	60
1/2-13	50	35	75	55	110	80
1/2-20	55	40	90	65	120	90
9/16-12	70	55	110	80	150	110
9/16-18	80	60	120	90	170	130
5/8-11	100	75	150	110	220	170
5/8-18	110	85	180	130	240	180
3/4-10	175	130	260	200	380	280
3/4-16	200	150	300	220	420	320
7/8-9	170	125	430	320	600	460
7/8-14	180	140	470	360	660	500
1-8	250	190	640	480	900	680
1-12	270	210	710	530	1000	740
METRIC COARSE THREAD	**GRADE 8.8**		**GRADE 10.9**		**GRADE 12.9**	
	DRY	**LUBED**	**DRY**	**LUBED**	**DRY**	**LUBED**
M6-1	8	6	11	8	13.5	10
M8-1.25	19	14	27	20	32.5	24
M10-1.5	37.5	28	53	39	64	47
M12-1.75	65	48	91.5	67.5	111.5	82
M14-2	103.5	76.5	145.5	108	176.5	131
M16-2	158.5	117.5	223.5	165.5	271	200

*All torque values are in ft.-lbs., except those marked with an *, which are in in.-lbs. For metric torque value (N·m), multiply ft.-lbs. value by 1.355, or the in.-lbs. value by 0.113.

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CHAPTER 8

SPECIFICATIONS

Loader Specifications

Specification	V270
Operating Weight (approx)	8000 lbs. (3629 kg)
Shipping Weight (approx)	7200 lbs. (3266 kg)
Rated Operating Load[1]	2700 lbs. (1225 kg)
Engine	
Make	Yanmar
Model	4TNV98T
Displacement	202 cu. in. (3,31 L)
Power (net)	84 hp (63 kW) @ 2500 rpm
Peak Torque	215 ft.-lb. (292 N·m) @ 1850 rpm
Hydraulic System (theoretical)	
Main Hydraulic System Pressure	3300 psi (228 bar)
Standard-Flow Rating	21.75 gpm (81 L/min)
Electrical	
Battery	12-Volt DC, 950 CCA
Starter	12-Volt DC (3.0 kW)
Alternator	95-amperes
Capacities	
Chaincase (each)	10 U.S. qts. (9,5 L)
Engine Oil	11 U.S. qts. (10,4 L)
Engine Coolant	9 U.S. qts. (8,5 L)
Fuel Tank	22 U.S. gal. (83 L)
Hydraulic Reservoir	11 U.S. gal. (42 L)
Sound Levels (with EU Sound Attenuation Package)	
Sound Pressure Level (Operator Ear)	85 dB(A)
Sound Power Level (Environmental)	102 dB(A)

1.Operating load rated with an 70 in. (1778 mm) 16.9 cu. ft. (0.48 m^3) Dirt Construction and 12 x 16.5 NHS tires in accordance with SAE J818 and ISO 14397-1.

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CHAPTER 7

MAINTENANCE

This *Maintenance Interval* chart was developed to match the *Service* chapter of this manual. Detailed information on each service procedure is in the *Service* chapter. A *Maintenance Log* follows this chart for recording maintenance performed. Recording 10-hour (or daily) service intervals is impractical and is not recommended.

Important: *Under severe operating conditions, more frequent service than the recommended intervals may be required. You must decide, based on your use, if your operation requires more frequent service.*

Service Procedure	Maximum Interval		
	10 Hours (or Daily)	250 Hours	500 Hours (or Annually)
Remove Foreign Material (page 54)	●		
Check Engine Air Cleaner Restriction Indicator (page 58)	●		
Check Engine Oil Level (page 62)	●		
Check Hydraulic Oil Level (page 67)	●		
Check Tire Pressures (page 70)	●		
Grease Lift Arm, Hitch, Cylinder Pivots and Latch Pins (page 55)	●		
Check Bucket Cutting Edge (page 68)	●		
Test Safety Interlock System (page 20)	●		
Check Coolant Level (page 69)	●		
Clean Cooling System (page 69)	●		
Check Drive Chain Tension (page 58)		●	
Check Wheel Nuts Torque (page 68)	❍	●	
Check All-Tach® Pivot Torque (page 68)		●	
Check Oil Level in Chaincases (page 57)		●	
Check Alternator/Fan Belt Tensions (page 68)		●	
Change Engine Oil and Filter (page 62)	❑	●	
Change Hydraulic Oil Filter (page 67)	❑		●
Check Battery (page 71)			●
Check Engine Mounting Hardware (page 62)			●
Change Fuel Filter (page 62)			●
Change Hydraulic Oil (page 68)			◆
Check and Drain Water Separator (page 63)	●		
Change Chaincase Oil (page 57)	❑		◆

❍ Perform the initial procedure at 2 hours then at "●" intervals.
☐ Perform the initial procedure at 50 hours then at "●" or "◆" intervals.
❖ Severe operating conditions.
◆ Perform the procedure at 1000 hours.

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CHAPTER 4

OPERATION

⚠ WARNING **Before starting the engine and operating the loader, review and comply with all safety recommendations in the *Safety* chapter of this manual. Know how to stop the loader before starting it. Also, be sure to fasten and properly adjust the seatbelt(s) and lower the operator restraint bar.**

Before Starting the Engine

Before starting the engine and running the loader, refer to the *Controls and Safety Equipment* chapter and become familiar with the various operating controls, indicators and safety devices on the loader.

Fuel

The engine requires low sulfur ("LSD") or ultra-low sulfur diesel ("ULSD") fuel to maintain proper engine performance. Yanmar will allow up to a 5% (B5) mixture of BioDiesel.

Important: *The use of fuel other than LSD or ULSD will damage the engine.*

Starting the Engine

The following procedure is recommended for starting the engine:

1. Carefully step up onto the back of the bucket or attachment and grasp the handholds to enter the operator's compartment.
2. Fasten the seatbelt(s) and lower the restraint bar.
3. Verify the following:
   - the lift/tilt, drive and auxiliary hydraulic controls are in their neutral positions,
   - the parking brake switch is ON.

Note: *When the key is turned to the RUN position, an indicator lamp will light on the instrument panel and a buzzer will sound momentarily to remind users to fasten the seatbelt.*

4. Turn the key to the START position.

Note: *If temperature is below 32°F (0°C), see Cold-Starting Procedure, on page 38.*

Important: *Do not engage the starter for longer than 15 seconds at a time. Longer use can overheat and damage the starter. If the engine fails to start within 15 seconds, return the key to the OFF position. Allow the starter to cool for 20 seconds and repeat step 4.*

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Left Panel

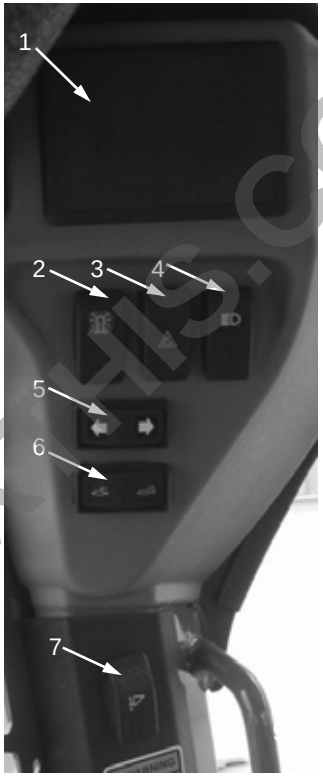


Figure 10 Left Panel

1. **Indicator and Warning Lamp Display** – See page 27.
2. **Rotating Beacon/Strobe Switch (optional)** – Controls the warning lamp (strobe or beacon).
3. **Hazard/Flasher Switch (optional)** – Controls hazard/flasher.
4. **High/Low Beam Switch (EU optional)** – Controls road head lights between main/upper beams and dimmed/lower beams. Switch does not turn lights on or off.
5. **Turn Signal Switch (EU optional)** – Used to turn on turn indicator lights. Directional indicator lights are the same lights as the flashers. The flashers will override the turn signals.
6. **High-Flow Auxiliary Switch (optional)** – Controls the direction of hydraulic oil flow. Push the right side of the rocker switch for forward flow, or the left side for reverse flow. To disengage, push and release either side of the switch, or raise the restraint bar. Turning off the machine and restarting the engine will also reset the high-flow to neutral.
7. **Power-A-Tach® System Switch** – Used to energize Power-A-Tach System. (See page 31, Number 8)

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Connecting Auxiliary Hydraulic Couplings

Note: *With the engine off, key in the ON position and the restraint bar down, the auxiliary hydraulic control can be moved to relieve any pressure in the hydraulic system. Because the auxiliary hydraulics system is controlled using pilot pressure stored in an accumulator, the engine must have been run recently.*

Standard-Flow Auxiliary Hydraulics

Couplers are located on the left lift arm. When the auxiliary control switch is activated, the top coupler is "pressure," and the bottom coupler is "return." The smaller center coupler is for the case drain.

High-Flow Auxiliary Hydraulics

Couplers are located on the right lift arm. When the auxiliary control is activated, the top coupler is "pressure," and the bottom coupler is "return." The smaller center coupler is for the case drain.

⚠ WARNING **Only connect high-flow attachment couplers to the high-flow auxiliary couplers.**

Removing Attachments

1. Tilt the hitch back until the attachment is off the ground.
2. Exercise the MANDATORY SAFETY SHUTDOWN PROCEDURE (page 6).
3. With the engine off, leave the operator's compartment and disconnect the auxiliary hydraulic hoses.
4. **Manual hitch:** Rotate the latch lever to the right when viewed from the front to fully retract the latch pins.

   Power hitch: *Start the engine, press and hold the switch on the left instrument panel to energize the system and press the top of the rocker switch on the right instrument panel to retract the hitch pins to unlock the hitch and fully retract the latch pins.*
5. Start the engine (if it is not already on) and be sure that the lift arm is fully lowered and in contact with the loader frame.
6. Tilt the hitch forward and slowly back the loader away until the attachment is free from the loader.

Self-Leveling (optional)

The feature is intended to automatically keep the attachment level while the lift arm is being raised.

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4. Add stabilizer to the fuel per the fuel supplier's recommendations.
5. Remove the battery, charge fully and store in a cool, dry location.
6. Protect against extreme weather conditions such as moisture, sunlight and temperature.

Transporting the Loader

⚠ WARNING **Park the truck or trailer on a level surface. Be sure the vehicle and its ramps have the weight capacity to support the loader. Make sure the vehicle surface and its ramps are clear of debris and slippery material that may reduce traction. Move the loader on and off the vehicle ramp slowly and carefully. Failure to follow these instructions could result in an overturn accident.**

Observe all local regulations governing the loading and transporting of equipment (Reference: U.S. Federal Motor Carrier Safety Regulations, Section 392). Ensure that the hauling vehicle meets all safety requirements before loading the skid-steer loader.

1. Block the front and rear of the hauling vehicle's tires.
2. If the loader has an attachment, lift it slightly off the ground.
3. Back the loader slowly and carefully up the ramp onto the vehicle.
4. Lower the loader attachment to the vehicle deck, turn off the engine and remove the key.
5. Fasten the loader to the hauling vehicle at the points indicated by the tie-down decals (Figure 24 and Figure 25).
6. Measure the clearance height of the loader and hauling vehicle. Post the clearance height in the cab of the vehicle.

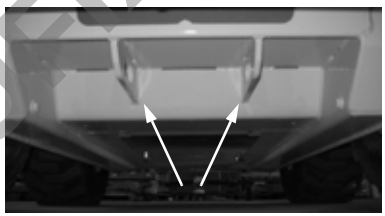


Figure 24 Front Tie-Down/Front Retrieval

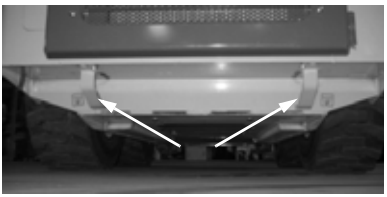


Figure 25 Rear Tie-Down/Rear Retrieval

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Horn (optional)

Pressing the button on the right side of the left hand control handle sounds the horn.

Rear Window Emergency Exit

The ROPS/FOPS rear window has three functions: noise reduction, flying objects barrier and emergency exit.

To use the emergency exit, pull on the yellow warning tag at the top of the window and remove the seal. Push or kick out the window and then exit.

See your local automotive glass specialist to reinstall the window.

Lift Arm Support Device

The lift arm support device is used as a cylinder lock to prevent the raised lift arm from lowering unexpectedly. Be sure to install the support device when the lift arm is raised for service. When the support device is not being used, return it to its storage position. The support device is a safety device, which must be kept in proper operating condition at all times. The following steps ensure correct usage:

⚠ WARNING With the key switch OFF and the solenoid valve working properly, the lift arm will stay raised when the lift control is moved to lower the lift arm. If the valve does not hold the lift am and it begins to lower do not leave the operator's compartment. Instead, lower the lift arm and exit the machine. Then, contact your Gehl dealer immediately to determine why the lift arm lowers while the key switch is OFF.

Installation

To install the lift arm support device:

1. Raise the lift arm to full height.
2. Stop the engine.
3. Move the lift arm control to "lower" to verify that the lift arm is being held in the raised position by the safety interlock system.
4. Have an assistant remove the lift arm support device from its storage location (Figure 4) on the right side of the machine and install the lift arm support device on the left lift cylinder (Figure 3).



Figure 3 Lift Arm Support Device Engaged

A) Or if an assistant is not available, double-check that the lift arm is being held in the raised position, and then carefully exit the machine, and install the lift arm support device on the left lift cylinder (Figure 3).

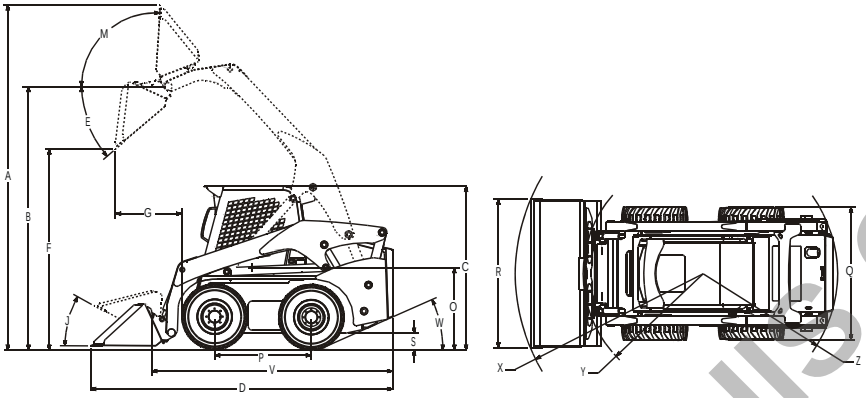
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Engine Diagnostic Chart (cont.)

No.	Item	Failure detection conditions	Operation when failure occurs	Action/ condition for recovery	Category	Number of flashes
7	Backup speed sensor failure	Engine start signal (E8) is on, but the engine speed is zero.	Engine continues to run while main speed sensor is used. Backup speed sensor failed: Engine stops.	Turn key off.	Default to disable	1-1
		Engine speed decreases by 480 min^{-1} or more in 40 ms.				
8	CAN communication failure	CAN communication packets cannot be received.	Last value is retained. Backup sensor becomes active.	Correct failure.	Default to enable	1-2
9	EGR valve failure	Low status is detected even through port is off.	Engine runs with limited output(92%) and speed(1800min^{-1}).	Turn key off.	Default to disable	1-3
		High status is detected even through port is on.				
10	CSD solenoid valve failure	High status is detected even through port is off.	Engine continues to run with port being off.	Turn key off.	Always enable	1-4
		Low status is detected even through port is on.				
11	Air heater relay failure	High status is detected even through port is off.	Engine runs with air heater relay being off.	Turn key off.	Default to enable	1-5
		Low status is detected even through port is on.				
12	Main relay failure	Power is not shut off even though main relay is off.	Engine runs normally.	Correct failure.Or turn key off.	Default to disable	1-6
13	Rack actuator relay failure	Low status is detected even through port is off.	Engine stops.	Turn key off.	Always enable	1-7
		High status is detected even through port is on.				
14	Backup accelerator sensor failure	Sensor voltage is 4.6 V or more, or 0.2 V or less.	Engine continues to run while main accelerator sensor is used. Main accelerator sensor failure: Engine runs at 1500 min^{-1}.(Option can change)	Correct failure.	Default to enable	1-8
15	Atmospheric pressure sensor failure		Atmospheric pressure compensation is canceled.	Turn key off.	Default to enable	1-9
16	Oil pressure switch failure	Oil pressure switch fails to turn on when engine is off.	Engine runs normally.(Option can change)	Turn key off.	Default to enable	2-1
17	Charge switch failure	Charge switch fails to turn on when engine is off.	Engine runs normally.	Turn key off.	Default to enable	2-2
18	Power supply voltage abnormal	E-ECU supply voltage exceeds 10.0 V.	Engine runs normally.	Correct failure.	Always enable	2-3
		E-ECU supply voltage exceeds 16.0 V.				

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V270		16.9 ft³ (0.48 m³) Bucket w/12 x 16.5 Tires	
		inches	mm
A	Overall Operation Height – Fully Raised	169.8	4313
B	Height to Hinge Pin – Fully Raised	130.3	3310
C	Overall Height – of ROPS	80.5	2045
D	Overall Length – Bucket Down	149.2	3790
E	Dump Angle at Full Height	42°	
F	Dump Height	99	2515
G	Dump Reach – Bucket Full Height	34	864
J	Rollback at Ground	28.5°	
M	Rollback Angle at Full Height	93.6°	
O	Seat to Ground Height	40.2	1021
P	Wheel Base – Nominal	49.4	1255
Q	Overall Width – Less Bucket[1]	67	1701
R	Bucket Width – Overall	70	1778
S	Ground Clearance – to Chassis (Between Wheels)	8	203
V	Overall Length (Less Bucket)	115	2921
W	Departure Angle	27.2°	
X	Clearance Circle – Front (With Bucket)	93	2362
Y	Clearance Circle – Front (Less Bucket)	74.6	1895
Z	Clearance Circle – Rear	65.5	1664

1. Overall width (Q) is dependent upon the amount of wheel offset.

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