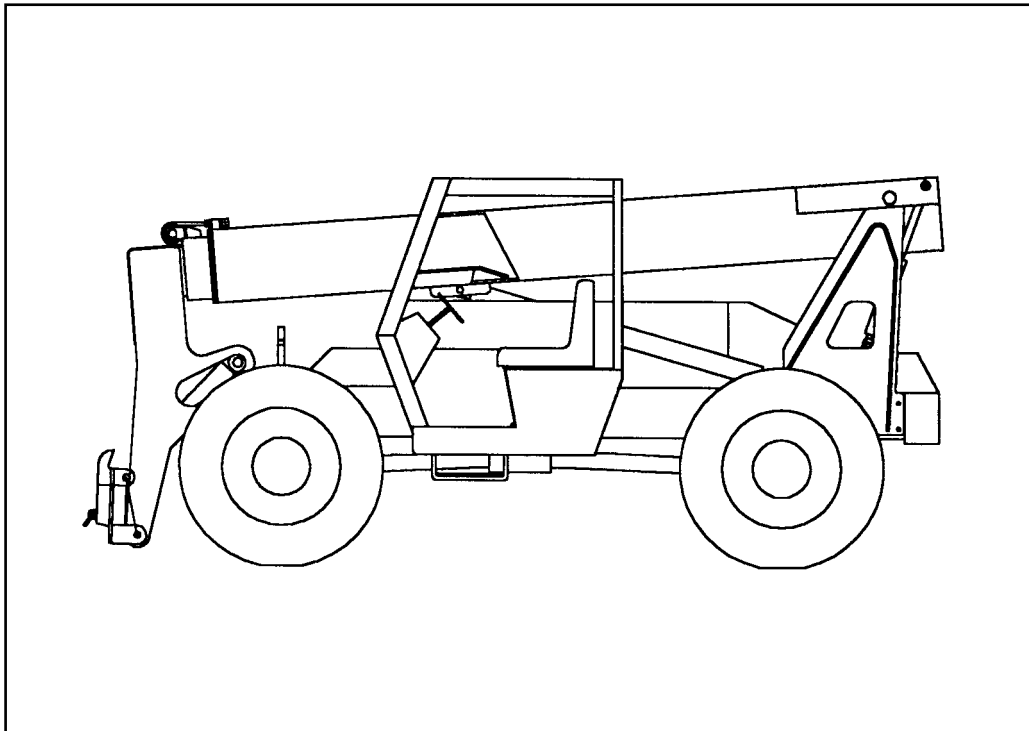


Form No.  
907879

# 663

# Dynalift<sup>®</sup> Telescopic Boom Forklift



## OPERATOR'S MANUAL

**GEHL<sup>®</sup>**

# Dynalift® Indicator & Operation Symbols



Read Operator's Manual



Park Brake On



Horn



Engine Start



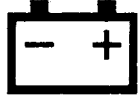
Electrical Preheat



Safety



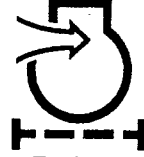
Fasten Seat Belt



Battery Charge



Fuse (Circuit Breaker)



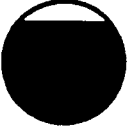
Engine Air Filter



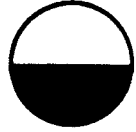
Engine Oil Pressure



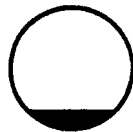
Hazard Flasher



Volume - Full



Volume Half Full



Volume - Empty



Diesel Fuel



Fuel Low



Head Lights



Transmission Temperature



Hydraulic Oil Filter



Starting Aid Inject



Engine Oil Pressure



Circulating Fan



Work Lights



Clutch Engaged



Clutch Disengaged



Low Accumulator Pressure



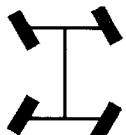
Wiper/Washer



Heater



Beacon



4-Wheel Steer



Raise Load



Tilt Rearward



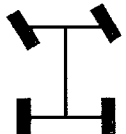
Retract Load



Air Conditioning



Turn Signal



Front Wheel Steer



Lower Load



Tilt Forward



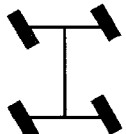
Extend Load



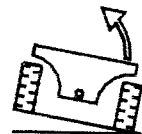
Rear Wheels Alignment



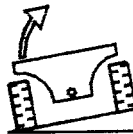
Hourmeter



Crab Steer



Level Left



Level Right



Outrigger Down (RH Shown)



Outrigger Up (RH Shown)



Engine Coolant Temperature

# Table of Contents

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<b>2</b>	Specifications . . . . .	<b>4</b>
<b>3</b>	Check Lists . . . . .	<b>7</b>
<b>4</b>	<b>SAFETY</b> . . . . .	<b>10</b>
<b>5</b>	Indicators & Controls . . . . .	<b>19</b>
<b>6</b>	Operation & Adjustments . . . . .	<b>26</b>
<b>7</b>	Lubrication . . . . .	<b>35</b>
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	Warranty . . . . .	Inside Back Cover

## IDENTIFICATION INFORMATION

Write your Gehl Dynalift Model and Serial Numbers in the space provided below.  
Refer to these numbers when inquiring about parts or service from your Gehl dealer.

MODEL NO.	<b>663</b>
SERIAL NO.	
<b>GEHL®</b>	
WEST BEND, WI 53095 U.S.A.	

The Model and Serial Numbers for this machine are on a decal located inside the Operator's Station.

# Chapter 1

## INTRODUCTION

The information in this Operator's Manual was written to give the owner/operator assistance in preparing, adjusting, maintaining and servicing of the Telescopic Boom Forklift. More importantly, this manual provides an operating plan for safe and proper use of the machine. Major points of safe operation are detailed in the **SAFETY** chapter of this manual.

---

**The GEHL Company asks that you read and understand the contents of this manual COMPLETELY and become familiar with your new machine, BEFORE attempting to operate it.**

---

Throughout this manual, information is provided which is set in *italic* type and introduced by the word **NOTE** or **IMPORTANT**. Be sure to read carefully and comply with the message or directive given. Following this information will improve your operating or maintenance efficiency, help you to avoid breakdowns or damage and extend your machine's life. A chart of standard hardware torques is located in the back of this manual.

A plastic container is provided on the unit for storing the Operator's Manual. After using the manual, please return it to the container and keep it with the unit at all times! If this machine is resold, **GEHL** Company recommends that this manual be given to the new owner.

"Right" and "left" are determined from a position sitting on the seat and facing forward.

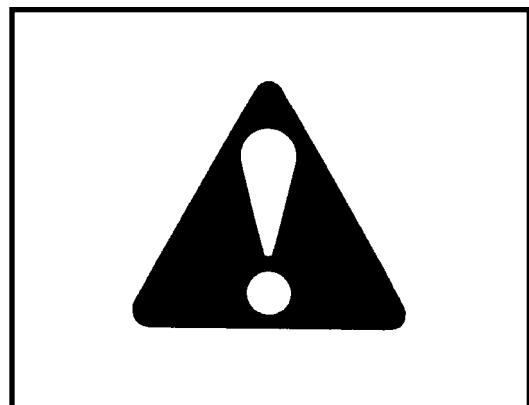
Our wide dealership network stands ready to provide you with any assistance you may require, including genuine **GEHL** service parts. All parts should be obtained from or ordered through your **GEHL** dealer. Give complete information about the part and include the model and serial numbers of your machine. Record the serial number in the space provided on the previous page as a handy record for quick reference.

**GEHL** Company reserves the right to make changes or improvements in the design or construction of any part without incurring the obligation to install such changes on any unit previously delivered.

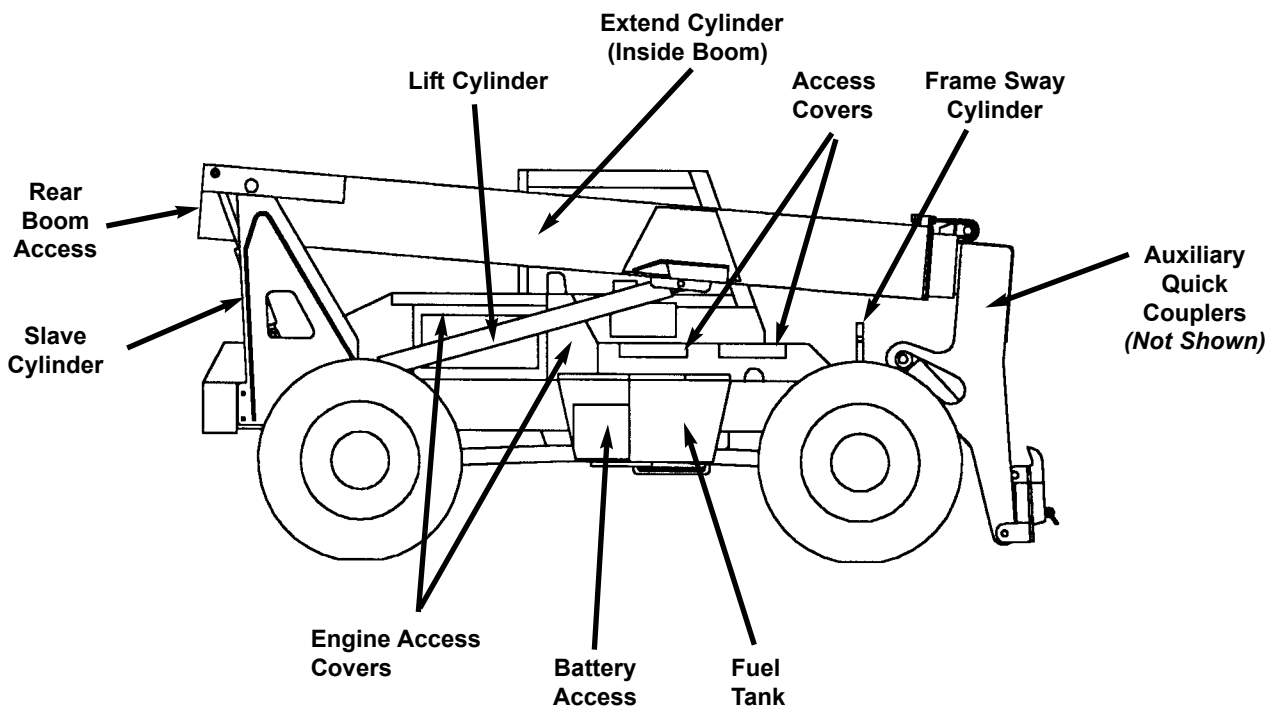
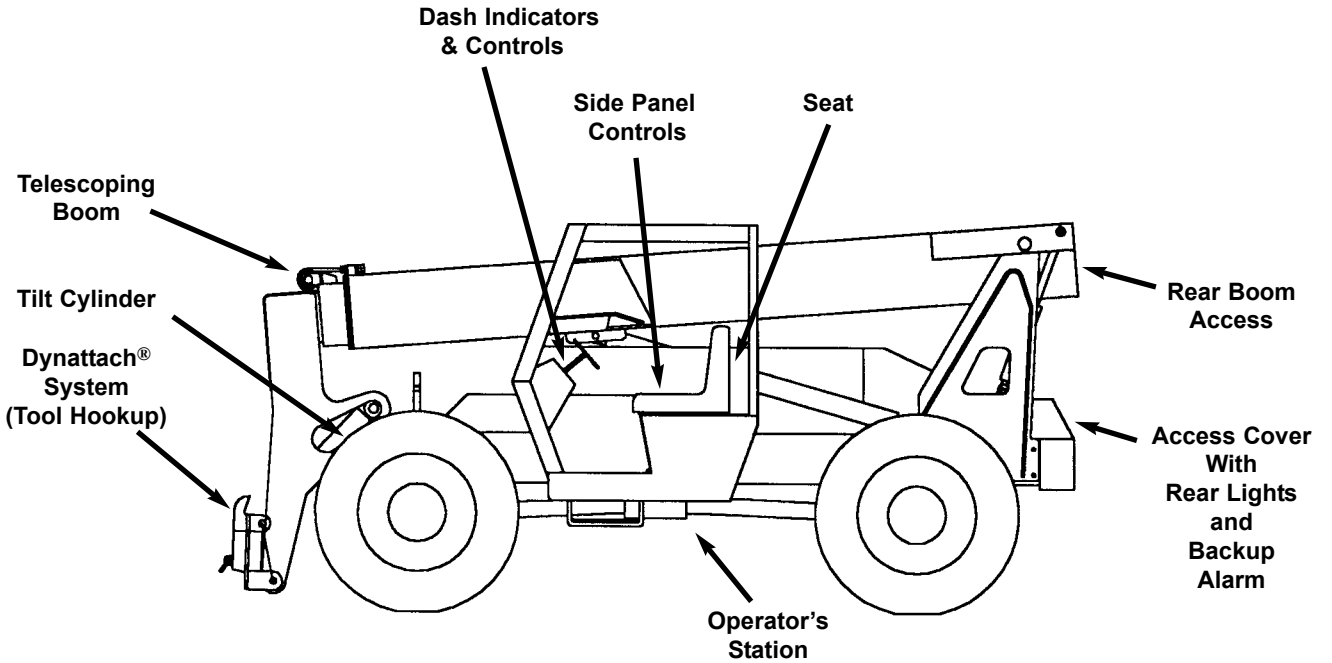
The **GEHL** Company, in cooperation with the Society of Automotive Engineers, has adopted this

### **Safety Alert Symbol**

to pinpoint characteristics which, if **NOT** properly followed, can create a safety hazard. When you see this symbol in this manual or on the machine itself, you are reminded to **BE ALERT!** Your personal safety is involved!



# Identification



# Chapter 2

## SPECIFICATIONS

### **Lifting Performance**

Maximum lift capacity:  
6000 lbs (2727 kg)

Maximum lift height:  
27'-6" (11.43 m)

Capacity at maximum lift height:  
6000 lbs (2727 kg)

Max. forward reach to load center:  
23'-4" (7.0 m)

Capacity at maximum forward reach :  
1500 lbs (680 kg)

Maximum below grade reach:  
24" (610 mm)

Frame Leveling:  
10° left/10° right

### **General Dimensions**

Based on standard machine equipped with listed tires, 48" masonry carriage and 48" pallet forks.

Recommended tire type:  
13.00 x 24 10-ply  
10.00 x 24 12-ply  
13.00 x 24-ply steel guard  
14.00 x 24 12-ply  
15.00 x 19.5 12-ply (low profile)  
13.00 x 24/10 PR, foam filled  
13.00 x 24/12 PR, foam filled  
13.00 x 24/12 PR, steel guard foam filled  
14.00 x 24/12 PR, foam filled  
15.00 x 19.5/12 PR, foam filled

Overall length, less forks:  
17'-4" (5.3 m)

Overall width:  
8' (2.4 m)

Overall height:  
7'-8" (2.3 m)

Ground clearance: 16" (406 mm)  
Wheel base: 9'-10" (3.0 m)  
Outside turn radius: 13'-8" (4.2 m)

Machine weight:  
20,300 lbs (9,156 kg)

### **Instrumentation**

Gauges: Fuel level, hourmeter and coolant temperature

Monitoring lights:  
Engine oil pressure, alternator, transmission oil temperature, brake failure

Monitoring alarms:  
Park brake on

Visual indicators:  
Boom angle, frame angle

### **Steering System**

Steer Valve: Fixed displacement rotary  
Displacement/Rev: 17.9 cu. in. (293 cc)  
System pressure: 2000 psi (138 bar)  
Steer cylinders: 2 per axle  
Steer mode valve:  
3-position, 4-way solenoid with dash-mounted switch actuation.  
Steer modes: 2 wheel, 4 wheel, crab

### **Braking System**

Service brakes: Oil immersed in-board hydraulic wet disc type. Hydraulic booster master cylinder w/electric reserve in event of engine failure. Manual foot pedal actuation.

Parking brake: Mechanical disc type.

### **Electrical System**

Type: 12 volt negative ground,  
Battery: 745 cold cranking amps  
Circuit protection: Circuit breakers  
Backup alarm: 107 dB(A)  
Horn: 111 dB(A)

Standard on all models:  
Brake lights, neutral start switch.

Alternator: 65 amp.

### **Service Capacities**

Cooling System:  
4.3 gallons (16.3 L)  
50/50 mixture  
Anti-freeze protection -34°F (-31°C)  
Pressure cap: 10 psi (69 pKa)

Fuel tank: 47 gallons (178 L)  
Hydraulic tank & system:  
47 gallons (178 L)  
Hydraulic Cooler Flow:  
19 gpm (72 L/m)  
Transmission & cooler: 6 gal. (22.7 L)

Axles:  
Differentials (2):  
3.4 qts. (3.22 L) ea.  
Hubs (4): 1.3 qts. (1.18 L) ea.

### **Transmission**

Type: Clark Powershift T12000  
Speeds: 3 fwd / 3 rev  
Torque converter:  
Single stage, dual phase

Travel Speeds:  
1st gear: 3.6 mph (5.8 km/h)  
2nd gear: 7.0 mph (11.3 km/h)  
3rd gear: 18.6 mph (29.9 km/h)

### **Axles (front and rear)**

Type: Dana  
Drive/steer, open differential, double reduction planetary, full-time four wheel drive  
Overall ratio: 22.58:1

### **Engine Options**

Common to all options:  
In-line 4 cycle, 4 cylinder, direct injection diesel fuel system, in-line fuel filter w/water trap, positive pressure lubrication, liquid pressurized cooling system, 18" (457 mm) blower fan, dry single-element air cleaner, spin-on oil filter.

Natural aspiration:  
John Deere 4045D  
276 cu. in. (4523 cc) displacement,  
80 hp (60 kW) @ 2500 rpm  
Oil capacity: 10 qts. (9.5 L),

Turbocharged aspiration:  
John Deere 4045T  
276 cu. in. (4523 cc) displacement,  
115 hp (86 kW) @ 2500 rpm  
Oil capacity: 10 qts. (9.5 L)

Perkins 4236  
243 cu. in. (3982 cc) displacement,  
86 hp (64 kW) @ 2500 rpm  
Oil capacity: 8 qts. (7.6 L)

## ***Hydraulic System***

Type: Open center

Pump: Single section gear type

Displacement / revolution:

2.7 cu. in. (44.3 cc)

Flow @ 2500 RPM:

29 gpm (110 L/min)

Main relief pressure:

2800 psi (193 bar)

Steer relief pressure:

2000 psi (138 bar)

Hydraulic filter:

In-tank return type, 10 micron  
media, replaceable element.

Rated flow: 100 gpm (379 L/min)

Rated pressure: 100 psi (690 kPa)

By-pass pressure (full flow):

25 psi (172 kPa)

Hydraulic strainer:

In-tank suction, 100 micron media,  
replaceable element.

Rated flow: 100 gpm (379 L/min)

By-pass pressure: 3 psi (21 kPa)

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# Chapter 3

## CHECKLISTS

### PRE-DELIVERY

The following Checklist is an important reminder of valuable information and inspections which **MUST** be made before delivering the Telescopic Forklift to the Customer. Check off each item after prescribed action is taken.

#### ✓ Check that:

- NO parts of machine have been damaged in shipment. Check for such things as dents and loose or missing parts; correct or replace components as required.
- Battery is securely mounted and not cracked. cable connections are tight. electrolyte at proper level.
- Cylinders, hoses and fittings are not damaged, leaking or loosely secured.
- Oil, fuel and air filters are not damaged leaking or loosely secured.
- All grease fittings have been properly lubricated and no fittings are missing; see LUBRICATION chapter of this manual.
- Hydraulic system reservoir, engine crankcase, engine coolant, transmission and axles are filled to the proper operating fluid levels.
- All adjustments have been made to comply with the settings given in this manual and in the separate engine manual.
- All guards, shields and decals are in place and securely attached. All tires have proper operating pressure.
- Model and Serial Number for this unit is recorded in space provided on this page and page 1.

**Start the machine and test-run the unit while checking that proper operation is exhibited by all controls.**

#### ✓ Check that:

- All indicators (lamps, switches, etc.) function properly.
- All hand and foot controls operate properly.
- Boom, Dynattach® System with attachment tool and frame level control all function properly.
- No hydraulic system leaks when under pressure.
- Listen for abnormal noises or vibrations; if detected, determine their cause and repair as necessary.

I acknowledge that pre-delivery procedures were performed on this unit as outlined above.

Dealership's Name

Dealer Representative's Name

Date Checklist filled-out

Machine Model#

Machine Serial #

Engine Serial #

### DELIVERY

#### ✓ Check that:

The following Checklist is an important reminder of valuable information that **MUST** be passed on to the Customer at the time the unit is delivered. Check off each item as you explain it to the Customer.

- Review with the Customer the contents of the EMI Safety Manual and this manual for the following:
- The INDEX at the back, for quickly locating topics;
- The SAFETY; INDICATORS/CONTROLS; and OPERATION/ADJUSTMENTS chapters for information regarding safe use of the machine.
- The LUBRICATION, SERVICE/STORAGE chapters for information regarding proper maintenance of the machine. Explain that regular lubrication and maintenance are required for continued safe operation and long life.
- Give this Operator's Manual and the EMI Safety Manual to the Customer and instruct them to be sure to read and completely understand its contents BEFORE operating the unit.
- Explain that the Customer **MUST** consult the Engine Manual (provided) for related specifications, operating adjustments and maintenance instructions.
- Completely fill out the Owner's Registration, including Customer's signature and, return it to the company.

Customer's Signature

Date Delivered

**(Dealer's File Copy - Remove at Perforation)**

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*(To be removed as Dealer's file copy)*

# Chapter 3

## CHECKLISTS

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Customer's Signature

Date Delivered

**(Pages 7 & 8 - have been removed at perforation)**

# Chapter 4



# SAFETY



The above Safety Alert Symbol means **ATTENTION! ALWAYS BE ALERT! YOUR SAFETY IS INVOLVED!** It stresses an attitude of “Heads Up for Safety” and can be found throughout this Operator’s Manual and the machine itself.

---

**Before you operate this equipment, read and study the following safety information. In addition, be sure that every individual who operates or works with this equipment, whether family member or employee, is familiar with these safety precautions.**

---

The Gehl Company ALWAYS takes the operator’s safety into consideration when designing its machinery and guards exposed moving parts for his/her protection. However, some areas cannot be guarded or shielded in order to assure proper operation. Further, this Operator’s Manual, the EMI Safety Manual, and decals on the machine warn of additional hazards and should be read and observed closely.



## DANGER

**“DANGER” indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

---



## WARNING

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

---



## CAUTION

**“CAUTION” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. Also alerts to unsafe practices.**

---

REMEMBER: It is the owner’s responsibility for communicating information on the safe use and proper maintenance of this machine. This includes providing understandable interpretation of these instructions for operators who are not fluent in reading English.

It is the responsibility of the operator to read and understand the Operator’s Manual and other information provided and use the correct operating procedure. Machines should be operated only by qualified operators.

---

## MANDATORY SAFETY SHUTDOWN PROCEDURE

**BEFORE cleaning, adjusting, lubricating or servicing the unit:**

1. Bring machine to full stop on level surface (AVOID parking on a slope or hillside, but if necessary, park across the slope and block the wheels).
2. Fully retract boom and lower attachment tool to ground.
3. Place controls in neutral and set park brake.
4. Idle engine for gradual cooling. Shut off engine and remove key.

**ONLY when you have taken these precautions can you be sure it is safe to proceed. Failure to follow the above procedure could lead to death or serious injury.**

---



# SAFETY



---

## WARNING

U.S. OSHA regulations require employers in general industry and the construction, shipyard and cargo-handling industries (excepting agricultural operations) to ensure that forklift operators are competent, as demonstrated by successful completion of a training course.

The training course must consist of a combination of formal instruction and practical training, including both forklift-related and workplace-related topics, and evaluation of the operator's performance in the workplace.

All operator training and evaluation is to be conducted by persons who have the knowledge, training and experience to train and evaluate operators.

---

## ADDITIONAL SAFETY REMINDERS

- User/operator safety practices, as established by industry standards, are included in this Operator's Manual and intended to promote safe operation of the machine. These guidelines do not, of course, preclude the use of good judgment, care and common sense as may be indicated by the particular jobsite work conditions. It is essential that operators be physically and mentally free of mind altering drugs and chemicals.
- Some illustrations used in this manual may show doors, guards and shields open or removed for illustration purposes only. BE SURE that all doors, guards and shields are in their proper operating positions BEFORE starting the engine to operate the machine.
- Any or all of the following elements can affect the stability of the machine: The terrain, the engine

speed, the type of load being carried and placed, and the abrupt movement of any control lever. **IF YOU ARE NOT CAREFUL WHILE OPERATING THIS MACHINE, ANY OF THE ABOVE FACTORS COULD CAUSE THE MACHINE TO TIP AND THROW YOU OUT OF THE OPERATOR'S STATION, WHICH MAY RESULT IN SERIOUS INJURY OR DEATH!**

- ALWAYS wear the seat belt to prevent being thrown from the machine. If you are in an overturn:
  - DO NOT jump!
  - Hold on tight and stay with the machine!
  - Lean away from the fall!
- ALWAYS keep hands, feet and arms inside of the operator's station when operating the machine!
- ALWAYS wear appropriate personal protective equipment called for by the job and working conditions. Hard hats, protective glasses, protective shoes, gloves, reflector type vests, respirators and ear protection are examples of types of equipment that may be required. DO NOT wear loose or baggy clothing, long hair, jewelry or loose personal items while operating or servicing the machine.
- ALWAYS be aware of pinch point areas on the machine such as wheels-to-frame, cylinders-to-frame, boom and attachment tool-to-frame, etc.
- ALWAYS maintain safe clearance from electrical power lines and avoid contact with any electrically charged conductor. Contact can result in electrocution. Contact proper local authorities for utility line location BEFORE starting a job.
- ALWAYS check the job site for terrain hazards, obstructions and people. Remove all objects which do not belong in or on the machine and its equipment.



# SAFETY



- ➔ Walk around the machine and warn all personnel who may be servicing the machine or are in the machine's path prior to starting. **DO NOT** start until all personnel are away from the machine.
- ➔ **ALWAYS** use the recommended hand holds and steps with at least three points of support when getting on and off the machine. Keep steps and platform clean. Face the access system when climbing up and down.
- ➔ **NEVER** attempt to by-pass the keyswitch to start the engine. **ONLY** use the jump-starting procedure detailed in the **SERVICE & STORAGE** chapter. **DO NOT** bypass the machine's neutral-start system. The neutral-start system must be repaired if it malfunctions.
- ➔ **NEVER** use your hands to search for hydraulic fluid leaks. Use a piece of paper or cardboard. Escaping fluid under pressure can be invisible and can penetrate the skin causing serious injury. If any fluid is injected into your skin, see a doctor at once. Injected fluid **MUST** be surgically removed by a doctor familiar with this type of injury or gangrene may result.
- ➔ **DO NOT** exceed the machine's rated operating capacity for the type of attachment tool being used.
- ➔ **DO NOT** allow minors or unqualified personnel to operate or be near the machine unless properly supervised; this is strictly a single seat, **NO** passenger machine!
- ➔ **DO NOT** start the engine or operate any controls unless properly seated in the operator's seat!
- ➔ **DO NOT** run the engine in an enclosed area without providing proper ventilation for the exhaust. Exhaust gases contain carbon monoxide, an odorless and deadly gas. Internal combustion engines deplete the oxygen supply within enclosed spaces and may create a serious hazard unless the oxygen is replaced. This includes the atmosphere within the cab when provided.
- ➔ **DO NOT** leave the operator's station with the boom and attachment tool raised. **ALWAYS** lower the boom and attachment tool to the ground, shut off the engine and engage the parking brake **BEFORE** leaving the operator's station.
- ➔ **DO NOT** refill the fuel tank when the engine is hot. Allow engine to cool down **BEFORE** refilling to prevent hot engine from igniting the fuel if it should spill or splash.
- ➔ **DO NOT** smoke while filling the fuel tank, while working on the fuel or hydraulic systems, or while working around the battery.
- ➔ **DO NOT** drive too close to an excavation or ditch. **BE SURE** that the surrounding ground has adequate strength to support the weight of the machine and the load it is carrying.
- ➔ **DO NOT** turn quickly while traveling on a slope or operate the machine beyond the grade and slope limits noted in the **OPERATION & ADJUSTMENT** chapter of the Operator's Manual.
- ➔ If necessary to park on a grade, park across the slope and block the wheels.
- ➔ **DO NOT** fill the fuel tank to capacity. Allow room for expansion. Maintain control of the fuel filler nozzle when filling the tank. Use the correct fuel grade for the operating season.
- ➔ **NEVER** use fuel for cleaning purposes.
- ➔ **DO NOT** remove the radiator cap after the engine has reached operating temperature or if it is overheated. At operating temperatures, the engine coolant will be extremely **HOT** and under pressure. **ALWAYS** wait for the engine to cool down before



# SAFETY



attempting to relieve pressure and remove the radiator cap. Failure to heed this warning could result in severe burns.

- ➔ DO NOT attempt to loosen or disconnect any hydraulic lines, hoses or fittings without first relieving hydraulic circuit pressure. Also, be careful not to touch any hydraulic components that have been in recent operation because they can be extremely hot and can burn you!
- ➔ Avoid lubrication or mechanical adjustments with the machine in motion or the engine operating. If the engine must be in operation to make certain adjustments, place the transmission in neutral, apply the parking brake, place the equipment in a safe position, securely block the wheels and use extreme caution.
- ➔ NEVER allow any riders on this machine or use as a lift for personnel.
- ➔ To insure continued safe operation, replace damaged or worn-out parts with genuine GEHL service parts, before using this equipment.
- ➔ When road travel is required, know and use the signaling devices required on the machine. Provide an escort when required.

## Modifications, Nameplates, Markings and Capacities

- ➔ Modifications and additions that affect capacity or safe operation shall NOT be performed without the manufacturer's prior written approval. Where such authorization is granted, tags or decals shall be changed accordingly.
- ➔ All attachment tools MUST be marked to identify the attachment tool and the total capacity with attachment tool at maximum elevation with load laterally centered.
- ➔ ALWAYS make sure all nameplates, caution and instruction markings are in place and legible. Local government regulations may require local decals, which then become the responsibility of the local owner to provide.
- ➔ Study the load chart carefully. It shows maximum capacity to be lifted and placed at specific outward and upward distances. ALWAYS be aware of load weights prior to attempting lift and placement with this machine.

## Protective Guards and Warning Devices

- ➔ This machine is fitted with an overhead guard in accordance with industry standards. It is intended to offer protection to the operator from falling objects, but cannot protect against every possible impact. Therefore, it should not be considered a substitute for good judgment and care in operating the machine.
- ➔ This machine is equipped with a horn and backup alarm. The user shall determine if operating conditions require the machine to be equipped with additional devices (mirrors, rotating beacon, etc.) and be responsible for providing and maintaining such devices.
- ➔ DO NOT modify the ROPS in any manner. Unauthorized modifications such as welding, drilling, cutting or adding components can weaken the structure and reduce its protective ability. If a ROPS is subjected to roll-over or other damage it must be replaced. DO NOT attempt to repair a ROPS.

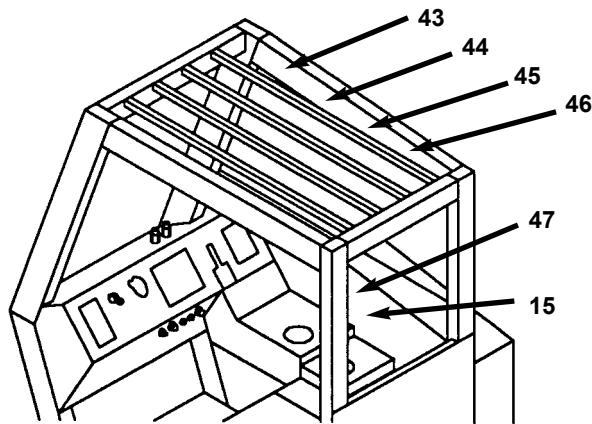


# SAFETY



**WARNING** FOR MAXIMUM STABILITY CARRY LOAD AS LOW AS POSSIBLE. FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY. 093475

43



47

**WARNING**

- REARWARD TILT AND TRANSPORT HAZARD.
- DO NOT TILT TRUSS BOOM OR WINCH REARWARD MORE THAN 45° WHEN MAIN BOOM IS ELEVATED ABOVE 45°.
- DO NOT TRANSPORT MATERIAL WITH TRUSS BOOM OR WINCH. SEE OPERATOR'S MANUAL.
- FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

15

**DANGER**

PERSONAL INJURY HAZARD.  
DO NOT USE THIS MACHINE AS A PERSONLIFT, OR FIT MACHINE WITH ANY FORM OF PERSONNEL WORK PLATFORM.  
FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY.

L65928

46

**DANGER**

MACHINE MOVING PARTS HAZARD.  
DO NOT REMOVE THIS PANEL EXCEPT FOR REPLACEMENT.  
FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY.

L65948

**WARNING**

MACHINE ROLLOVER HAZARD.  
ALWAYS LEVEL MACHINE BEFORE ELEVATING BOOM. NEVER LEVEL FRAME TO POSITION AN ELEVATED LOAD.  
FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

L65930

44

**DANGER**

HIGH VOLTAGE POWER LINE HAZARD.  
KEEP BOOM AND MACHINE A MINIMUM OF 10 FT. FROM HIGH VOLTAGE POWER LINES. CHECK LOCAL ELECTRIC POWER COMPANY CODES FOR ADDITIONAL REQUIREMENTS IN YOUR AREA.  
FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY.

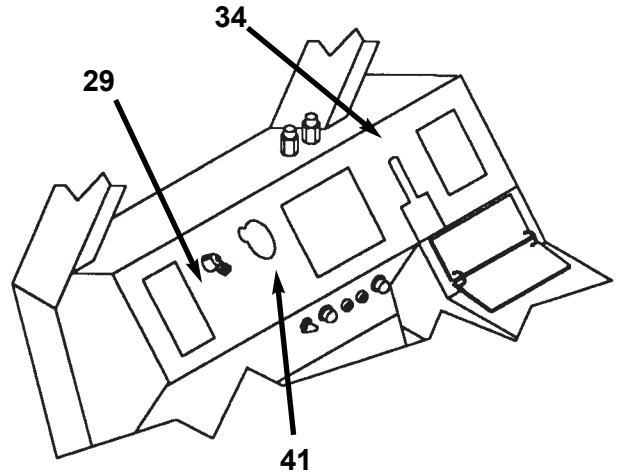
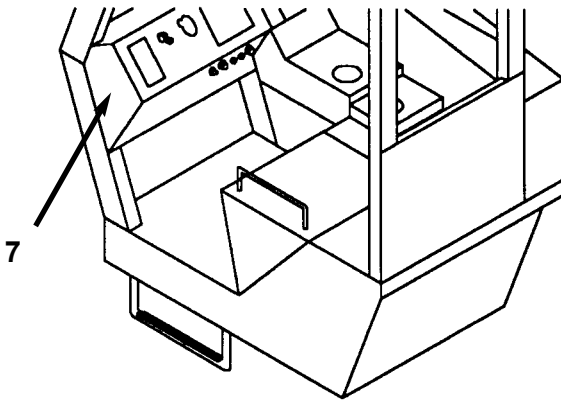
L65929

45





# SAFETY



**WARNING**

RIDER INJURY HAZARD.  
ABSOLUTELY NO RIDERS ALLOWED.  
FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY. L65932

7

41

**WARNING**

BEFORE STARTING ENGINE  
**FASTEN SEAT BELT**

UNSTABLE TERRAIN OR MISUSE OF THE MACHINE CAN CAUSE A ROLLOVER. DO NOT JUMP, HOLD TIGHT AND LEAN AWAY FROM FALL, KEEP SEAT BELT FASTENED AT ALL TIMES.

FAILURE TO HEED WARNING COULD RESULT IN DEATH OR SERIOUS INJURY. L65440

34

**PARKING BRAKE**

**WARNING**

AN UNATTENDED MACHINE CAN MOVE OR ROLL.

SET PARKING BRAKE, LOWER CARRIAGE OR ATTACHMENT TO GROUND BEFORE LEAVING MACHINE.

FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY. L65925

**WARNING**

BEFORE OPERATING READ AND FULLY UNDERSTAND THE OPERATOR'S MANUAL AND LOAD CHARTS.

ALWAYS START AND OPERATE THIS MACHINE SEATED ON THE SEAT.

BE SURE ATTACHMENT IS IN LOCKED POSITION BEFORE OPERATING MACHINE.

SET PARK BRAKE AND PUT TRANSMISSION IN NEUTRAL BEFORE RAISING OR EXTENDING BOOM.

USE ONLY FRONT WHEEL STEER FOR HIGH SPEED TRAVEL.

IF BRAKE FAILURE LAMP ILLUMINATES DURING NORMAL OPERATION, FOLLOW MANDATORY SAFETY SHUTDOWN PROCEDURE.

NEVER LEAVE OPERATOR'S SEAT WITH BOOM IN ELEVATED POSITION.

FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY. L63690

29



# SAFETY



**! DANGER**

PERSONAL INJURY HAZARD.  
DO NOT USE THIS MACHINE AS A PERSONLIFT, OR FIT MACHINE WITH ANY FORM OF PERSONNEL WORK PLATFORM.  
FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY.

L65928

15

**! WARNING**

**! PINCH POINT HAZARD.**  
KEEP CLEAR WHEN MACHINE IS RUNNING. FOLLOW MANDATORY SAFETY SHUT DOWN PROCEDURE AS SPECIFIED IN OPERATOR'S MANUAL BEFORE WORKING ON MACHINE.  
FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

L65927

3

**! DANGER**

**! KEEP HANDS OUT.**  
ROTATING COMPONENTS CAN CUT HANDS.  
FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY.

L65924

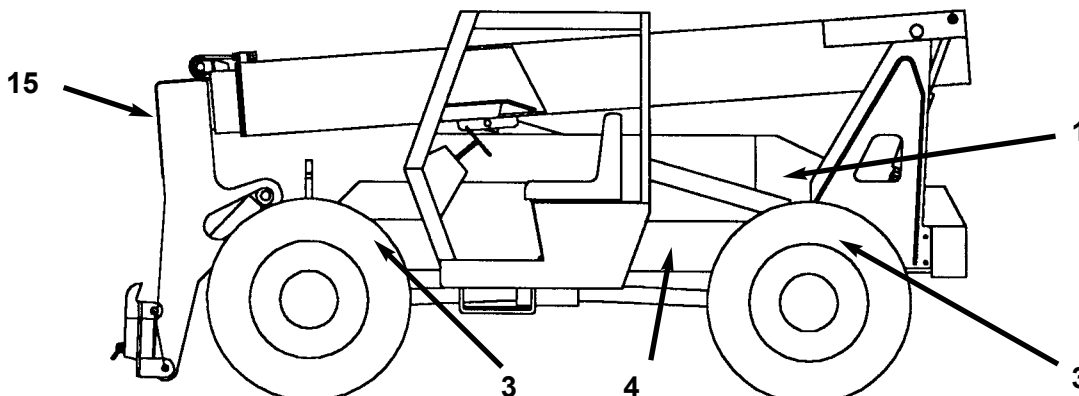
1

**! DANGER**

**! DON'T BYPASS STARTER SOLENOID**  
FOLLOW RECOMMENDED PROCEDURE IN THE OPERATOR'S MANUAL FOR JUMP STARTING USING THE IGNITION KEY AND START BUTTON.  
FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY.


L65933

4





# SAFETY

**WARNING**

FOR MAXIMUM STABILITY CARRY LOAD AS LOW AS POSSIBLE. FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

28

19


**WARNING**

RIDER INJURY HAZARD. ABSOLUTELY NO RIDERS ALLOWED. FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY. L65932

**WARNING**

PINCH POINT HAZARD. KEEP CLEAR WHEN MACHINE IS RUNNING. FOLLOW MANDATORY SAFETY SHUT DOWN PROCEDURE AS SPECIFIED IN OPERATOR'S MANUAL BEFORE WORKING ON MACHINE. FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY. L65927

3



**DANGER**

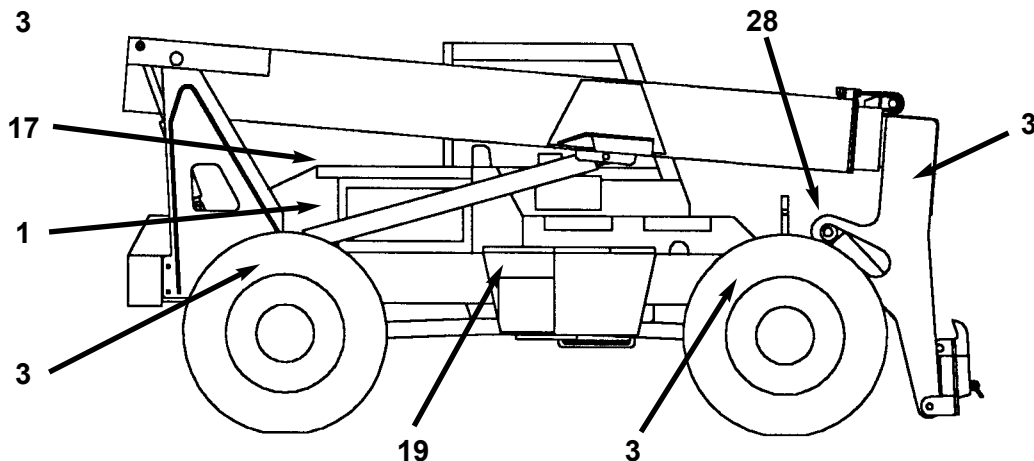
KEEP HANDS OUT. ROTATING COMPONENTS CAN CUT HANDS. FAILURE TO HEED WILL RESULT IN DEATH OR SERIOUS INJURY. L65924

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PRESSURE CAP  
072798





# SAFETY



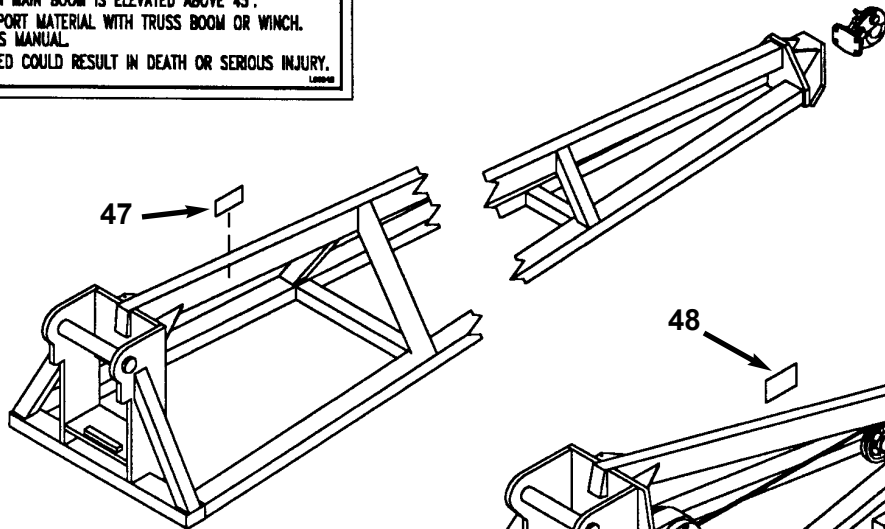
**47**

**WARNING**

- REARWARD TILT AND TRANSPORT HAZARD.
- DO NOT TILT TRUSS BOOM OR WINCH REARWARD MORE THAN 45° WHEN MAIN BOOM IS ELEVATED ABOVE 45°.
- DO NOT TRANSPORT MATERIAL WITH TRUSS BOOM OR WINCH. SEE OPERATOR'S MANUAL.
- FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

L88948

Truss Boom



**48**

**WARNING**

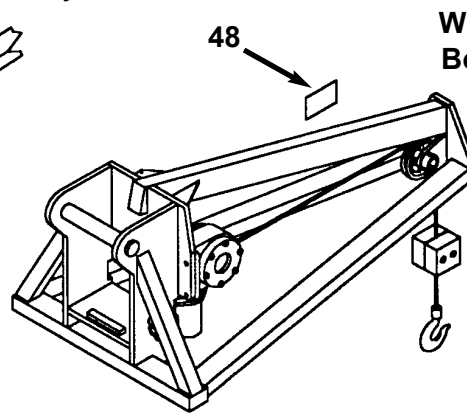
CABLE BREAKAGE HAZARD

DO NOT EXCEED 3000 LB. RATED WINCH CAPACITY AND DO NOT USE A DOUBLE BLOCK ARRANGEMENT. USE ONLY IN FACTORY SHIPPED CONFIGURATION WITH LOAD LIMITED TO RATED CAPACITY.

FAILURE TO HEED WARNING COULD RESULT IN DEATH OR SERIOUS INJURY.

L88348

Winch Boom



Rotate Carriage

**3**

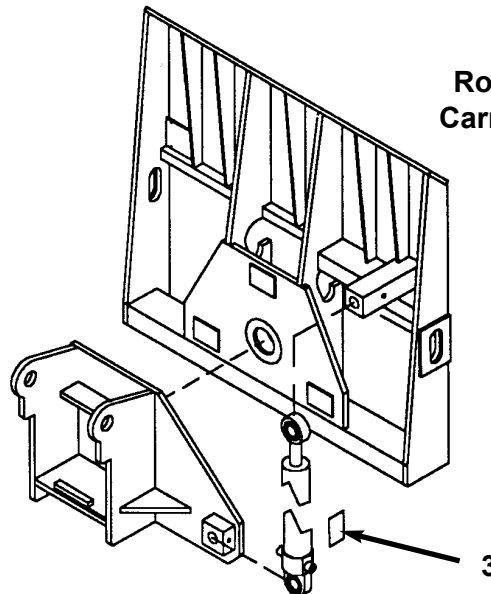
**WARNING**

PINCH POINT HAZARD.

KEEP CLEAR WHEN MACHINE IS RUNNING. FOLLOW MANDATORY SAFETY SHUT DOWN PROCEDURE AS SPECIFIED IN OPERATOR'S MANUAL BEFORE WORKING ON MACHINE.

FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

L88927



# Chapter 5

## INDICATORS AND CONTROLS

### CAUTION

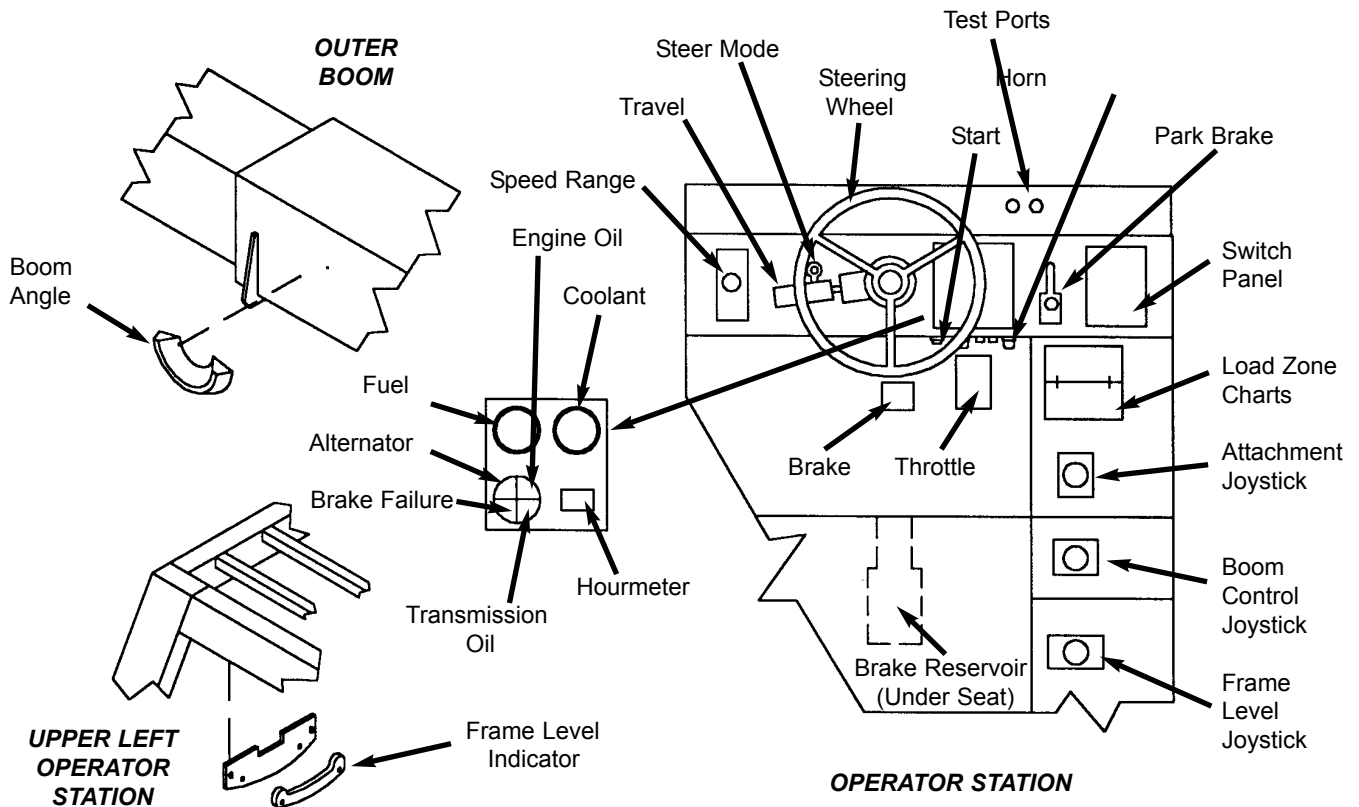
Become familiar with and know how to use **ALL** safety devices and controls on the Telescopic Forklift **BEFORE** operating it. Know how to stop the machine operation **BEFORE** operating it. This GEHL machine is designed and intended to be used **ONLY** with a mounted GEHL Company attachment tool or a GEHL Company approved accessory or referral attachment tool. The GEHL Company cannot be responsible for operator safety if the machine is used with an unapproved accessory or attachment tool.

### GUARDS AND SHIELDS

Whenever possible and without affecting machine operation, guards and shields are used to protect potentially hazardous areas. In many places, decals are also provided to warn of potential dangers and to display special operating procedures.

### WARNING

Read and thoroughly understand **ALL** safety decals on the Telescopic Forklift **BEFORE** operating it. **DO NOT** operate the machine unless **ALL** factory installed guards and shields are properly secured in place.



Operator Compartment & Boom Indicators/Controls Location

## DASH AREA

**Start Keyswitch OFF:** When the key is vertical in the keyswitch, power from the battery is disconnected to the control and instrument panel electrical circuits. Also, this is the only position in which the key can be inserted or removed.

**Start Keyswitch ON:** When the key is turned one position clockwise from the vertical (OFF) position, power from the battery is supplied to all control and instrument panel electrical circuits.

**NOTE:** *If the engine requires repeated attempts to start, the key MUST be returned to the OFF position between starting attempts to prevent battery run down.*

**Start Pushbutton:** With keyswitch in ON position, depress the button to activate the starter. Release it as soon as the engine starts.

**Circuit Breaker:** The left 15 amp breaker protects dash and engine electrical circuits. If it is not in the depressed position, the gauges and indicators on the dash will not work and the engine will shut off. The right 15 amp breaker protects the reserve brake system.

**Horn Push Button:** With the keyswitch ON, depress the horn button to activate warning sound.

**Park Brake ON:** A buzzer located behind the dash sounds as long as the park brake lever is engaged, and the transmission is in forward or reverse.

**Transmission Oil Temperature:** This lamp indicates whether the transmission oil is at the proper temperature or not. During normal operation this lamp should be off indicating that the transmission oil system is at the proper temperature.

**IMPORTANT:** *If this lamp comes on during normal operation, a problem may exist in the transmission oil system. Stop the machine immediately and investigate the cause of the problem!*

**Alternator Lamp:** Indicates the condition of the electrical charging system. During normal operation, this lamp should be off. If the charge rate is too high or too low, this lamp will come on.

**Brake Failure Lamp:** The front and rear brakes are on independent brake line systems. If during normal operation with the brake pedal depressed, a loss of pressure occurs in either system, the brake failure lamp comes on.

Failure in one line of the system does not affect the operation of the other system line. However, the **MANDATORY SAFETY SHUTDOWN PROCEDURE (p.10)** should be followed and required repairs made immediately.

During normal operation the lamp should remain off.

**Engine Oil Pressure Lamp:** Indicates whether sufficient engine lubricating oil pressure is present or not. During normal operation, with the engine running, this lamp should be off. During starting and when the engine is not running, this lamp will be on.

**IMPORTANT:** *If this lamp comes on during normal operation with the engine running, stop the engine immediately. After allowing the oil to drain down for a few minutes, check the engine oil level. Maintain oil level at the FULL mark on the dipstick*

**Hourmeter:** Indicates the operating time of the machine and should be used for keeping up the maintenance log.

**Coolant Temperature Gauge:** Indicates the temperature of the engine coolant. Under normal conditions, this gauge should indicate approximately 185°F (85°C)

**Fuel Level Gauge:** Indicates the amount of fuel remaining in the fuel tank.

**Hydraulic Pressure Test Ports:** A test gauge can be inserted to check main or steering system pressures.

**Boom Load Capacity:** A series of flip charts show lift height and reach limits relative to the load weight being handled with various attachment tools.

## Switch Panel

**Clutch Cutout Function:** When activated, it allows greater engine acceleration and power to the hydraulics system without power to the drive axles while the service brake pedal is depressed.

In the “OFF” position, the clutch mechanism of the transmission remains engaged when applying brakes. In the “ON” position, the clutch mechanism is disengaged while applying the brakes.

Normal brake force will hold the machine in position while accelerating the engine to power hydraulic control functions during load placement.

**NOTE:** *The switch panel also includes control switches for the following accessories used with the cab enclosure option:*

**Heater:** Provides circulating heated air throughout the cab interior.

**Heater/AC:** This switch turns on or off either heating or cooling selection for the operator’s station interior. Units without air conditioning have only the heater mode switch.

**Head Lights/Work Lights:** Work lights may be added to the operator station and boom to provide illumination for forward travel and work operations.

**Windshield Wiper:** Helps maintain proper visibility for the operator through the windshield area.

**Windshield Washer:** Used to apply cleansing agent while activating the windshield wiper motor.

**Turn Signal:** Used with the light package to indicate direction of turns.

**Hazard:** This switch can be activated to make the tail lights flash off and on if the machine is stalled or temporarily stopped in a traffic area on the road or jobsite.

**Cold Start:** Activates injection of ether agent for faster engine start in cold weather.

**Engine Preheat (*Perkins Engine only*):** Warms intake air to the engine manifold.

## Travel Controls

These controls are used to maneuver the machine around the jobsite or for road travel. Decals on the dash area provide graphic representation of the various control actions.

**Steering:** The power steering motor is designed to give effortless steering with no shock reaction from the axle wheels to the steering wheel. Turn the direct connected steering wheel to the right or left to turn the machine in the direction of wheel turn action.

**Steer Selector:** Use “2-wheel mode” for higher speed travel. Use “4-wheel mode” for making tighter turns, usually on jobsite. Use “crab mode” when a small amount of side shift is needed for picking or placing loads. Any mode can be used in forward or reverse travel.

**NOTE:** *The rear wheels are not self-centering. Make sure all wheels are in a straight ahead position before changing the selector mode.*

Any of the steering position modes can be used in forward or reverse travel. The operator should learn to anticipate changes in machine movement if the steering selector mode must be changed.

**Park Brake:** Functions as both a parking brake and emergency brake. The park brake handle is linked by a cable to a brake assembly on the transmission output shaft.

To adjust the tension, turn the knob on the top of the brake lever until a pull effort on the hand lever is 20 lbs. (89 N) is achieved.

---

## WARNING

**Unattended machine hazard.**

**Set park brake and lower attachment tool to ground before leaving machine. An unattended machine can move or roll and cause death or serious injury to operator or bystanders.**

**Periodically check the park brake tension and adjust, if required, to maintain adequate holding power. Always be sure the park brake lever is off when resuming machine operation.**

---

The park brake may be used as an emergency stopping system on relatively level terrain should the service brakes fail. When properly adjusted and maintained it meets ANSI test requirements providing 35% of service brake performance at 20 lb (89 N) hand lever effort.

**Travel Direction Selector:** This lever is used to change travel direction (forward or reverse). The selector MUST be in N (Neutral) position before the engine will start.

- Position “F” (FORWARD)
- Position “N” (NEUTRAL)
- Position “R” (REVERSE)

**NOTE:** Backup alarm automatically sounds with travel lever in reverse.

**IMPORTANT:** Care should be taken when downshifting or reversing as damage to the transmission can occur if shifting is forced or attempted at too high a speed. Allow engine RPM to slow before any downshift or directional change is attempted.

**Speed Range Selector:** Twist this lever counter clockwise or clockwise to change the transmission speed between low and travel range.

- Position “3” TRAVEL RANGE
- Position “2” MEDIUM RANGE
- Position “1” LOW RANGE

## FLOOR & SEAT AREA

**Throttle Pedal:** This is right-foot operated and controls the engine RPM to match increased power requirements. Pushing down on the pedal increases the RPM. Letting up on the pedal decreases RPM.

**Service Brake Pedal:** Depressing this pedal hydraulically activates the internal braking mechanism of the front and rear axles to all four wheels.

**Brake Fluid Reservoir:** The reservoir is located under the hinged seat mounting section. With rear bolts removed, this section may be tilted forward to check fluid level.

**Seat Positioning:** The seat is mounted on rails for forward or backward repositioning to accommodate operator’s size and comfort. A spring-loaded latch handle under the front of the seat activates the adjustment mechanism.

## RIGHT SIDE PANEL

These controls and indicators are used to position the frame, boom, and attachment. Graphic symbols on the side panel illustrate the control actions.

**Frame Level Joystick:** This may be tilted slowly 10° to the left or right to level the frame and boom in relation to the ground. Position the lever to the left to tilt to the left. Position the lever to the right to tilt to the right.

**Bubble Indicator:** Located in front of the operator on the ROPS upper cross tube, movement of the bubble shows when the frame is at level position relative to slopping ground surface.



## WARNING

**DO NOT attempt to correct the frame level condition with the boom raised or extended. Only level the machine while at complete stop with the boom fully retracted and the attachment raised just enough to clear the ground.**

---

The boom inner section nose has an attachment carrying device feature called Dynattach® system. This provides the operator with a convenient means of utilizing optional attachment tools. Refer to the OPERATION & ADJUSTMENTS chapter for changing attachment tools procedure.

Once the operator tilts the attachment tool to a desired angle, that angle will be maintained as the boom is raised or lowered, extended or retracted, until a new angle is desired.

To tilt the attachment tool, move the joystick back to tilt up. To tilt the attachment tool down, move the joystick forward.

**Boom Lift/Extend Joystick:** This machine has a hydraulic type boom with telescopic sections. The sections extend by means of a hydraulic cylinder and chain system inside the boom, sequenced for uniform extension of each section.

To EXTEND the boom, move the joystick RIGHT. To RETRACT the boom, move the joystick LEFT. To RAISE the boom, move the joystick REARWARD. To LOWER the boom, move the joystick FORWARD.



**Boom Angle Indicator:** Mounted on the left side of the outer boom. Movement of a bubble shows the angle of boom elevation relative to the frame ground surface.

---

 **WARNING**

Use extreme caution when raising or extending the boom. The Telescopic Handler **MUST** be level. Loaded or empty, this machine can tip if not level.

**ALWAYS** place the transmission in neutral, set the park brake lever and keep the service brake pedal fully depressed before raising or extending the boom.

**NEVER** exceed the specified lifting or extending capacities of this machine. Serious machine damage or personal injury may result. Refer to the load charts in the operator's station or this manual.

If a boom circuit hose should break with the boom up, with or without a load, shut the machine down following the **MANDATORY SAFETY SHUTDOWN PROCEDURE** (Safety chapter, p.10). **DO NOT** attempt repairs. Call your GEHL dealer immediately for assistance.

The truss boom and winch attachment tools should **ONLY** be used to lift and place loads when the machine is stationary. **DO NOT** use truss boom to transport loads around the job-site. This can cause the load to swing, resulting in either the load dropping or machine tipover.

**NEVER** use winch for lifting or moving of personnel. **NEVER** exceed the maximum rated capacity of the winch (3000 lbs/1360 kg) or exceed the load chart rating for winch applications.

**DO NOT** tilt the truss boom back more than 45° from horizontal. **DO NOT** attempt to use the rotating carriage as a load leveling function. Always level the frame prior to handling a load.

Failure to heed could result in death or serious injury.

---

**AutoTroll™ Option:** When provided, a rocker switch on the top of the lift/extend joystick handle performs this function. The AutoTroll option automatically lowers the boom as it extends to provide true horizontal movement of the attachment tool forks. On retraction, the boom is automatically raised to maintain true horizontal fork movement.

AutoTroll option performs equally well below or above grade for easy insertion or retraction of the forks from the load. To operate this function, first raise the load to the desired position by normal movement of the joystick.

To move the load or forks horizontally, depress the right side of the rocker switch. This activates the microprocessor, pump pressure and extend solenoid. Fork movement will continue at factory pre-set speed of three seconds per foot as long as the extend side of the rocker switch is depressed.

---

 **CAUTION**

**DO NOT** depress rocker switch during manual operation.

---

Depress the left side of the rocker switch to retract the load or forks horizontally. Releasing the rocker switch allows the operator to use the machine in normal operation.

**Attachment Joystick:** Moving the joystick forward tilts the attachment down. Moving it rearward tilts the attachment up. Moving the joystick left positions the rotating carriage up to 10° to the left. Moving it to the right positions the rotating carriage up to 10° to the right. The function of this attachment is to place or pickup loads from sloped surfaces. The same left/right joystick action lowers and raises the winch attachment cable.

## OTHER OPERATION INDICATORS

The following indicators are for fluid level and operator rear vision/safety.

**Hydraulic Reservoir Oil Level & Fill Cap:** The sight gauge on the side of the reservoir indicates the level of the hydraulic oil. The fill cap is accessible by removing the front cover of the front hood section.

**Battery Compartment:** The battery compartment is just below the tool box section at the rear of the fuel reservoir. Remove the bottom panel of the tool box to check the electrolyte level.

**Transmission Oil Level:** This dipstick is located below the rear cover on the front section of the main hood.

**Engine Oil Level:** The dipstick is located on the left(John Deere engine) or right (Perkins engine) side of the mid-section of the main hood.

**Coolant Level:** The coolant can be checked and added through the radiator cap located under the top rear opening on the main hood.

**Backup Alarm:** Located inside the rear frame cover, it produces a loud warning sound whenever the machine is in reverse.

**Side Mirror:** This is located on the front outside corner of the fuel tank. It provides the operator with a rear view on the right side and rear area behind the machine.

## **ATTACHMENT TOOLS**

Gehl offers a versatile range of attachment tools to meet various lifting and material handling applications with this machine. Contact your area Gehl dealer for specifications and ordering information.

## **ACCESSORIES**

Gehl offers a versatile range of special accessories for this machine. Contact your area Gehl dealer for specifications and ordering information.

**NOTE:** *All accessories are field-installed unless otherwise noted. Information and parts for field installing of all of the accessories will be provided by the factory or Gehl Telescopic Forklift dealers.*

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# Chapter 6

## OPERATION & ADJUSTMENTS

### GENERAL INFORMATION

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#### CAUTION

**BEFORE** starting the engine and operating the Telescopic Forklift, review and comply with **ALL** safety recommendations set forth in the **SAFETY** chapter of this manual. Know how to **STOP** the machine before starting it. Also, **BE SURE** to fasten and properly adjust the seat belt.

---

#### ENGINE BREAK-IN

Your new engine does not require extensive “break-in”. However, for the first 100 hours of operation, keep the following in mind. Allow the engine to idle for a few minutes after every cold start. **DO NOT** idle the engine for long periods of time. **DO NOT** operate the engine at maximum power for long periods of time. Check the oil level frequently and replenish, as necessary.

A special “break-in” oil is **NOT** used. The oil in the engine crankcase is the same specified for regular oil changes. Change the oil and replace the oil filter at the intervals specified in the Service chapter. **DO NOT** add special additives or special “break-in” components to the crankcase.

#### BEFORE STARTING ENGINE

Before starting the engine and running the machine, refer to the **INDICATORS & CONTROLS** chapter and familiarize yourself with the various operating controls, indicators and safety features.

#### STARTING THE ENGINE

Before mounting the operator’s compartment, walk completely around the machine to make sure **NO** one is under, on, or close to it. Let others near the area know you are going to start up and wait until everyone is clear of the machine.

---

#### WARNING

**ALWAYS** fasten your seat belt **BEFORE** starting the engine. Leave the parking brake “engaged” until the engine is running and you are ready to operate the machine.

---

The following procedure is recommended for starting the engine:

1. Carefully step up and grasp the hand holds to step into the operator’s compartment.
  2. Adjust the seat and fasten the seat belt.
  3. Check that all controls are in their “neutral” positions, except the parking brake lever which should be in the “ON” position.
  4. Turn the keyswitch to “ON” position and depress the start button. If the button is released before the engine starts, turn the keyswitch to “OFF” position, allowing the starter to stop before attempting to start again.
- IMPORTANT:** *Crank the starter until the engine is started. If the engine fails to start within 15 seconds, return the key to the “OFF” position, wait 2 minutes, and try to restart the engine. Cranking the engine for longer than 30 seconds will result in premature failure of the starter.*
6. After the engine starts, allow a sufficient warm-up time before attempting to operate the controls.
  7. Check that indicators are in normal condition.
  8. Check that there are no fuel, oil or engine coolant leaks, and no abnormal noises or vibrations.

#### COLD STARTING PROCEDURES

A block heater or lower radiator hose heater is recommended for starting in temperatures of 20°F (-7°C) or lower. See your Gehl dealer for recommended heater.

If prevailing temperature is 40°F (4°C) or below, it may be necessary to use a cold weather starting aid to start the diesel engine. For proper use of starting aids, check instructions in the engine manual.

---

 **WARNING**

**For Perkins engine with electric pre-heat, DO NOT use ether starting aid.**

---

If the battery becomes discharged and fails to have sufficient power to start the engine, jumper cables can be used to obtain starting assistance. Refer to the jump starting instructions in the Service chapter of this manual for safe jump-start procedure.

## STOPPING

The following procedure is the recommended sequence for stopping the machine:

1. Bring the machine to full parking stop on a level surface. AVOID parking on a slope if possible, but if necessary, park across the slope and block the wheels.
2. Retract the boom all the way and lower the attachment to the ground.
3. Place controls in neutral. Set the parking brake lever to “ON”.
4. Idle the engine for gradual cooling. Turn the keyswitch key to the “OFF” position to shut the engine off. Remove the key.
5. Unlatch the seat belt. Grasp the hand holds while climbing out of the operator’s compartment.

---

 **CAUTION**

**Be sure the area being used for test-running is clear of spectators and obstructions. For initial operation, operate the machine with an empty attachment tool.**

---

## INITIAL OPERATION

Make sure the engine is warm and then go through the following procedures.

Select the travel direction and the speed range mode. Release the parking brake lever and move slowly, while testing the steering and brakes. Stop and operate all boom, attachment tool functions and frame level controls checking for smooth response.

Apply the service brakes, stop the machine and move the travel selector to the opposite direction (forward or reverse).

Shifting to the next higher gear may be done at any engine RPM while the machine is in motion. DO NOT overspeed the engine when down-shifting. Allow the machine to slow down before shifting to the next lower gear.

## PARK BRAKE

**NOTE:** *The park brake mechanism is NOT designed for, NOR intended to be used as, the primary means of stopping forward or reverse movement of the machine. Hydraulic braking provided through the service brakes within the axles is the primary means for stopping movement. The axle-by-axle split brake system is the secondary means of stopping movement.*

The proper sequence for correct machine operation is to always engage the park brake lever before shutting off the engine; to disengage the brake ONLY after the engine is running. In an EMERGENCY, when it becomes necessary to STOP the movement, pull out the park brake lever.

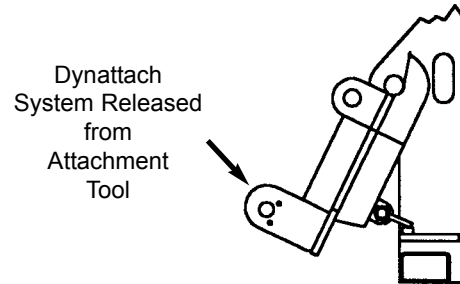
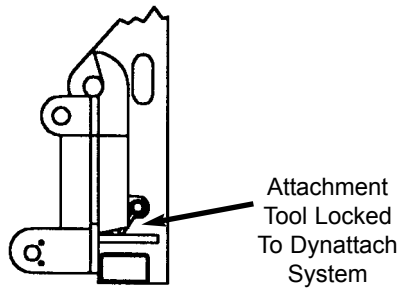
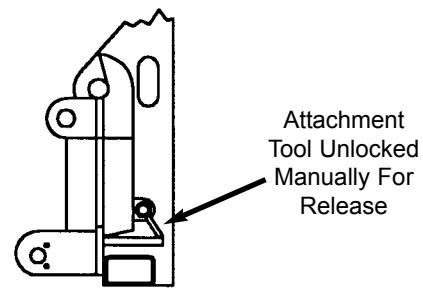
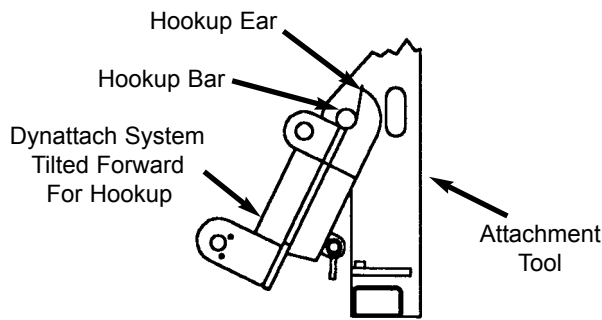
## CHANGING ATTACHMENT TOOLS

The Telescopic Forklift boom nose will accept Dynattach® system Gehl attachment tools. The Dynattach system has a quick-release hookup and locking mechanism for mounting framing, masonry, or material handling type attachment tools to the boom nose.

### Attaching

To pickup the attachment tool proceed as follows:

1. Raise the boom slightly and extend it 2 to 3 feet ( 0.6 to 0.9 m) for better visibility and tilt the Dynattach system forward.
2. Align the Dynattach system squarely with the back of the attachment tool.



### Dynattach System Attaching Detail

### Dynattach System Detaching Detail

3. Slowly extend the Dynattach system and lower the hooks under the attachment tool hookup bar.
4. Tilt the Dynattach system back so that the lock plate engages the attachment tool. This secures the attachment tool to the Dynattach system.
5. For attachment tool with auxiliary hydraulics, connect hoses to the quick-connect connectors on the boom nose.

connect the hoses from the quick-disconnects on the boom nose.

5. Start the engine.

6. Tilt the Dynattach system forward to allow the attachment tool to roll out, then lower the boom so the hook ears clear the hookup bar on the attachment tool. Back the machine until the attachment tool is free of the Dynattach system.

### Detaching

**NOTE:** *One side of the lock plate has a bright red decal to indicate the unlocked position.*

To detach attachment tool, proceed as follows:

1. Raise the boom slightly and extend it 2 to 3 feet (0.6 m to 0.9 m) for better visibility. Lower the boom until the attachment tool is approximately 12" (0.3 m) off the ground.
2. Roll the carrier backward as far as it will go. Once the carrier is rolled all the way back, perform the MANDATORY SAFETY SHUTDOWN PROCEDURE (Safety chapter, p.10)
3. With the engine off, leave the operator's station. Manually raise the lock spring and flip the Lock Plate up and outward at least 180° so it is in position to re-lock on the next attachment tool.
4. If the attachment tool has auxiliary hydraulics, dis-

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## ⚠ WARNING

**Modifications, alterations to, or use of attachment tools NOT authorized by GEHL Co. in writing can void warranty and cause machine damage and/or serious personal injury or death.**

---

### SELF-LEVELING

The machine is provided with a hydraulic self-leveling feature. This feature is designed to keep the attachment tool level while the boom is being raised.

## GENERAL MACHINE OPERATION

Take time to check the Telescopic Forklift to make sure all systems are in good operating condition. Perform the following steps before starting the machine for the first time each day.

1. Check the engine oil and coolant, transmission oil and hydraulic oil levels.
2. Make sure weekly lubrication has been done.
3. Visually inspect for leaks, broken or malfunctioning parts. Make sure all caps, covers and safety shields are in place.
4. Check tires for cuts, bulges, nails, correct pressure, loose wheel nuts, etc.
5. Inspect the work area. Make sure you know where you will make load pickups, lifts, and turns. Look over the terrain of the jobsite for holes, obstacles, slippery surfaces, soft or deep mud.
6. Check clearances of ramps, doorways and passage ways. Check overhead clearances if you will travel and place loads near power or telephone lines.

---

### **WARNING**

**Exhaust fumes can kill. Insure proper ventilation when starting indoors or in enclosed areas.**

**Use proper grab handles, NOT the steering wheel or control levers as hand holds when mounting or dismounting.**

**NEVER operate the machine with safety guards or covers removed.**

**Over-inflated tires can explode and cause injury or death. Tire repairs MUST be made only by authorized personnel using proper tools and equipment.**

---

If the machine is found to be in need of repair or in any way unsafe, or contributes to an unsafe condition, the matter shall be reported immediately to the user's designated authority. The machine shall NOT be operated until it has been restored to a safe operating condition.

Operate the travel controls gradually and smoothly when starting, stopping, turning and reversing the directions.

## Grade and Slope Precautions

The Telescopic Forklift complies with industry stability test requirements and is stable when properly operated. However, improper operation, faulty maintenance, or poor housekeeping may contribute to a condition of instability and defeat the purpose of the standard.

The amount of forward and rearward tilt to be used is governed by the application. Although use of maximum rearward tilt is allowable under certain conditions such as traveling with the load fully lowered, the stability of the machine as determined by the industry standard tests, does not encompass consideration for excessive tilt at high elevations, or the handling of off-center loads.

Handle only loads within the capacity limits of the machine, and which are stable or safely arranged. When attachments are used, extra care shall be taken in securing, manipulating, positioning and transporting the load.

## Grade Limits

**NOTE:** *Grade limits are based on ANSI standard B56.6-1987.*

1. DO NOT place or retrieve loads on an up or down slope or grade that exceeds 6% (3.4°) grade.
2. DO NOT travel up or down a grade or slope that exceeds 22% (12°) grade while loaded.
3. DO NOT place or retrieve loads on a side hill with a slope or grade that exceeds 10% (6°) grade. Regardless of terrain or position of wheels, the **FRAME MUST BE LEVEL** as indicated by the level indicator on the ROPS cross member.
4. DO NOT travel across a side hill that exceeds 18% (10°) grade. Regardless of the terrain or position of the wheels, the **FRAME MUST BE LEVEL** as indicated by the level indicator on the ROPS cross member. The attachment tool **MUST** be maintained at the "carry" position with the boom fully retracted, and attachment tool at minimum ground clearance.

When ascending or descending grades in excess of 5% (3°) the machine shall be driven with the load up grade.

# WARNING

**DO NOT attempt to correct the frame level condition with the boom raised or extended. Only level the machine while at a complete stop with the boom fully retracted and the attachment tool raised just enough to clear the ground.**

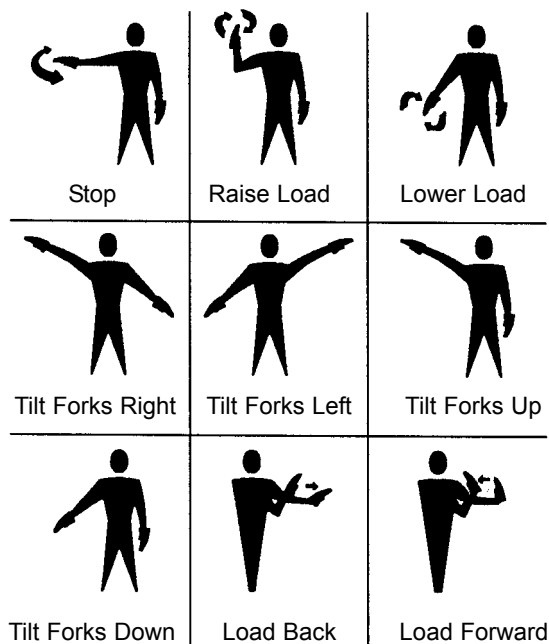
Unloaded machine should be operated on all forward grades with the load handling attachment tool down-grade, tilted back if applicable, and raised only as far as necessary to clear the road surface.

Avoid turning if possible and use extreme caution on grades, ramps or inclines. Normally travel straight up and down.

## Traffic Flow Patterns

Know and understand the traffic flow patterns of your jobsite and also know all Telescopic Forklift hand signals for safety. Utilize signalmen and make sure you can see the signalmen and acknowledge the signals given.

The backup alarm automatically sounds with the travel selector in reverse. Care should be taken when down shifting or reversing as damage to the transmission can occur if shifting is forced or attempted while traveling.



## Safety Hand Signals

When ramps **MUST** be utilized in transporting loads with the machine, the following shall be minimum widths for safe travel:

Compacted dirt, gravel, etc.	12 ft. (3.6 m)
Woodboard, concrete, etc.	10 ft. (3.0 m)

Permanent aisles, roadways or passageways, floors and ramps shall be defined in some fashion or marked. Permanent or temporary protrusion of loads, equipment, material and construction facilities into the usual operating area shall be guarded, clearly and distinctively marked, or clearly visible.

Maintain a safe distance from the edge of ramps, platforms or other similar working surfaces.

Controlled lighting of adequate intensity should be provided in operating areas. Where operating conditions indicate, the operator/user shall be responsible for having the machine equipped with lights.

Provision shall be made to prevent trucks, semi-trailers and railroad cars from being moved during loading and unloading.

Wheel stops, hand brakes, or other recognized positive means shall be used to prevent movement during loading and unloading.

DO NOT move railroad cars or trailers with the machine.

DO NOT use the boom and attachment for leverage to push the machine out of mud.

**IMPORTANT:** *DO NOT lower boom at high engine RPM when attachment tool is at maximum rearward tilt. Damage to slave cylinders may result.*

## GENERAL LOAD HANDLING

NEVER attempt to work controls except from the operator's seat. NEVER jerk or use fast movements. Avoid sudden stops, starts or changes in direction.

Operation of the hydraulic system depends on engine speed and the distance the controls are moved. When operating these controls it is important to develop a technique called "feathering". Feathering the control means you start the desired motion by moving the control away from neutral a small amount. After movement has started, the control can be eased to full power. Use the same technique to stop the motion.



---

 **WARNING**

Excessive speed can be hazardous. **ALWAYS** exercise caution and good judgement while operating the machine.

Twice daily, increase the engine speed (fast idle) and extend and retract the frame level cylinder to the stroke limit. This removes any trapped air in the circuit, which could cause the machine to lean to one side or the other.

The machine shall not be used to lift or carry personnel, or be fitted with any form of personnel work platform.

**ALWAYS** maintain a safe distance from electric power lines and avoid contact with any electrically charged conductor or gas line. It is not necessary to make direct contact with a power line for power to ground through the structure of the machine. Keep the boom at least 10 ft. (3 m) from all power lines. Accidental contact or rupture can result in electrocution or an explosion. Contact the "Digger's Hotline" or proper local authorities for utility line locations **BEFORE** starting to dig!

Keep all body parts inside the operator's station while operating the machine. **BE SURE** of clearance of the attachment tool when turning, working around buildings, etc.

Turning corners too fast can tip the machine and cause a load to lean excessively and tip off the attachment. Sudden slowing or stopping of the machine may cause the load to drop off the attachment tool.

Be certain you can control both speed and direction before moving. Always place the machine in neutral and set the park brake before raising or extending the boom. **NEVER** drive the machine up to someone standing in front of the load.

**NEVER** leave the operator's station without first lowering the attachment tool to the ground. Set the park brake, place controls in neutral, shut off engine and remove the key. **AVOID** parking the machine on a slope or hill side, but if necessary, park across the slope and block the wheels.

---

## Load Capacity and Reach

This machine has a flip-chart in the operator's station which provides, at a glance, the capacity limits at various positions of attachment tool extension and elevation. A set of current load zone charts is reproduced at the end of this manual for reference.

A typical load chart is reproduced on the next page. The scale on the left indicates height in feet above the ground level. The scale on the bottom shows the distance in feet out from the front of the machine. The arch lines noted by the numbers "1 through 5" correspond with the position extension markers on the operator side of the intermediate boom section.

The following example illustrates proper use of the load charts for the Telescopic Forklift:

### Example:

The operator, using a standard carriage attachment tool without outriggers, **MUST** raise a 3000 lb load 20 feet high and can only get to within 15 feet of the load placement point. Can it be done within the capacity of the machine?

**Analysis:** See "Typical Load Zone Chart" p. 32.

Projecting up from the 15 foot mark on the horizontal axis to intersect a line through the 20 foot mark on the vertical axis shows the load can be safely placed in the 3000 lb Zone.

During placement, the operator observes when the extension reference number "3" on the boom is visible. He knows the maximum safe distance of extension with this load has been reached.

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 **WARNING**

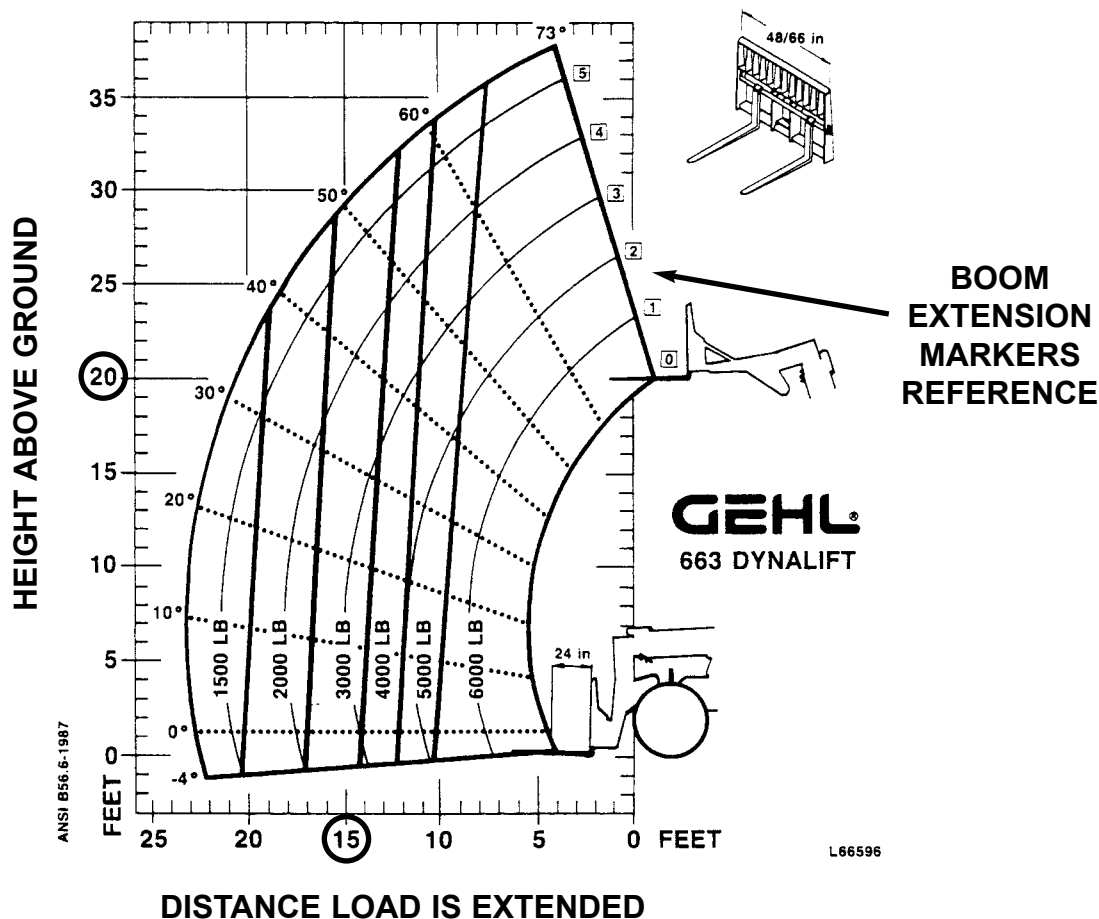
**NEVER** exceed the rated operating capacity of the Telescopic Forklift as shown on the capacity decal.

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## LIFTING ATTACHMENT TOOL APPLICATIONS

### Picking Up The Load

Inspect the load. If it appears unstable, **DO NOT** attempt to move it. **DO NOT** attempt lifting double-tiered loads, or straddling side-by-side pallets one on



Typical Load Zone Chart

## **WARNING**

Operating conditions can reduce the safe lift of near capacity or capacity loads. Exceeding capacity when lifting or extending the boom will cause the machine to tip forward.

each fork. NEVER add extra unauthorized counterweights to this machine. Consider the additional weight of any attachment tool as part of the picking load capacity of the machine.

Approach the load squarely and slowly with the machine straight and level. Adjust the space between forks, if necessary. Engage the load equally on forks until the load touches the carriage backrest. Tilt the forks back to position the load for travel.

## Carrying The Load

If the load obstructs your view get someone to direct you. Maintain ground speed consistent with ground conditions and that permit stopping in a safe manner.

## **WARNING**

**NEVER** travel with the boom above the carry position (attachment tool should be at minimum ground clearance). Boom should be fully retracted.

**Use lower gear when traveling down an incline. NEVER coast with the transmission in neutral. Travel up and down grades slowly.**

**DO NOT** operate the machine on a slope or grade that exceeds 22% (12°).

## Load Elevation And Placement

For ground level placement, make sure the area under the load and around the machine is clear of equipment and personnel. Lower the load to the ground, tilt the forks to the horizontal position, then back away carefully to disengage forks from the load. For elevated or overhead placement, bring the machine as close as possible to the landing point.

Level the machine BEFORE raising the load. Use extreme caution for high placement. Make sure personnel are clear of the area where the load or the machine could tip or fall.

Set the park brake, hold the service brake pedal in fully depressed position and slowly raise the load maintaining a slight back tilt to cradle the load. As the load approaches the desired height, feather the boom control at minimum speed until the load is slightly higher than the landing point.

Continue the feathering technique and lower the load in place, until the Forks are free. Level the Forks and retract clear of the load. Lower the Forks to travel height, before moving the machine.



## WARNING

**NEVER** use frame leveling to position an elevated load. Always lower the load to the ground and reposition the machine.

**If a hydraulic boom circuit hose should break with the boom up, shut down the machine. DO NOT attempt to bring down the boom or make repairs. Call your GEHL dealer immediately.**

**As lift height increases, depth perception decreases. High elevation placement may require a signal man to guide the operator. The machine becomes less stable as load is raised higher.**

**DO NOT ram the lift cylinders to the end of the stroke. The resulting jolt could spill the load.**

**The truss boom attachment tools should ONLY be used to lift and place loads when the machine is stationary. DO NOT use truss boom to transport loads around the jobsite. This can cause the load to swing, resulting in either load dropping or machine tipover.**

---

## SUSPENDED LOADS

DO NOT exceed the Telescopic Forklift capacity as equipped for handling suspended loads. Only lift the load vertically and NEVER drag it horizontally. Use guy lines to restrain load swing, whenever possible.

The handling of suspended loads by means of the truss boom or other similar device can introduce dynamic forces affecting the stability of the machine that are not considered in the stability criteria of industry test standards. Grades and sudden starts, stops and turns can cause the load to swing and create a hazard.

## ROAD TRAVEL

For short distance highway travel, attach a SMV (slow moving vehicle) emblem (purchased locally) to the back of the Telescopic Forklift. Activate hazard lights on the machine. For highway operation, obtain and install an amber flashing beacon.

**NOTE:** *ALWAYS follow ALL state and local regulations regarding the operation of equipment on or across public highways! Also, whenever any appreciable distance exists between jobsites or if operation on public highway is prohibited, be sure to transport the machine using a vehicle of appropriate size and weight.*

## TRANSPORTING BETWEEN JOBSITES

When transporting the Telescopic Forklift, know the overall height to allow clearance of obstructions. Remove or tape over the slow moving vehicle (SMV) emblem if it will be visible to traffic.

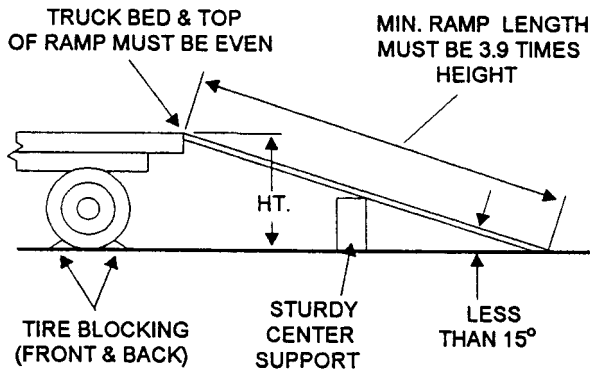
Tie-down hooks are provided for inserting chains through to secure the machine while transporting.



## WARNING

**ALWAYS abide by the following recommended procedures and guidelines when attempting to use ramps to load the machine onto (or unload it from) a truck or trailer. Failure to heed can result in damage to equipment and serious personal injury or death!**

---



### Ramp Placement

### Loading Machine Using Ramps

**NOTE:** A matched pair of ramps is required.

1. See illustration above. The ramps MUST be of sufficient strength to support the machine. Whenever possible, the use of strong steel ramps is recommended as well as some type of center supporting block.
2. The ramps MUST be firmly attached to the truck or trailer bed with NO step between the bed and the ramps.
3. Incline of ramps MUST be less than 15 degrees; ramp length MUST be at least 16 feet (4.8 m) long.
4. Ramp width MUST be at least 1-1/2 times the tire width.
5. Slowly (at the lowest engine speed possible) and carefully drive the machine up the ramps.

---

## ! WARNING

**NEVER attempt to adjust travel direction (even slightly) while traveling on the ramps. Instead, back down off of the ramps and then realign the machine with the ramps.**

**NEVER transport the machine with the boom raised or extended. BE SURE to secure the machine (including boom) to the truck or trailer bed using chain and binders of steel cables to prevent any movement while transporting.**

---

6. Remove the attachment tool from the boom. Position the machine (with the boom facing toward the front of the truck or trailer) so that it is straight in line

with the ramps. Tie down slots are provided on the front and rear sides of the frame structure.

7. Block the front and rear of the tires on the truck or trailer. Engage the parking brake.

### In Transit

If in transit for a few days: (a) Disconnect the battery. (b) Clean all bright surfaces and coat with heavy, very high flash point grease to prevent rusting.

### Unloading Machine Using Ramps

**NOTE:** A matched pair of ramps is required.

Use ramps as described in Steps 1 thru 4 and proceed as follows to unload the machine:

8. If necessary, adjust the machine so that the wheels are in line and centered with the ramps.
9. Slowly (at the lowest engine speed possible) and carefully drive the machine down the ramps

### THEFT DETERRENTS

THE CERTAINTY OF APPREHENSION IS A STRONG DETERRENT TO THEFT OF CONSTRUCTION EQUIPMENT! **GEHL** has recorded all part numbers and serial numbers. Users should take as many of the following actions as possible to discourage theft, to aid in the recovery in the event that the machine is stolen, or to reduce vandalism:

1. Remove keys from unattended machines.
2. Attach, secure, and lock all anti-vandalism and anti-theft devices on the machine.
3. Lock doors of cabs when not in use.
4. Inspect the gates and fences of the vehicle storage yard. If possible, keep machines in well lighted areas. Ask the law enforcement agency having jurisdiction to make frequent checks around the storage or work sites, especially at night, during weekends, or on holidays.
5. Report the theft to the dealer and insurance company. Provide the model, and all serial numbers.
6. Request that your dealer forward this information to **GEHL** Company.

# Chapter 7

## LUBRICATION

### GENERAL INFORMATION

#### CAUTION

**NEVER** service this machine when any part of the machine is in motion. **ALWAYS BE SURE** to exercise the **MANDATORY SAFETY SHUT-DOWN PROCEDURE** (page 10) **BEFORE** servicing this equipment.

**NOTE:** The “Maintenance” chapter in this manual has provisions for recording the dates and hourmeter readings after lubrication or other service has been performed; use those spaces to keep a log for maintaining a current service interval record. Proper routine lubrication is an important factor in preventing excessive part wear and early failure.

### LUBRICANTS

The chart on this page lists the locations, temperature ranges and types of recommended lubricants to be used when servicing this machine. Also refer to the separate engine manual for additional information regarding recommended engine lubricants, quantities required and grades.

**NOTE:** Refer to Operator Services topic in the “Service & Storage” chapter of this manual for detailed information regarding periodic checking and replenishing of lubricants.

#### Hydraulic System/Reservoir

Use a Mobil DTE 15M, or equivalent which contains anti-rust, anti-foam and anti-oxidation additives and conforms to ISO VG46.

Capacity:  
**47 gallons (178 Liters)**

#### All Grease Fittings

Use **No. 2 Lithium-based Grease**

#### Engine Crankcase Oil

Ambient Temperature	Grade
Below 32°F (0°C)	SAE 10 or 10W30
32-77°F (0-25°C)	SAE 20 or 10W30
Above 77°F (25°C)	SAE 30 or 10W30

\*Service Classification: **API - CD/CE/CF-4**

Capacity:  
*Refer to Engine Specifications, Chapter 2*

#### Axle Gear Oil

Use **API-GL-5 80W90**  
Differential Capacity:  
**3.4 quarts (3.22 Liters)**  
Planetary Capacity (each side):  
**1.3 quarts (1.2 Liters)**

#### Transmission/Cooler Oil

Use **Sunco Multi-ATF** or Equivalent  
Capacity:  
**24 quarts (23.0 Liters)**

#### Brake System

**DOT-3 Brake Fluid**

<b>Replacement Filters Chart</b>	
<b>John Deere Engine</b>	
Oil Filter Element	Gehl P/N L99420
Fuel Filter Element	Gehl P/N L98978
<b>Perkins Engine</b>	
Oil Filter Element	Gehl P/N L97489
Fuel Filter	Gehl P/N L88976
<b>Transmission</b>	
Oil Filter Element	Gehl P/N L99184
<b>IMPORTANT:</b> <i>Do NOT use a substitute replacement because high pressure may rupture filter.</i>	
<b>Hydraulic System Filters</b>	
In-Tank Filter Element	Gehl P/N L97489
Reservoir Sump Strainer	Gehl P/N L62831
<b>Air Cleaner</b>	
Dry Element	Gehl P/N L120037

## GREASING

Refer to the illustration and listing on the next page for fitting locations. Wipe dirt from the fittings before greasing them to prevent contamination. Replace any missing or damaged fittings. To minimize dirt build-up, avoid excessive greasing.

## BASIC MACHINE GREASE FITTING LOCATIONS

### Every 50 Hours (or weekly)

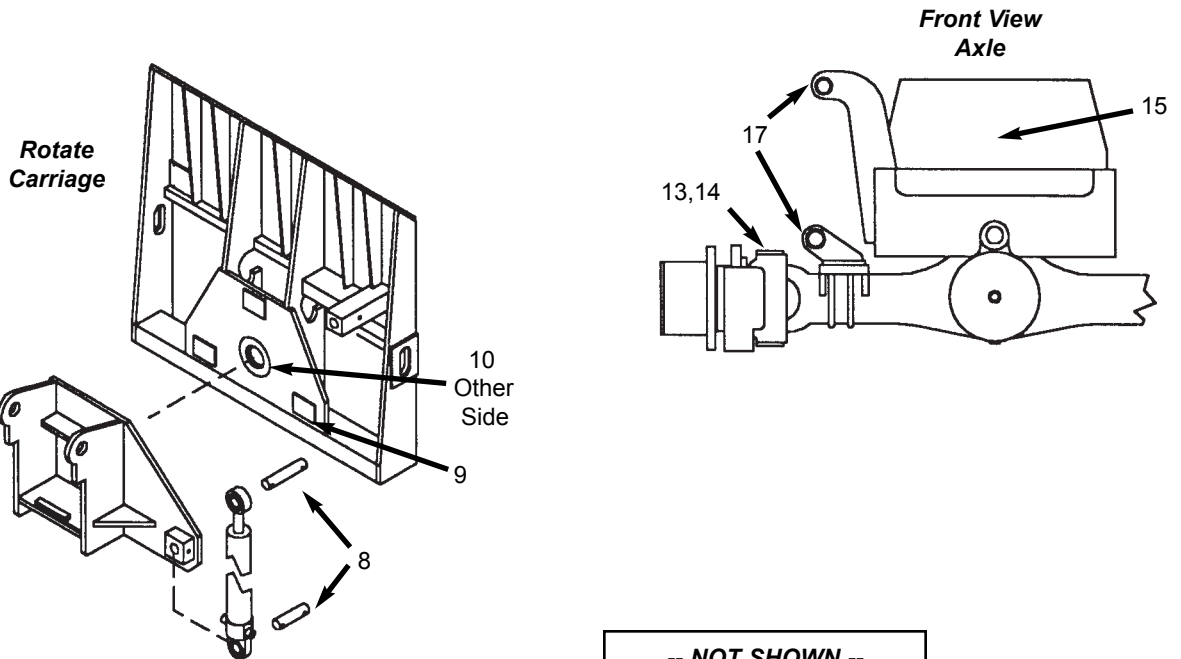
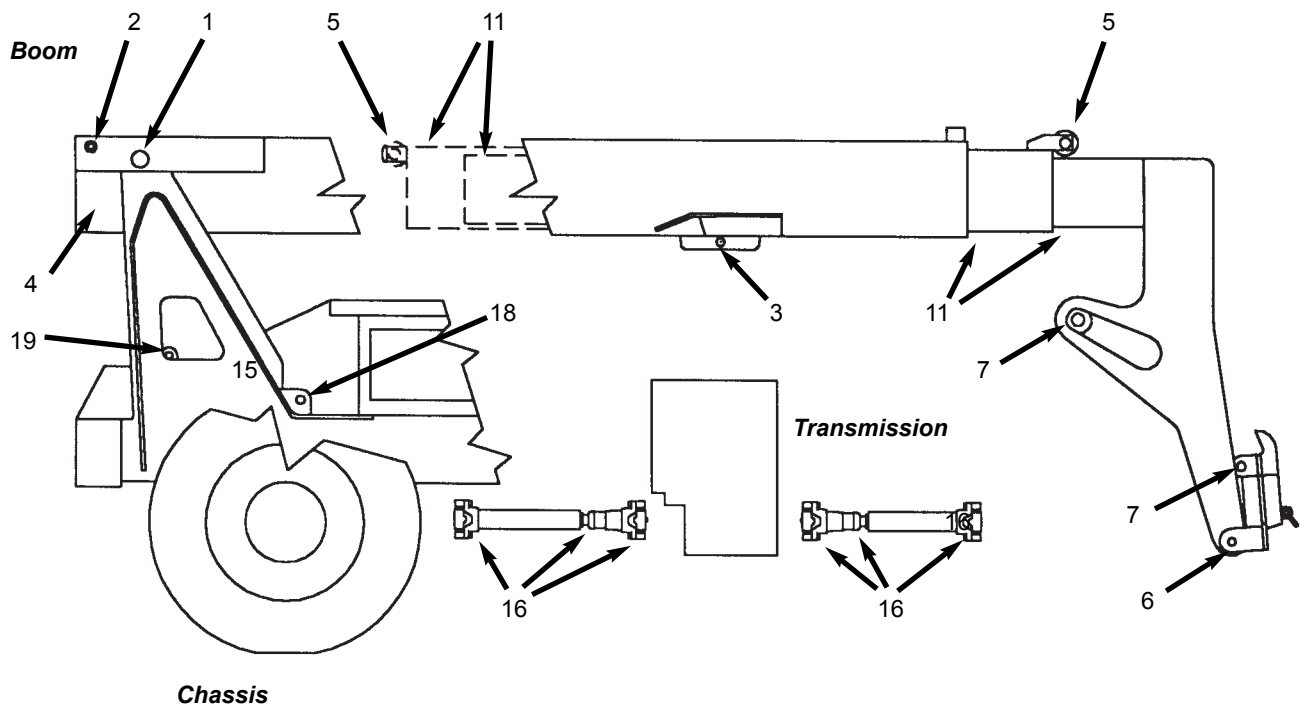
Refer to the illustration on the facing page for locations.

#### --- BOOM AREA ---

1. Boom to frame upright pivot pins (2)
2. Rod end slave cylinder pivot pins (2)
3. Rod end lift cylinder pins (2)
4. Extend cylinder pivot pins (2)
5. Chain sheaves pins, (2)
6. Dynattach to boom nose pivot pins (2)
7. Tilt cylinder pivot pins (2)
8. Rotate cylinder pivot pins (2)
9. Rotate carriage wear pads (3)
10. Rotate pivot bearing (1)
11. Boom slide pads - as required, front and rear

#### --- CHASSIS AREA ---

12. Brake foot pedal linkage (1)
13. Wheel spindle pins (4 per axle)
14. Tie rod ends (2 per axle)
15. Axle to frame pivot pins (1 per axle)
16. Drive shafts (3 per each)
17. Leveling cylinder pivot pins (2)
18. Base end lift cylinder pivot pins (2)
19. Base end slave cylinder pivot pins (2)



**-- NOT SHOWN --  
Operator Station Floor  
Item (12)**

**Location Reference for Grease Fittings**

# Chapter 8

## SERVICE & STORAGE

### GENERAL INFORMATION

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**BEFORE** servicing the Telescopic Forklift, unless expressly instructed to the contrary, exercise the **MANDATORY SAFETY SHUT-DOWN PROCEDURE** (*Safety chapter, p.10*). After service has been performed, **BE SURE** to restore all guards, shields and covers to their original positions **BEFORE** resuming machine operation.

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**NOTE:** All Service routines, with the exception of those described under the “Dealer Services” topic are owner-operator responsibilities. All Operator Services described under the hourly subtopics are also referred to on a decal which is located on the inside right side panel of the operator’s station. Refer to the Lubrication chapter of this manual for lubrication information.

**NOTE:** This “Service” chapter describes procedures to follow for making routine maintenance checks, adjustments and replacements. The majority of the procedures are also referred to in the “Maintenance” chapter of this manual. For engine related adjustments and servicing procedures, be sure to refer to the engine manual provided.

### PRECAUTIONS

DO NOT perform any maintenance or repair without the owner’s prior authorization. Allow only trained personnel to service the machine.

WARRANTY repairs can only be done by a GEHL Dealer. He will know what portions of the machine are covered under the terms of the GEHL Warranty and what portions are covered by other vendor OEM warranties.

When a problem occurs, don’t overlook simple causes such as an empty fuel tank. Check for leaks and broken connections. Make note of any specific problem symptoms, noises, etc. and contact your local Gehl Dealer.

**IMPORTANT:** Always dispose of waste lubricating oils, anti-freeze and hydraulic fluids according to local regulations or take them to a recycling center for disposal. **DO NOT** pour them onto the ground or into a drain.

### DEALER SERVICES

The following areas of internal components service, replacement and operating adjustments should only be attempted by (or under the direction of) an authorized GEHL Telescopic Forklift Dealer.

**IMPORTANT:** **DO NOT** attempt to service or repair major components, unless authorized to do so by your Gehl Dealer. Any unauthorized repair will void the warranty.

### POWER TRAIN COMPONENTS

The engine and transmission are coupled directly to each other. All service routines, related to the internal components are precise and critical to proper power train operation. The axle differential and planetary ends are also sophisticated assemblies which require special know-how and tools for servicing.

**NOTE:** If any power train components are suspected of faulty operation, contact your Gehl Dealer for further assistance.

### HYDRAULIC SYSTEM COMPONENTS

Valves, pumps, motors and cylinders are also sophisticated assemblies which require special know-how and tools for servicing. All cylinders are appropriately designed with particular strokes, diameters, checks and hose connection provisions unique to the machine application requirements. A schematic (located at the end of this manual) can be used as a guide for service reference, as required.



# **WARNING**

**Tilt, lift, extend and leveling cylinders have counterbalance valves. These valves keep hydraulic fluid from entering or exiting the cylinders while not being used, and are under extremely high pressure. For your safety, before removing any of these valves, you must call Gehl Service. Failure to do so may result in serious injury or death.**

Internal service on any of these components should only be attempted by (or under the direction of) an authorized GEHL Telescopic Forklift dealer. WARRANTY repairs can only be done by a GEHL dealer.

He will know what portions of the machine are covered under the terms of the GEHL warranty and what portions are covered by other vendor warranties.

## **ELECTRICAL COMPONENTS**

An electrical system schematic is provided which includes instrumentation, electrical components and switch connections. It is located at the end of this manual and can be used as a guide for service reference, as required.

## **OPERATOR SERVICES**

Some of the operator related services will require access to components located inside the superstructure under shields, hoods and covers. The reference chart on this page notes components accessed in each particular area.

**ACCESS TO COMPONENTS REFERENCE CHART**

<b>Component</b>	<b>Operator Station</b>	<b>Frame</b>	<b>Front Cover</b>	<b>Mid-Rear Hood</b>
Axle (underside) Engine Transmission (mid area)		●	●	●
Drive Shafts (underside) Main Control Valve (rear) Muffler (underside)		● ● ●		
Air Cleaner (top front hood) Battery Radiator		● ●		●
Brake Valve (underside) Travel Controls (dash area) Boom Controls (right side)	● ● ●			
Hydraulic Test Ports (dash) Hourmeter (dash) Switches/Indicators (dash)	● ● ●			
Hydraulic Pump Hydraulic Filter (Reservoir) Misc. Hydraulic Valves			● ● ●	
Air Conditioner (rear) Heater (lower front)	● ●			

---

 **WARNING**

**DO NOT smoke or allow any open flames in the area while checking or servicing hydraulic, battery or fuel systems; all contain highly flammable liquids or explosive gases which can cause an explosion or fire if ignited.**

**Wear a face shield when you disassemble spring loaded components or work with battery acid. Wear a helmet or goggles with special lenses when you weld or cut with a torch.**

**When working beneath a raised machine, always use blocks, jack-stands or other rigid and stable supports. Wear appropriate protective clothing, gloves, shoes. Keep feet, clothing, hands and hair away from moving parts.**

**Always wear safety glasses or goggles for eye protection from electric arcs from shorts, fluids under pressure, and flying debris or loose material when the engine is running or tools are used for grinding or pounding.**

**NEVER weld on bucket, forks, boom, support frame or overhead guards without the consent of the manufacturer. Special metals may be used which require special welding techniques or have a design which should not have welded repairs. NEVER cut or weld on fuel lines or tanks.**

**If repair welding is ever required, BE SURE to attach the ground (-) cable from the welder as close as possible to the area to be repaired. Also remove battery (+) positive terminal connection before welding.**

---

Choose a clean, level work area. Make sure you have sufficient room, clearances, and adequate ventilation. Clean the walking and working surfaces. Remove oil, grease and water to eliminate slippery areas. Utilize sand or oil absorbing compound, as necessary, while servicing the Telescopic Forklift.

Before starting inspection and repair, move the machine onto a level surface, shut down engine, and release all hydraulic pressure. Always block the boom securely, or lower it to full ground contact. Place all controls in neutral.

Block the wheels. Remove the ignition key. Remove only guards or covers that provide needed access. Wipe away excess grease and oil.

NEVER weld on attachment tools, boom support frame or overhead guards without the consent of the manufacturer. Special metals may be used which require special welding techniques or have a design which should not have welded repairs. NEVER cut or weld on fuel lines or tank.

Excessively worn or damaged parts can fail and cause injury or death. Replace any cracked or damaged part. Care should be taken to assure that all replacement parts are interchangeable with original parts and of equal quality.

Use care not to damage machined and polished surfaces. Clean or replace all damaged or painted over plates and decals that cannot be read.

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 **WARNING**

**NEVER leave guards off or access doors open when the machine is unattended. Keep bystanders away if access doors are open.**

---

After servicing, check the work performed, no parts left over, etc. Install all guards, covers.

**Service Every 10 Hours or Daily**

### **CHECK FUEL TANK LEVEL**

After operation each day, the fuel tank should be filled to prevent water from condensing in the tank. To fill, remove the filler cap and add fuel.

A drain plug is provided in the bottom of the fuel tank for removing condensation and other foreign materials. Open the plug and allow water and fuel to drain into a container until only clear fuel is flowing from the tank.

### **CHECK FUEL FILTER**

**NOTE:** *The fuel filter will require occasional replacement to maintain a clean and adequate fuel flow for maximum engine horsepower. The frequency of filter replacement will be determined by the cleanliness of available fuel, the care used*

*in storing fuel supplies and the operating conditions in which the machine is used.*

Small amounts of water can be drained from the fuel filter. The drain plug should be removed weekly to drain off water accumulation until clear fuel is flowing from the outlet.

### **CHECK ENGINE OIL LEVEL**

With the machine on level ground, and the engine stopped for ten minutes or more, slide open the side engine panel and remove the engine dipstick. Wipe it clean, re-insert it and remove to obtain a reading. If the oil level is down, or below the ADD mark, fill with the required amount of oil to bring the level to the FULL mark. See the Lubrication chapter for the type of oil to use.

### **CHECK RADIATOR COOLANT LEVEL**

With the machine on level ground, remove the radiator cap. Add 50/50 water and anti-freeze mixture (winter) if the coolant level is below the filler neck. Replace the radiator cap securely.

**IMPORTANT:** *If the engine is operated with a*



**DO NOT** remove the radiator cap when the engine is running hot or overheated. Coolant is extremely hot and under pressure and it can burn your skin. Allow sufficient time for the radiator and hydraulic oil cooler to cool **BEFORE** relieving the pressure and removing the radiator cap.

---

*loose radiator cap, the pressure bypass will not work and the engine will run hot.*

### **CHECK TRANSMISSION OIL LEVEL**

The machine must be on level ground and make sure the boom is lowered and completely retracted. With engine and transmission at operating temperature; park brake on, transmission in neutral and engine speed at low idle, remove the access cover to the transmission and hydraulic pump. Remove the dipstick and check the oil level. Add the required amount of oil to bring the level to the FULL mark. See the Lubricants chapter for the type of oil to use.

### **CHECK HYDRAULIC OIL LEVEL**

The machine must be on level ground and make sure the boom is lowered and completely retracted. The fluid **MUST** be cool when checking the reservoir level. By doing this, you will reduce the possibility of over-filling the hydraulic system, and also reduce potential injury due to hot fluid.

Remove the front cover from the front hood section. Loosen the filler cap to release pressure. Remove the filler cap and check the level on the dipstick. If the oil level is down, or below the ADD mark, fill with the required amount of oil to bring the level to the FULL mark. See the Lubricants chapter for the type of oil to use.

**IMPORTANT:** *Be careful when removing the reservoir filler cap so that no dirt or other foreign matter enters the hydraulic system while the cap is removed. DO NOT OVERFILL.*

### **CHECK BRAKE RESERVOIR LEVEL**

The brake booster master cylinder reservoir is under the seat compartment. This compartment panel tilts forward for access to the reservoir. Remove the reservoir caps to check the level. If low, fill to proper level with hydraulic brake fluid (Type DOT3) only.

### **CHECK PARK BRAKE HANDLE**

Check the tension when pulled. Adjust, if necessary, to a pull of 20 Lbs (89 N)

### **CHECK TIRE PRESSURES**

Proper tire pressure should be maintained equally for all four tires to enhance operating stability and extend tire life.

When installing tires on the machine, be sure that all tires are of the same size and style. **ALWAYS** replace tires with the same size furnished as original equipment. Replacement tires must be purchased locally.

Check the tire pressure “cold”. All 12 ply tires should be inflated to 55 PSI (380 kPa).

**NOTE:** *If the tires have been filled with water or calcium chloride for weight, a calcium chloride tire pressure gauge **MUST** be used to check the tire pressure.*

---



## WARNING

**NEVER attempt to service tires if the bead lock ring appears loose. Clear the area and call for professional tire repair help.**

**Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should service and mount tires. DO NOT place your fingers on the tire bead or rim during inflation; serious injury or amputation could result. To avoid possible death or serious injury, follow the safety precautions below:**

- 1. BE SURE the rim is clean and free of rust.**
- 2. Lubricate both the tire beads and rim flanges with a soap solution. DO NOT use oil or grease.**
- 3. Use a clip-on tire chuck with a remote hose and gauge which allows you to stand clear of the tire while inflating it.**
- 4. NEVER inflate beyond 35 PSI (240 kPa) to seat the beads. If the beads have not seated by the time the pressure reaches 35 PSI (240 kPa), deflate the assembly, reposition the tire on the rim, relubricate both parts and re-inflate. Inflation pressure beyond 35 PSI (240 kPa) with unseated beads may break the bead or rim with explosive force sufficient to cause death or serious injury.**
- 5. After seating the beads, adjust the inflation pressure to the recommended operating pressure listed.**
- 6. DO NOT weld, braze, or otherwise attempt to repair and use a damaged rim.**

---

When removing tires follow industry safety practices. Deflate completely prior to removal. Following assembly of the tire on the rim, use a safety cage or restraining device while inflating.

### CHECK WHEEL NUT TORQUE

On NEW machines, re-torque until 450 ft-lbs (610 Nm) is maintained.

### CHECK INSTRUMENTS OPERATION

Allow the engine to warm up for about five minutes before beginning operation. Indicator lamps should be OFF and gauges should register normal readings. Tilt the frame from side to side with the level control and note the angle indicator movement.

### CHECK GENERAL MACHINE OPERATION & CONDITION

Are any decals missing or damaged? Are all guards, shields and covers in place? Do all controls function smoothly and properly? Are there any abnormal vibrations or noises? Are any hose or fitting connections leaking? Is the engine exhaust color normal (light grey or colorless)?

**Service Every 50 Hours or Weekly**

### LUBRICATE GREASE POINTS

Refer to the Lubrication chapter of this manual for weekly grease fitting locations and other related details.

**100 Hours (New Machine Only)**

The following initial oil and filter changes should be made at this time on a new machine. Thereafter these changes should be made at the regular maintenance schedule listed. Refer to those schedules for procedures necessary.

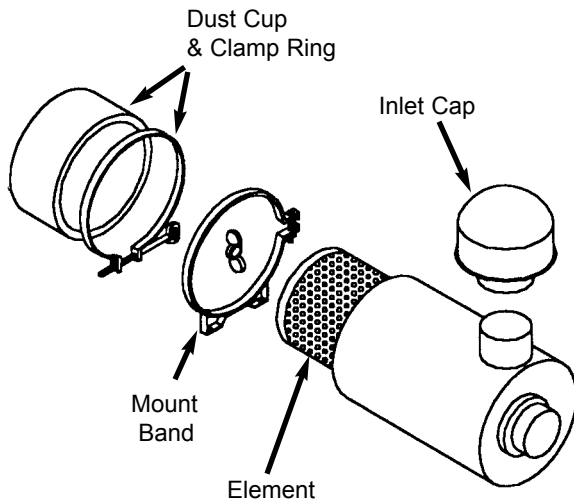
Engine Oil & Filter	(250 Hours)
Transmission Oil & Filter	(1000 Hours)
Hydraulic Oil Filter	(1000 Hours)

**Service Every 250 Hours**

**NOTE:** *Perform all other service requirements up to this point as well as the following:*

### CHANGE AIR FILTER ELEMENT

This air filter contains a single dry element. Wipe the outside of the body with a rag or cloth. Blow off excess dirt and dust with compressed air. Refer to illustration on the next page.



### Air Cleaner Assembly

1. Loosen the clamp ring and remove the dust cup. Remove the baffle. Wipe the cup and baffle completely clean. Reassemble the dust cup.

2. Remove the element wing bolt and slide out the element. Avoid knocking the element against the housing. Dirt accidentally transferred to the inside of the outlet tube will reach the engine and cause wear.

3. Wipe the entire inside of the main body and inlet cap screen.

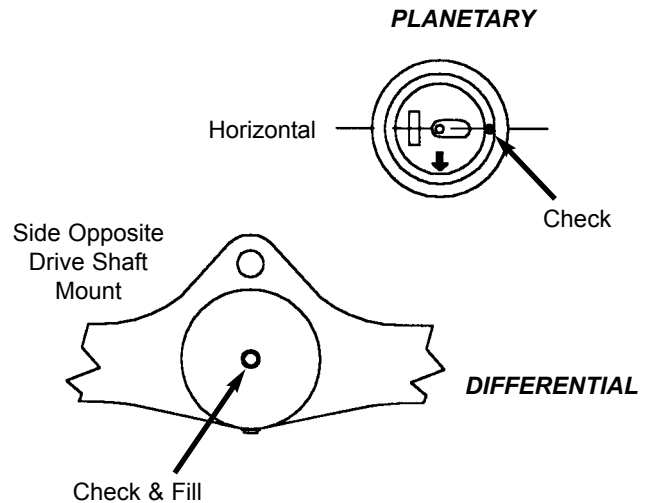
A streak of dust on the clean air side of the old element indicates a leakage problem. Be sure to remove the cause before installing a new element.

4. Inspect the new element for possible damage. Placing a bright light inside the element and inspecting the outside will show up any holes or tears. Discard the element if such damage appears.

**IMPORTANT:** NEVER use an element that is damaged. Severe engine wear and eventual failure can result if dirt gets through a hole in the element.

5. Install the element and reassemble the end cup to housing. Make sure the large o-ring is in place between the end cup and the main body.

**NOTE:** Keep spare elements on hand to eliminate down time.



### Axle Oil Plugs Location

#### CHECK AXLE OIL LEVELS

##### Differential

**NOTE:** The Telescopic Forklift should be on a level surface for this procedure.

See illustration. Remove the check/fill plug (located on opposite side of the drive shaft U-joint). If low, fill until oil overflows the hole. Replace the plug, wait 10 to 15 minutes and repeat the fill procedure. Continue this process until the differential is full. See the LUBRICANTS chapter for the proper oil specification. Replace the oil level check/fill plug.

##### Planetary Hubs

**NOTE:** The planetary hubs can be checked without jacking up the machine.

See illustration. The planetary hubs have one plug each used for filling and draining. For checking the level and filling, position the Wheel until the arrow points down. Remove the fill plug. If oil does not run out, add oil until it overflows. Check the remaining hubs the same way. Refer to the oil specifications found in the Lubricants chapter of this manual.

#### CHANGE FUEL FILTER

The frequency of filter replacement will be determined by the cleanliness of available fuel, the care used in storing fuel supplies and the operating conditions in which the machine is used.

**NOTE:** For proper replacement procedures refer to the engine manual for your machine.

After fuel filter replacement, bleed the air out of the fuel system following the procedures in the engine manual.

### Fuel Bleeding Procedures

When the fuel filter is removed and replaced, or the engine runs out of fuel, air must be bled from the system. Refer to the engine manual relative to proper bleeding procedures.



**NEVER** service the fuel system while smoking, while near an open flame, or after the engine has been operated and is hot.

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If the engine still will not start, consult your nearest authorized engine dealer.

**NOTE:** Only an authorized engine dealer can perform WARRANTY Service on the engine.

### Diesel Fuel Injectors

Whenever faulty or plugged injectors are indicated, see your nearest authorized engine dealer.

### Diesel Injection Pump Timing

Whenever injection pump timing, or other pump service is indicated by abnormal engine operation, contact your nearest engine dealer.



Escaping diesel fuel under pressure can have sufficient force to penetrate the skin. Before applying pressure to the fuel system, **BE SURE** all connections are tight and lines and hoses are **NOT** damaged. Use a piece of wood or cardboard to search for suspected leaks. If injured by escaping fuel, see a doctor familiar with this type of injury at once or gangrene may result.

---

### CHANGE ENGINE OIL & FILTER

Change the engine oil and filter using the following procedure:

1. With the engine warm, remove the crankcase drain plug. Some plugs are equipped with a magnet to gather metal particles. Completely clean and flush away all metallic filings from the plug and re-install it.

**IMPORTANT:** DO NOT discharge onto ground. Catch and dispose of per local waste disposal regulations.

2. The engine oil filter should be changed at every oil change interval. Remove and discard the throw away filter canister. Wipe the gasket sealing area of the block with a clean cloth.

**NOTE:** Your OEM engine oil filters have special by-pass valves built in. Use only genuine OEM engine replacement filters.

3. Apply a thin coat of clean oil to the new oil filter gasket and spin tighten. Refill the crankcase with new oil. Follow specifications in the Lubrication chapter for type and viscosity of new oil to put in.

4. After new oil has been added, run the engine at idle speed until the oil pressure light is OFF. Check for leaks at the filter and drain plug. Re-tighten only as much as necessary to eliminate leakage.

### CHECK THE BATTERY

The battery furnished with this machine is a 12 volt, wet-cell battery.

### Handling Battery Safely

The top of the battery must always be kept clean. Clean the battery with a brush dipped in an alkaline solution (ammonia or baking soda and water). After the foaming has stopped, flush the top of the battery with clean water. If the terminals and cable connection clamps are corroded or have a buildup, disconnect the cables and clean the terminals and clamps with the same alkaline solution.

**NOTE:** The battery in this machine is warranted by the supplier. See the punch tag on the top of the battery for warranty information.

## Jump Starting

If the battery becomes discharged or does not have enough power to start the engine, use jumper cables and the following procedure to jump-start the engine.

*NOTE: BE SURE that the jumper battery is also a 12 volt D. C. battery.*

1. Turn the keyswitches on both vehicles to OFF. Make sure that both vehicles are in "Neutral" and NOT touching.
2. Remove the battery filler caps and make sure that electrolyte solution is up to the proper level. In addi-

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## WARNING

Explosive gas is produced while a battery is in use or being charged. Keep flames or sparks away from the battery area. Make sure battery is charged in a well-ventilated area.

**NEVER** lay a metal object on top of a battery as a short circuit can result.

Battery acid is harmful on contact with skin or fabrics. If acid spills, follow these first aid tips:

1. **IMMEDIATELY** remove any clothing on which acid spills.
2. If acid contacts the skin, rinse the affected area with running water for 10 to 15 minutes.
3. If acid comes in contact with the eyes, flood the eyes with running water for 10 to 15 minutes. See a doctor at once. **NEVER** use any medication or eye drops unless prescribed by the doctor.
4. To neutralize acid spilled on the floor, use one of the following mixtures:
  - a. 1 Pound (0.5 kg) of baking soda in 4 quarts (4 liters) of water.
  - b. 1 Pint (0.4 liters) of household ammonia in 4 quarts (4 liters) of water.

Whenever battery is removed from the unit, **BE SURE** to disconnect the negative (-) battery terminal connection cable first.

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## WARNING

The **ONLY** safe method for jump-starting a discharged battery is for **TWO PEOPLE** to perform the following procedure. The second person is needed for removing the jumper cables so that the operator does not have to leave the operator's compartment while the engine is running. **NEVER** connect the jumper cables directly to the starter solenoid of either engine. **DO NOT** start the engine from any position other than the operator's seat, and then **ONLY** after making sure all controls are in "neutral."

Closely follow the jump-start procedures, in the order listed, to avoid personal injury. In addition, wear safety glasses to protect your eyes, and avoid leaning over the batteries while jump-starting.

**DO NOT** attempt to jump-start the machine if the battery is frozen because this may cause it to rupture or explode.

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tion, place a clean cloth over the uncapped filler holes to prevent the electrolyte solution from overflowing.

3. Connect one end of the positive (+) jumper cable to the positive (+) battery terminal on the disabled vehicle first. **DO NOT** allow the jumper's positive (+) cable clamps to touch any metal other than the positive (+) battery terminals. Connect the other end of the positive jumper cable to the jumper battery positive (+) terminal.
4. Connect one end of the negative (-) jumper cable to the jumper battery negative (-) terminal.
5. Make the final negative (-) jumper cable connection to the disabled Telescopic Forklift's engine block or frame (ground) -- NOT to the disabled battery negative post. If making the connection to the engine, keep the jumper clamp away from the battery, fuel lines, or moving parts.

**NOTE:** *Twist the jumper cable clamps a couple of time on the battery terminals to insure a good electrical path for conducting current.*

6. Proceed to start the machine. If it does not start immediately, start the jumper vehicle engine to avoid excessive drain on the booster battery.

7. After the machine is started and running smoothly, have the second person remove the jumper cables (negative (-) jumper cable, first) from the jumper vehicle battery, and then from the disabled machine while making sure NOT to short the two cables together.

Allow sufficient time for the alternator to buildup a charge in the battery before operating the machine or shutting off the engine. Be sure to discard the cloths and reinstall the vent caps removed in Step 2, above.

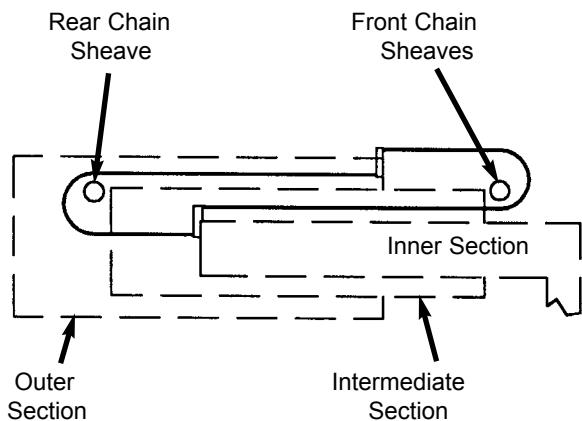
**NOTE:** *If the battery frequently becomes discharged, have the battery checked for possible dead cells or troubleshoot the entire electrical system for possible short circuits or damaged wire insulation.*

### CHECK ALTERNATOR & FAN BELT TENSION

Refer to the engine manual relative to proper belt tension adjustment and replacement procedures. If the belt shows wear or cuts, it should be replaced. Order replacement belt from your engine dealer.

### CHECK BOOM LEAF CHAINS & SHEAVES

Inspect the leaf chains for wear and proper tension. Two of the chains and sheaves are on the top of the boom. A third is accessible from inside the rear of the boom (see illustration). Run the boom out slowly to inspect. Conditions to look for includes cracked or broken plates, protruding or turned pins, excessive wear. With a steel tape, measure 16 links of the strand that flexes over the sheaves. When the distance measures



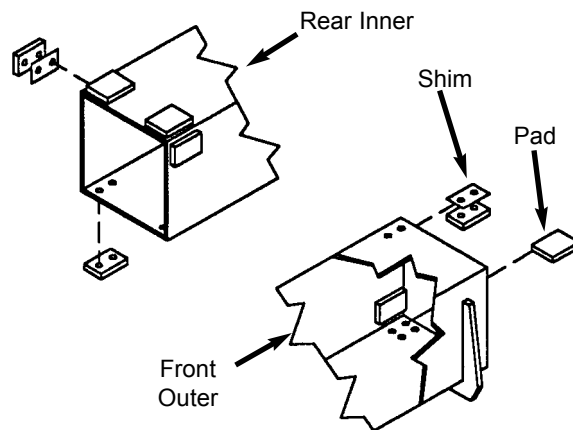
**Chain Hookup Detail**

12.375" (314.3 mm), the chain should be discarded. DO NOT repair sections of a chain. Replace the complete chain.

Chain anchors and sheaves also require inspection for wear or broken fingers and worn flanges. If a chain has been replaced, operate under load conditions and recheck the torque. Chains are adjusted by torquing the Anchors to 25 ft-lb (34 Nm). Lubricate with 80/90 wt. oil.

### CHECK BOOM SLIDE PADS WEAR & CLEARANCE

This boom is equipped with special nylon low friction slide pads between the telescopic sections (see illustration). These are pre-greased and initially worn-in at the factory. Normally greasing is not required, except for maintaining a light film of grease on the pad tracking areas of the boom sections. An exception would be if a boom section has been replaced.



**Slide Pad Detail**

Visually check for loose pad bolts. The bolts are torqued to 30 ft-lb (40 Nm). If the bolts are re-torqued at any time, Loctite® thread lock must be re-applied to the bolts.

If the boom starts to chatter under load, grease the slide pads and wipe off the excess. If a top or side slide pad shows excessive wear, loosen bolts. Insert shims to each side or top and bottom for even distribution of clearance. Re-apply Loctite® thread lock to the bolts and re-torque to 30 ft-lbs (40 Nm). Bottom slide pads should be replaced when the thickness is worn down to 3/8" (9.5 mm).



## Service Every 1000 Hours

**NOTE:** Perform all other service requirements up to this point, as well as the following:

### CHANGE TRANSMISSION OIL & FILTER

Operate the machine long enough to warm up the transmission oil. Shut down the engine. Access to filter and drain plug is from underneath the machine. Proceed as follows:

1. Remove the drain plug and drain out old oil. Replace the drain plug.

**IMPORTANT:** DO NOT discharge oil onto ground. Catch and dispose of per local waste disposal regulations.

2. Remove and discard the oil filter. Wipe the sealing surface on the transmission with a clean cloth. Apply a thin coat of clean oil to the new oil filter gasket. Spin tighten.

3. Refill the transmission with new oil as shown in the Lubrication chapter of this manual.

**IMPORTANT:** DO NOT OVERFILL! If the oil level is too high, oil foaming, excessively high oil temperature and oil leakage at the seal could result.

4. Start and run the machine long enough for the oil to circulate and warm slightly. Recheck the level with the dipstick.

### CHANGE RADIATOR COOLANT

Drain, flush and refill the cooling system as follows:

**IMPORTANT:** DO NOT discharge coolant onto ground. Catch and dispose of per local waste disposal regulations.

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## WARNING

Remove the radiator cap only when the engine is cool, or painful burns could result.

---

1. Loosen the radiator cap to its stop. This will release any system pressure. Remove the cap when all pressure is bled off.

2. Open the radiator drain cock. Remove the water jacket drain plug from the engine block. When all coolant is drained, flush the system with clean fresh water. Allow the flush to drain completely.

3. Replace all drain plugs and tighten the radiator drain cock. Clean out the cooling fins in the radiator with water pressure or steam.

**NOTE:** When cold weather is expected, fill the cooling system with a 50-50% mixture of water and ethylene glycol anti-freeze.

4. Inspect the radiator cap seal before installing it. Replace it if it appears defective. The 10 PSI (69 kPa) pressure cap and engine thermostat work in conjunction with each other to maintain proper engine cooling.

**NOTE:** Check the engine temperature lamp, every minute or two, after coolant has been changed. Air pockets can form. It may be necessary to refill the cooling system after a short period of use, as the air will naturally bleed out of the system.

### CHANGE HYDRAULIC RETURN FILTER ELEMENT

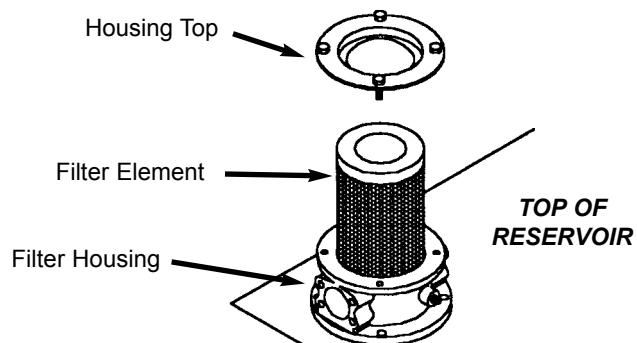
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## WARNING

When servicing the hydraulic system, lower the boom to the ground.

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This element is a cartridge type accessible from a housing on top of the hydraulic reservoir. Initial replacement is after the first 100 hours. See illustration.



**Reservoir Filter Removal**

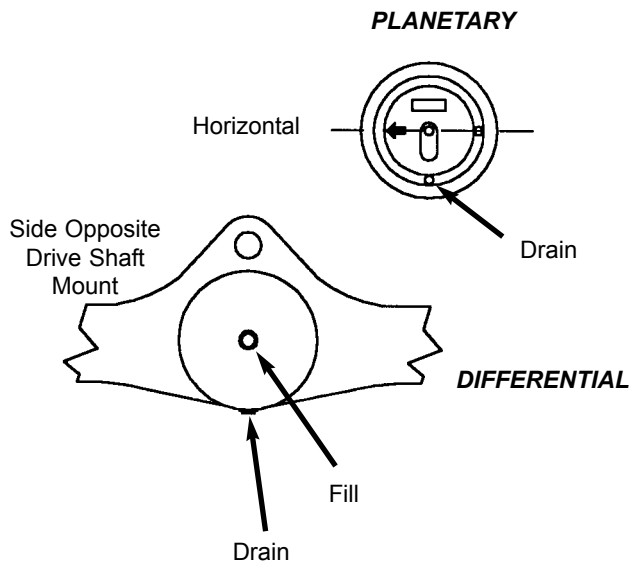
Remove the top cover of the housing. Remove the element and discard. Insert the new element onto the housing and Replace the cover.

## CHANGE AXLE DIFFERENTIAL & PLANETARY OIL

### Differential

1. Remove the drain plug and drain out the old oil. Replace the drain plugs (*see illustration*).

**IMPORTANT:** *DO NOT discharge oil onto ground. Catch and dispose of per local waste disposal regulations.*



**Axle Oil Plug Locations**

2. Remove the check/fill plug. Fill the differential with oil as specified in the LUBRICATION chapter. When the oil overflows the check hole, replace the plug. Wait 10 to 15 minutes and repeat this process until the axle is full. Repeat the procedure with the other axle.

### Axle Planetary Hubs

The hubs have one plug each used for draining and filling (*see illustration*).

1. Position the wheel until the arrow points to the left. Remove the drain/fill plug and allow the oil to drain out. Replace the plug.

**IMPORTANT:** *DO NOT discharge oil onto ground. Catch and dispose of per local waste disposal regulations.*

2. Re-position the hub so the arrow points down. Fill with fresh oil as specified in the LUBRICATION chapter. When the oil runs out, install the drain/fill plug. Repeat this procedure on the three remaining hubs.

### CHECK EXHAUST SYSTEM

Examine the muffler and tail pipe for possible holes. Re-tighten any loose clamps and make sure the manifold outlet gasket is not leaking.

**Service Every 2000 Hours**

**NOTE:** *Perform all other service requirements up to this point, as well as the following.*

### CHECK HYDRAULIC SYSTEM RELIEF PRESSURES

Pressure settings for relief valves are pre-set at the factory. Two test ports are provided on the dash front.

Before conducting any test port pressure checks, check the engine RPM. Engine speed must be 950 to 1000 RPM at idle and 2700 to 2750 RPM at high idle.

#### Steering Relief Pressure

Plug a 3000 PSI (206 bar) oil or liquid filled gauge in the test port. Cramp the steering full to the right or left. The gauge should read 2000 PSI (138 bar).

#### Check Main Relief Pressure

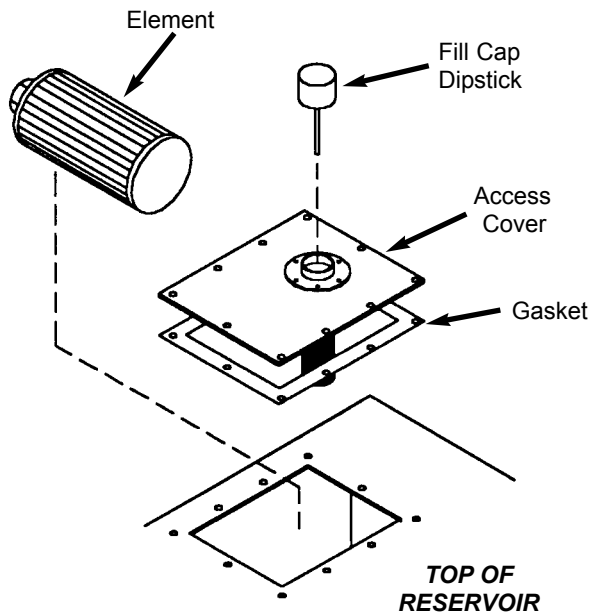
With the gauge in the test port and the boom extended, retract the boom fully. The gauge should read 2850 PSI (196 bar).

### CHANGE HYDRAULIC RESERVOIR OIL & STRAINER

Clean all dirt and debris from around the top of the reservoir, especially around the access cover. Refer to illustration on next page and use the following procedure:

1. Remove the drain plug and drain out all used oil. Wash or blow off all collected particles from the magnetic drain plug.

**IMPORTANT:** *DO NOT discharge oil onto ground. Catch and dispose of per local waste disposal regulations.*



### Hydraulic Reservoir Sump Strainer Removal

2. Remove the access cover and wash the inlet screen with clean solvent. Remove the sump filter strainer from the bottom inside of the reservoir. Wash it also. If the strainer has any damage, holes, etc. it should be replaced.
3. Flush out the bottom of the tank with clean hydraulic oil. Re-install all cleaned components and put the top back on the reservoir with a new gasket. Clean the filter/breather cap.
4. Fill the tank with fresh oil. Follow specifications found in Lubrication chapter of this manual.

**IMPORTANT:** *Hydraulic fluid and filters should be replaced any time contamination is present before the normally scheduled change.*

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## ⚠ WARNING

Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin. Before applying pressure to the hydraulic system, be sure all connections are tight and lines and hoses are not damaged. Use a piece of wood or cardboard to search for suspected leaks. If injured by escaping hydraulic oil, see a doctor familiar with this type of injury at once or gangrene may result.

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## STORAGE

If the Telescopic Forklift will not be operated for a long period of time, prepare and store it using the procedures as follows.

### Before Storage

Perform the following prior to placing the machine in storage:

1. Wash off the entire machine.
2. Lubricate all grease fittings as described in the Lubrication chapter of this manual.
3. Change engine oil as outlined in the Service & Storage chapter of this manual.
4. Apply grease to all exposed hydraulic cylinder rod areas.
5. Disconnect the battery cable clamps and cover the battery or remove the battery from the machine and store it separately.
6. If the ambient temperature (at anytime during the storage period) is expected to drop below freezing, make sure the engine coolant is either completely drained from the radiator and engine block or that the amount of anti-freeze in it is adequate to keep the coolant from freezing. Refer to the separate engine manual provided for anti-freeze recommendations and quantities.

### During Storage

1. About once each month, connect the battery and check all fluid levels to make sure they are at the proper level before starting the engine.
2. Start the engine and allow it to run until it warms up and then move the machine a short distance to help relubricate the internal parts. Run the engine until the battery has a chance to recharge and then shut it off.

**IMPORTANT:** *If it is desired to operate the hydraulic cylinders at this time, BE SURE to wipe the protective grease (and any adhering dirt) from the cylinder rods prior to starting the engine. After operating, BE SURE to recoat the cylinder rods with grease if the machine is going to be returned to storage.*

## **After Storage**

After removing the machine from storage and BEFORE operating it, perform the following:

1. Change engine oil and filter to remove condensation or other residues.
2. Wipe off grease from cylinder rods.
3. Lubricate ALL grease fittings.
4. Review and refamiliarize yourself with all safety precautions as outlined in the SAFETY chapter of this manual.
5. Follow the starting and warm-up procedures as outlined in the OPERATION & ADJUSTMENTS chapter of this manual.

# Chapter 9

## DECAL LOCATIONS

### GENERAL INFORMATION

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### CAUTION

**ALWAYS** read and follow the safety precautions on decals. Replace decals if they are damaged, or if the unit is repainted. If repainting, **BE SURE** that all applicable decals are affixed in their proper locations.

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Decal Locations information is provided to assist in the proper selection and application of new decals, in the event the original decal(s) become(s) damaged or the machine is repainted.

For correct replacement of decal(s) compare the location illustrations to your machine before starting to refinish the unit. Check-off each required decal using the illustration reference number to find the part number, description and quantity in the list. Refer to the appropriate illustration(s) for replacement location(s).

### NEW DECAL APPLICATION

Before applying the new decals, surfaces must be free from dirt, dust, grease and other foreign material. To apply a solid-formed decal, remove the smaller portion of the decal backing paper and apply this part of the exposed adhesive backing to the clean surface while maintaining proper position and alignment. Slowly peel off the other portion of the backing paper while applying hand pressure to smooth-out decal surface. To apply a die-cut decal, first remove the backing paper. Then, properly orient and position the decal onto the clean mounting surface. After the decal is firmly applied and smoothly pressed down, remove the front covering paper.

### PAINT FINISH

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#### Use this list to order paint for refinishing:

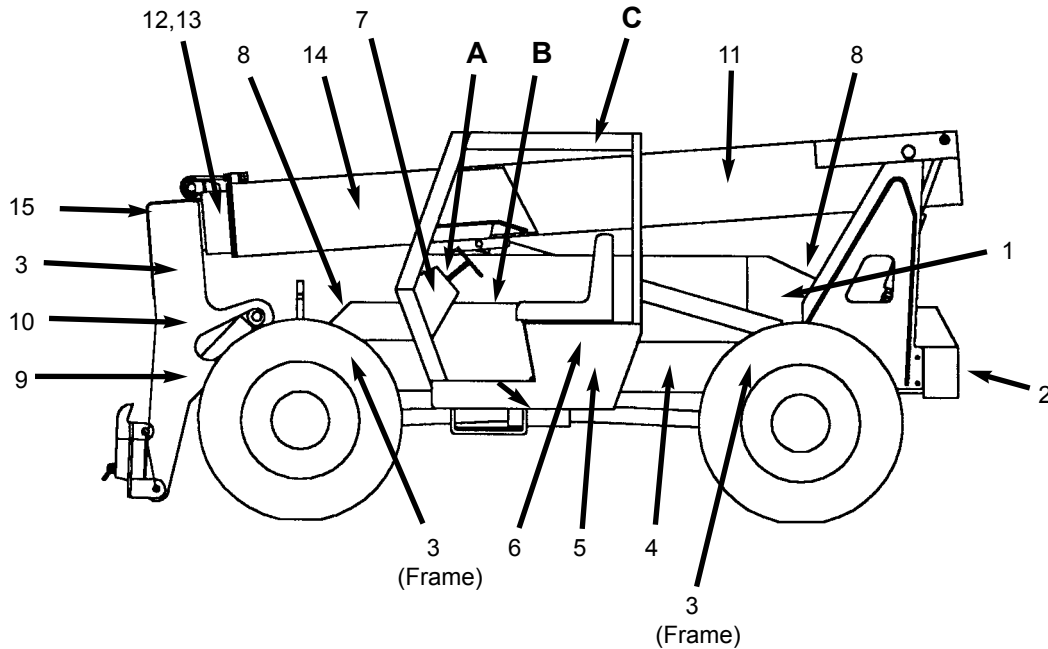
906213	One Gal. Yellow
906317	One Gal. Charcoal Grey
906214	6 (12 oz. Spray Cans) Yellow
906318	6 (12 oz. Spray Cans) Charcoal Grey

---

### Decal Kits

L98860	Model 663
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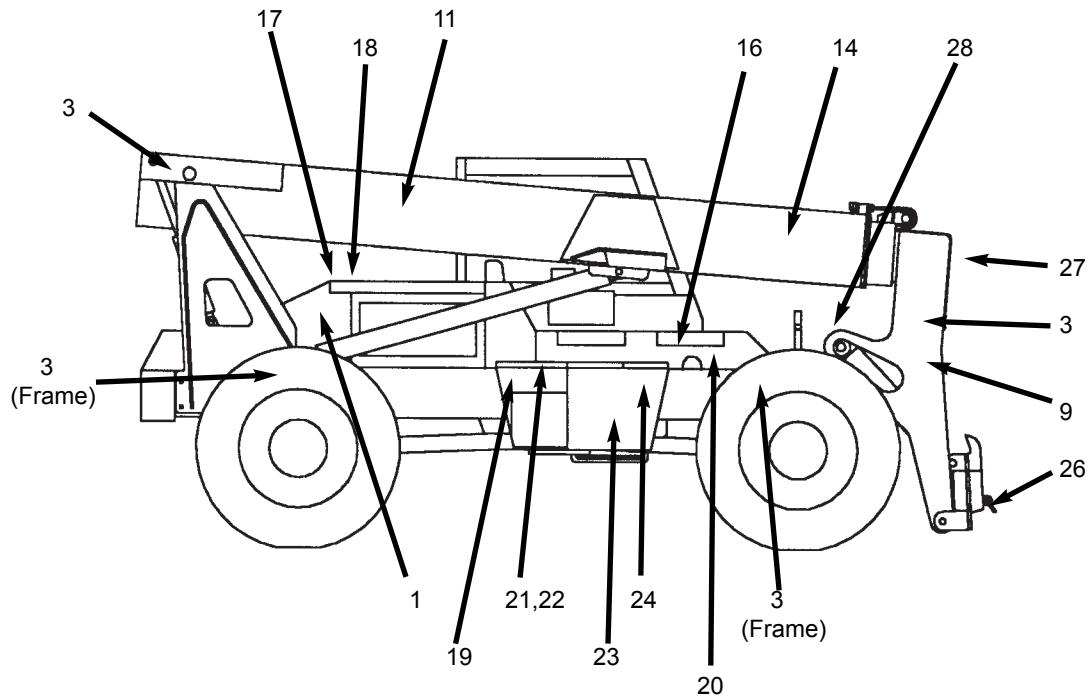
**NOTE:** *Decals may be purchased in kits or individually.*



**DETAILS "A-C" SHOWN ON PAGE 54**

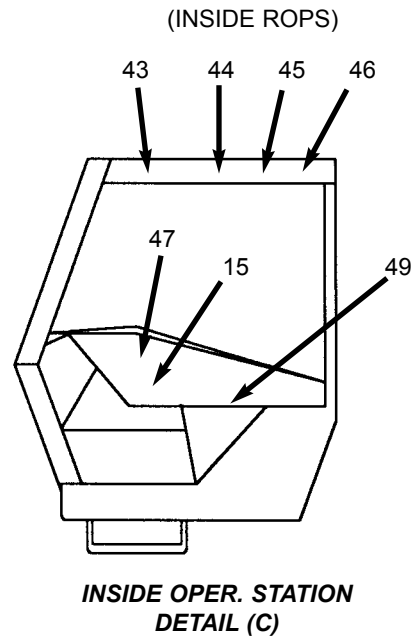
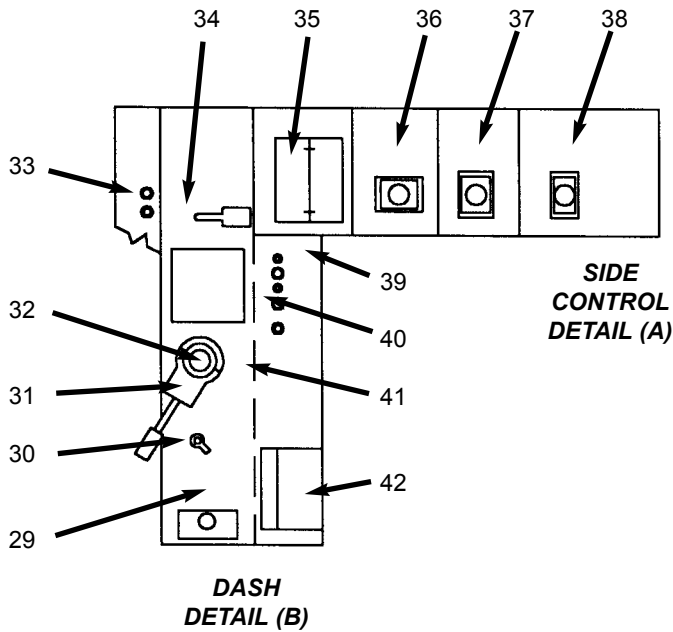
**DECAL LOCATIONS - LEFT SIDE OF MACHINE (EXCEPT DETAILS "A-C")**

REF. NO.	DESCRIPTION	663
01	DANGER - ROTATING FAN (1 ea.)	L659244
02	GEHL 4.5" (1 ea.)	L65565
03	WARNING - PINCH POINT (3 ea.)	L65927
04	WARNING - JUMP START (1 ea.)	L65933
05	DYNALIFT, 2.0" (1 ea.)	L66568
06	AUTO TROL, <i>When Used</i> (1 ea.)	L66611
07	WARNING - NO RIDERS (1 ea.)	L65932
08	GREASE DAILY (1 ea.)	L65920
09	DYNATTACH, 1-1/8" (1 ea.)	L66569
10	DYNATTACH DIAGRAM (1 ea.)	L65937
11	GEHL, 8.0" (1 ea.)	L66567
12	HALF ZONE MARKER (5 ea.)	L62583
13	NO. "0" EXTENSION MARKER (1 ea.)	L67718
13	NO. "1" EXTENSION MARKER (1 ea.)	L67719
13	NO. "2" EXTENSION MARKER (1 ea.)	L67720
13	NO. "3" EXTENSION MARKER (1 ea.)	L67721
13	NO. "4" EXTENSION MARKER (1 ea.)	L67722
13	NO. "5" EXTENSION MARKER (1 ea.)	L67723
14	663 (1 ea.)	L66578
15	DANGER - PERSONNEL LIFT (1 ea.)	L65928



### DECAL LOCATIONS - RIGHT SIDE OF MACHINE

REF. NO.	DESCRIPTION	663
01	DANGER - ROTATING FAN (1 ea.)	L65924
03	WARNING - PINCH POINT (3 ea.)	L65927
09	DYNATTACH - 1-1/8" (1 ea.)	L66569
11	GEHL, 8.0" (1 ea.)	L66567
14	663 (1 ea.)	L66578
16	HYDRAULIC OIL FILL (1 ea.)	072794
17	COOLANT UNDER PRESSURE (1 ea.)	072798
18	ANTI-FREEZE (2 ea.)	056859
19	WARNING - NO RIDERS (1ea.)	L65932
20	HYDRAULIC OIL LEVEL (1 ea.)	L65921
21	FILTER CHART, Under Lid (1 ea.)	L68083
22	LUBE CHART, Under Lid (1 ea.)	L64931
23	DYNALIFT, 2.0" (1 ea.)	L66568
24	AUTO TROL, When Used (1 ea.)	L66611
26	DYNATTACH UNLOCK, RED STRIPE (1 ea.)	L66613
27	GEHL, 2.0" (1 ea.)	L66584
28	WARNING - CARRY LOAD LOW (1 ea.)	L65926



**DECAL LOCATIONS - DETAILS "A-C" IN OPERATOR STATION**

REF. NO.	DESCRIPTION	663
15	DANGER - PERSONNEL LIFT(1 ea.)	L65928
29	WARNING - OPERATOR (1 ea.)	L63690
30	STEER SELECT (1 ea.)	L64814
31	F-N-4 SHIFT (1 ea.)	L68295
32	GEHL, 2.0" DIA. (1 ea.)	L66584
33	HYDRAULIC PRESSURE SETTINGS (1 ea.)	L64643
34	WARNING - PARK BRAKE (1 ea.)	L65925
35	LOAD ZONES FLIP CHART SET (1 ea.)	L66603
36	ATTACHMENT CONTROL (1 ea.)	L65208
37	BOOM CONTROL (1 ea)	L64812
38	FRAME SWAY CONTROL (1 ea.)	L64810
39	MADE IN USA (1 ea.)	094951
40	IGNITION/START/HORN (1 ea.)	L68052
41	WARNING - SEAT BELT (1 ea.)	L65440
42	OPERATOR MANUAL INSIDE (1 ea.)	L65922
43	WARNING - CARRY LOAD LOW (1 ea.)	093475
44	WARNING - MACHINE LEVEL (1 ea.)	L65930
45	DANGER - HIGH VOLTAGE (1 ea.)	L65929
46	DANGER - PANEL IN PLACE (1 ea.)	L65948
47	WARNING - TRUSS BOOM TILT (1 ea.)	66042



# Chapter 10

## MAINTENANCE

This Maintenance Chart was developed to match the Service chapter of this manual. Detailed information on each Service Procedure may be found in the Service chapter. A Maintenance Log follows the Interval Chart for recording the maintenance procedures performed. Recording the 10 Hour (or Daily) service intervals would be impractical and is therefore not recommended.

**IMPORTANT:** *Under extreme operating conditions more frequent service than the recommended intervals may be required. You must decide if your operation requires more frequent service.*

### MAINTENANCE INTERVAL CHART

SERVICE PROCEDURE	Every 10 Hours (or Daily)	Every 50 Hours (or Weekly)	Every 100 Hours	Every 250 Hours
Check Fuel Tank Level	●			
Check Fuel Filter (Drain Water If Required)	●			
Check Engine Oil	●			
Check Hydraulic Oil Level	●			
Check Tire Pressures	●			
Check Instruments Operation	●			
Check General Machine Operation & Condition	●			
Lubricate Weekly Grease Points		●		
Check Axle Oil Levels				●
Check Air Filter Element		●		
Change Fuel Filter				●
Check Wheel Nut Torque	● <sup>1,2</sup>			
Check Transmission Oil Level				●
Check Battery				●
Check Boom Leaf Chains & Torque				●
Change Engine Oil & Filter			● <sup>2</sup>	●
Change Hydraulic Oil & Filter			● <sup>2</sup>	
<i>1 - Only Until 450 Ft-Lbs (610 Nm) Is Maintained. 2 - Only New Machines.</i>				

## MAINTENANCE INTERVAL CHART (CONT.)

SERVICE PROCEDURE	Every 250 Hours	Every 1000 Hours	Every 2000 Hours
Change Transmission Oil and Filter		●	
Change Air Filter Element	●		
Check Alternator & Fan Belt Tension	●		
Check Boom Slide Pads Wear & Clearance	●		
Change Radiator Coolant		●	
Change Hydraulic Return Filter Element		●	
Change Axle Differential & Planetary Oil		●	
Check Exhaust System		●	
Check Hydraulic System Pressures			●
Check Hydraulic Reservoir Oil & Strainer			●

## MAINTENANCE LOG

Date	Hours	Service Procedure

# MAINTENANCE LOG

Date	Hours	Service Procedure

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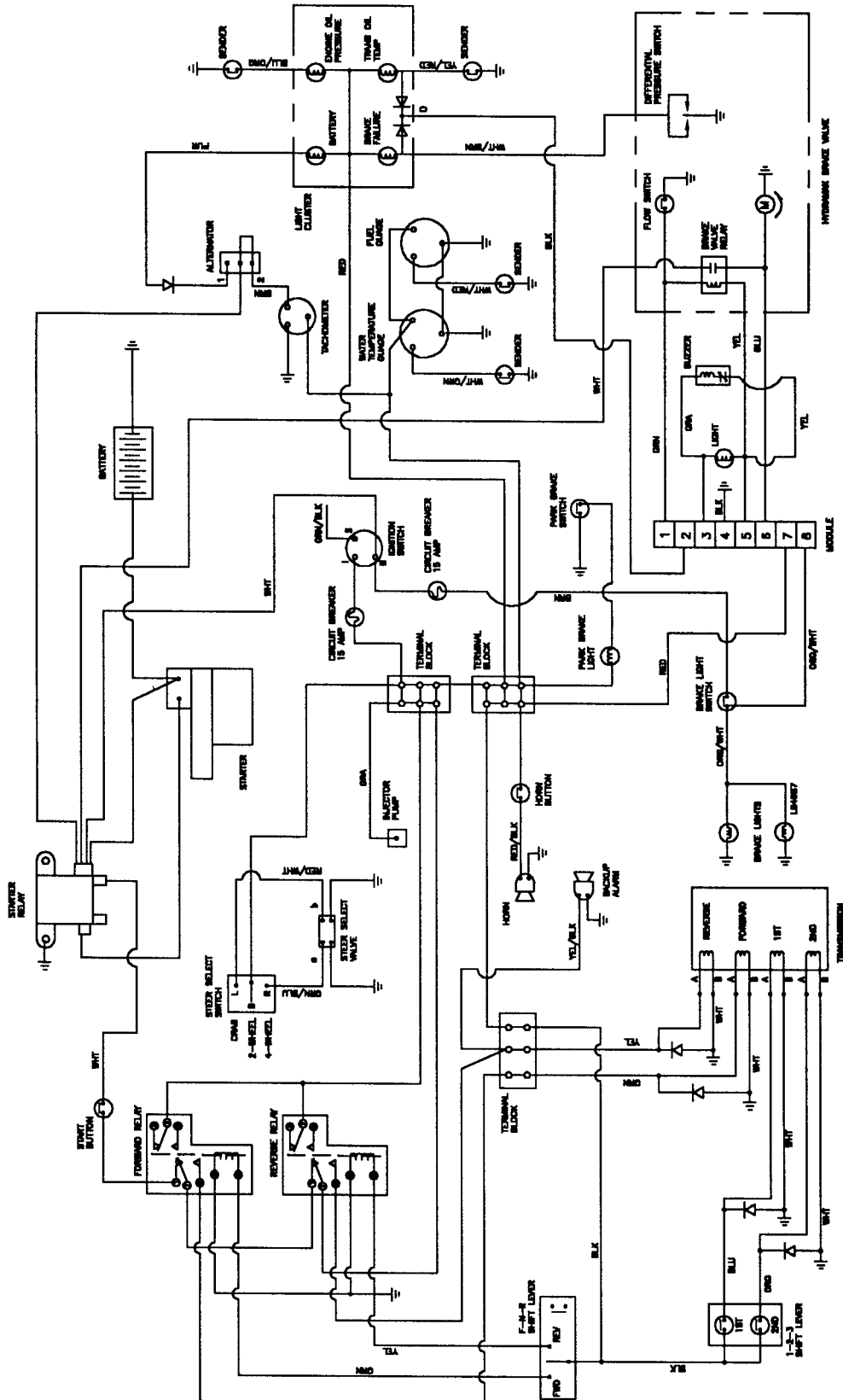
## W

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# Notes

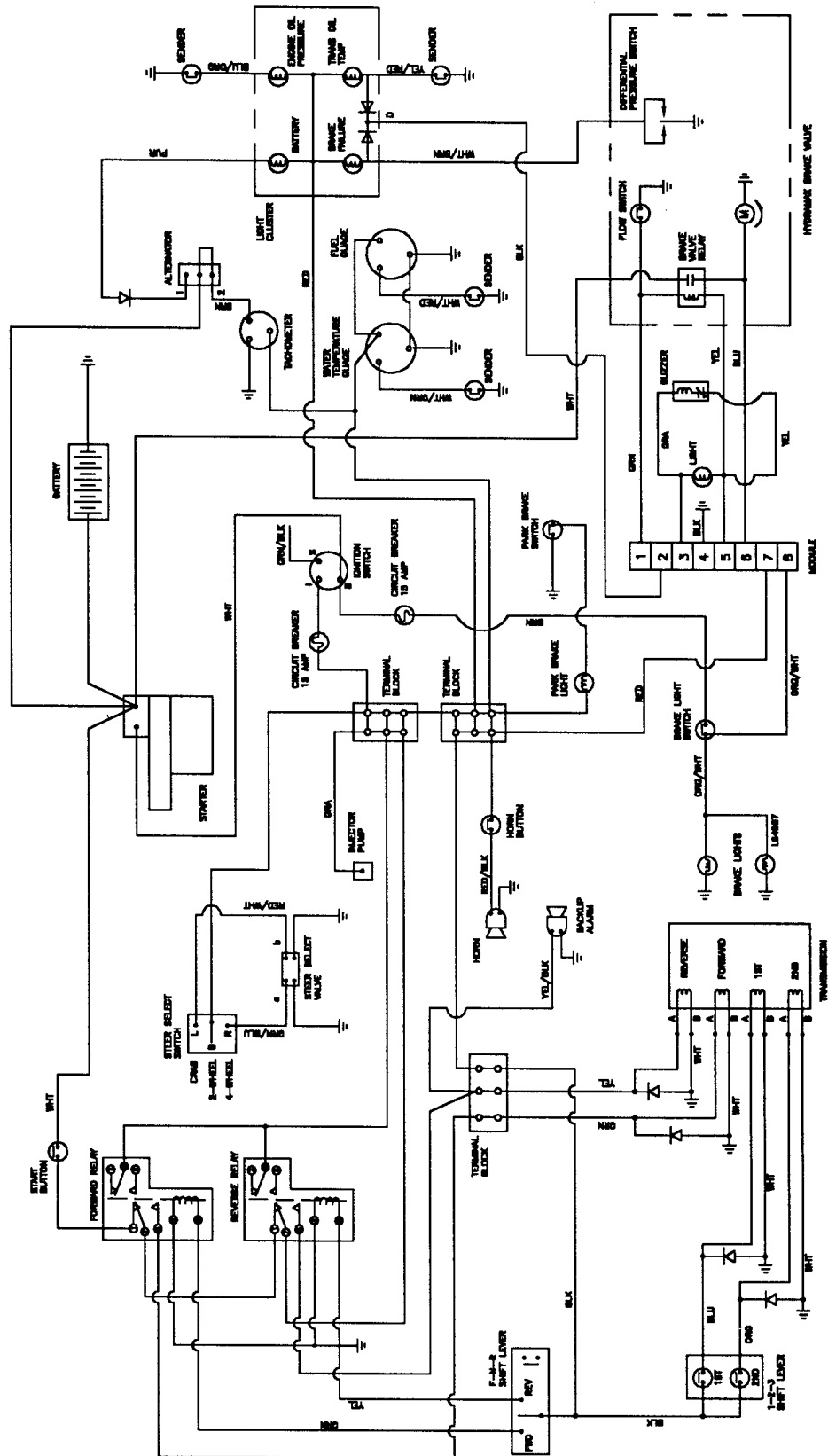
# 663 Electrical Schematic

## (J.D. Engine)

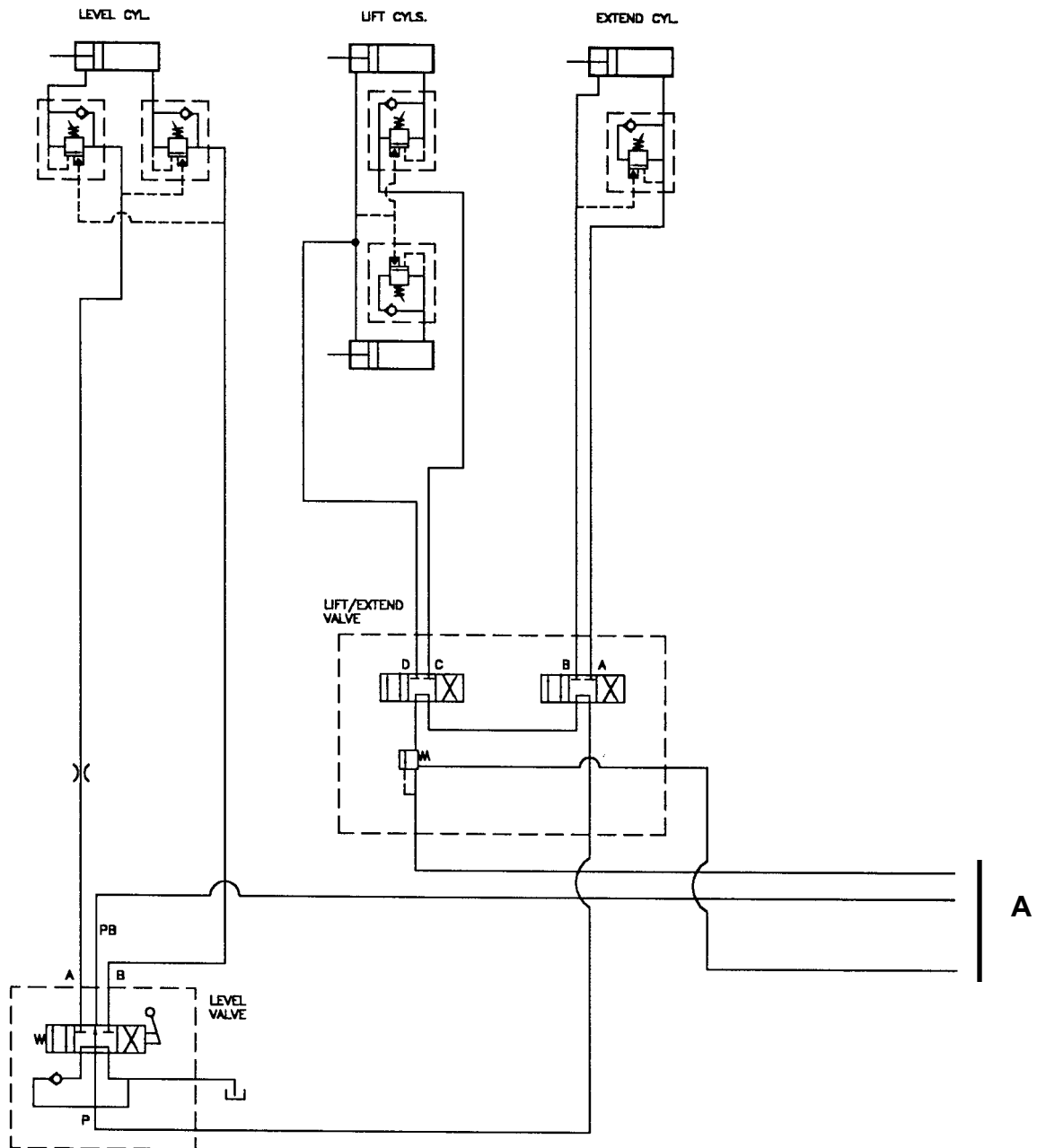




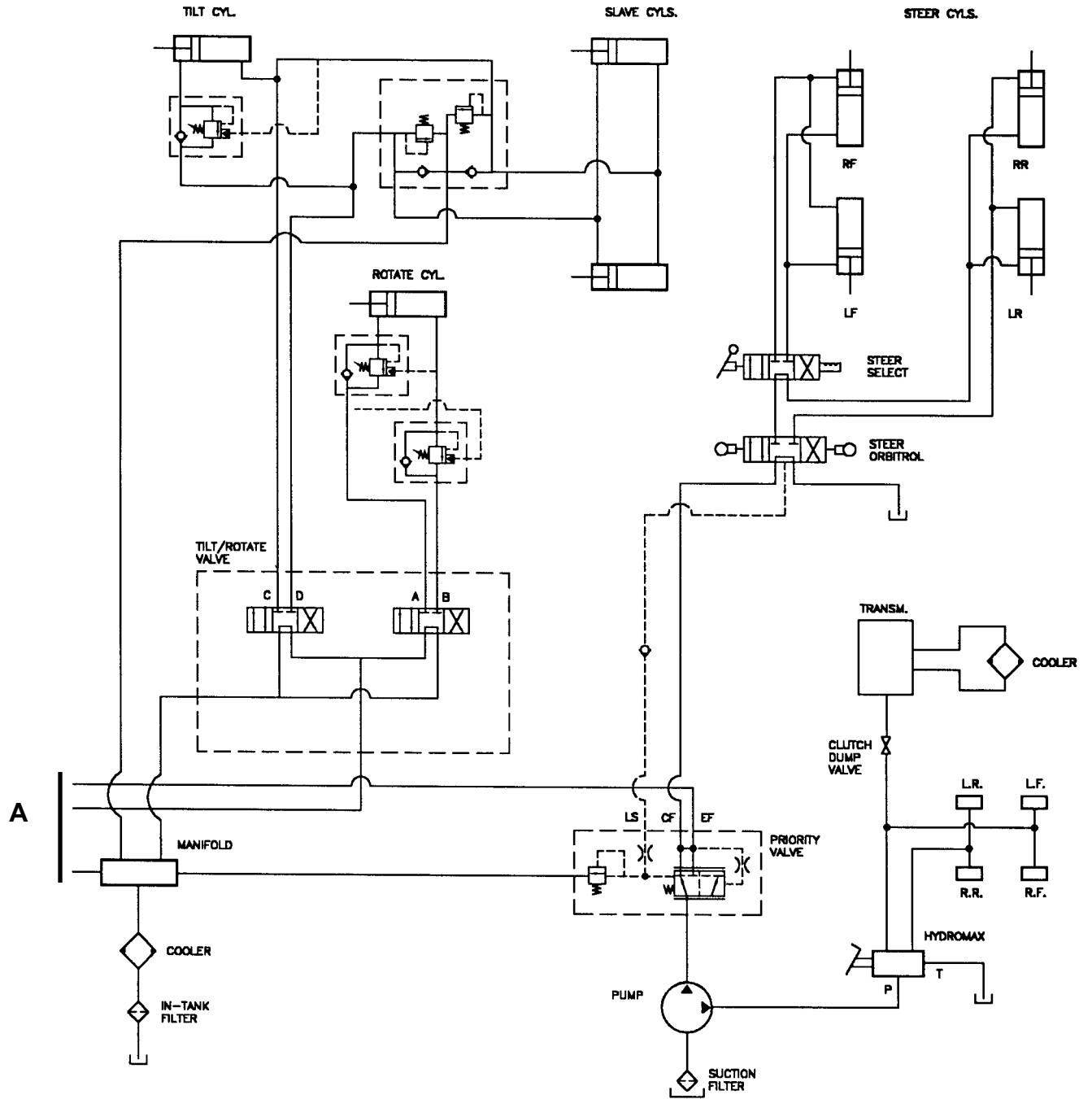
# 663 Electrical Schematic (Perkins Engine)



# 663 Hydraulic Schematic









# 663 Hydraulic Schematic



# Torque Specifications

Use these torque values when tightening GEHL hardware (excluding: Locknuts and Self-tapping, Thread-forming and Metal Screws) unless otherwise specified.

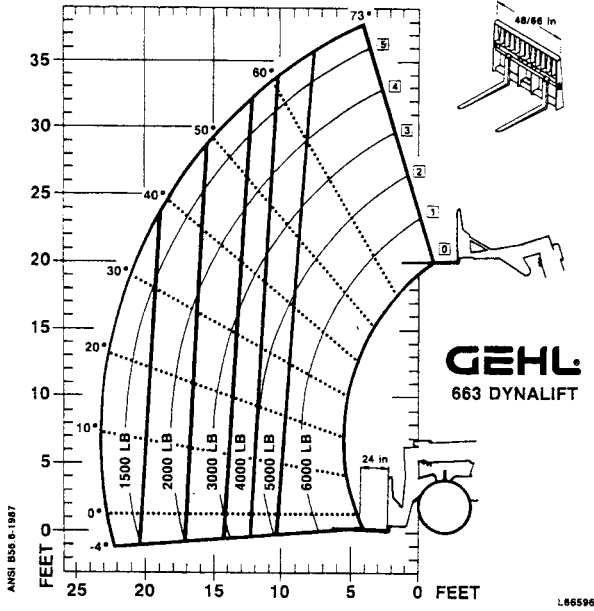
Unified National Thread	Grade 2 		Grade 5 		Grade 8 	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12	9	19	14	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	35	35	75	55	110	80
1/2-20	40	40	90	65	120	90
9/16-12	55	55	110	80	150	110
9/16-18	60	60	120	90	170	130
5/8-11	75	75	150	110	220	170
5/8-18	85	85	180	130	240	180
3/4-10	130	130	260	200	380	280
3/4-16	150	150	300	220	420	320
7/8-9	125	125	430	320	600	460
7/8-14	140	140	470	360	660	500
1-8	190	190	640	480	900	680
1-14	210	210	710	530	1000	740

Metric Course Thread	Grade 8.8 		Grade 10.9 		Grade 12.9 	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
M6-1	8	6	11	7	13.5	10*
24M8-1.25	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

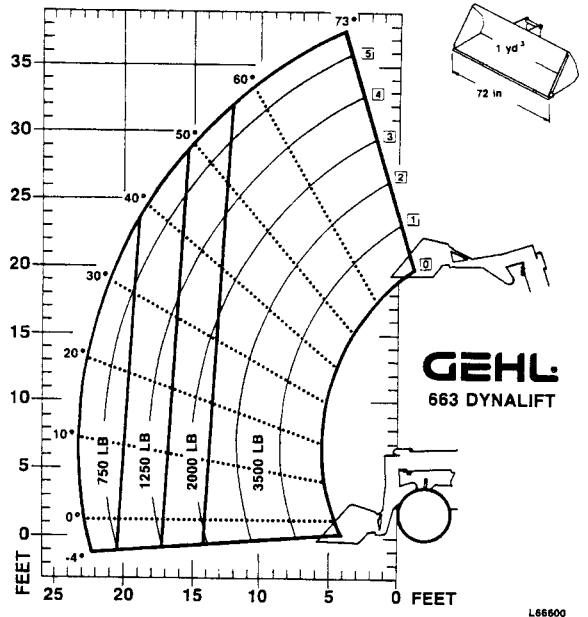
\* All torque values are in lb-ft except those marked with an \* which are in lb-in.  
For metric torque value (Nm) multiply lb-ft x 1.355 or lb-in value x 0.113.

# Load Zone Charts

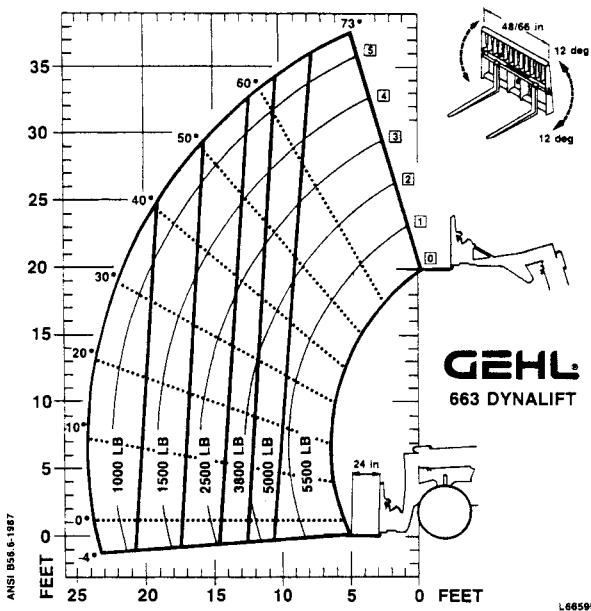
**663**  
Standard Carriage



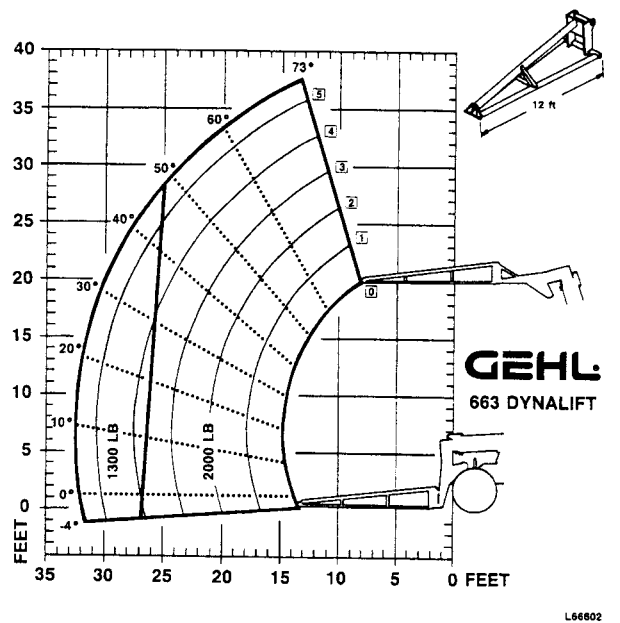
**663**  
1 Cu. Yd. Bucket



**663**  
Rotating Carriage

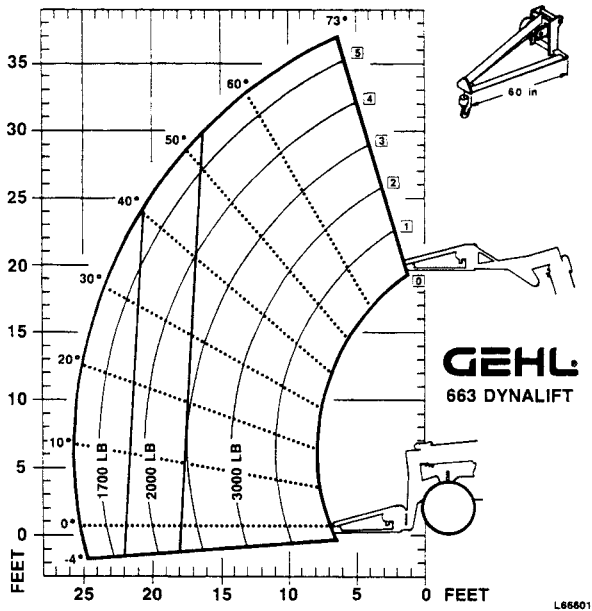


**663**  
12 Ft. Truss Boom



# Load Zone Charts

## 663 Winch Boom



L66601

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**GEHL®**

**NEW CONSTRUCTION EQUIPMENT**

**663 DYNALIFT®**

**WARRANTY**

**GEHL CONSTRUCTION DIVISION** of the **GEHL COMPANY**, hereinafter referred to as **GEHL**, warrants new **GEHL 663 Dynalift Telescopic Forklifts** to the Original Retail Purchaser to be free from defects in material and workmanship for a period of twelve (12) months from the Warranty Start Date.

**GEHL CONSTRUCTION WARRANTY SERVICE INCLUDES:**

Genuine Gehl parts and labor costs required to repair or replace equipment at the selling dealer's business location.

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**GEHL MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE), EXCEPT AS EXPRESSLY STATED IN THIS WARRANTY STATEMENT.**

---

**GEHL WARRANTY DOES NOT INCLUDE:**

1. Transportation to selling dealer's business location or, at the option of the Original Retail Purchaser, the cost of a service call.
2. Used equipment.
3. Components covered by their own non-Gehl warranties, such as tires, trade accessories and engines.
4. Normal maintenance service and expendable, high-wear items.
5. Repairs or adjustments caused by: improper use; failure to follow recommended maintenance procedures; use of unauthorized attachments; accident or other casualty.
6. Liability for incidental or consequential damages of any type, including, but not limited to lost profits and expenses of acquiring replacement equipment.

No agent, employee or representative of **GEHL** has any authority to bind **GEHL** to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms will continue to apply.

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**THIS OPERATOR'S MANUAL IS  
PROVIDED FOR OPERATOR USE**

**DO NOT REMOVE  
FROM THIS MACHINE**

**THANK YOU**

**DO NOT START, OPERATE OR WORK ON THIS MACHINE UNTIL YOU HAVE CAREFULLY READ AND THOROUGHLY UNDERSTAND THE CONTENTS OF THE OPERATOR'S MANUAL.**

**FAILURE TO FOLLOW SAFETY, OPERATING AND MAINTENANCE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY TO THE OPERATOR OR BYSTANDERS, POOR OPERATION, AND COSTLY BREAKDOWN.**

**IF YOU HAVE ANY QUESTIONS ON PROPER OPERATION, ADJUSTMENT OR MAINTENANCE OF THIS MACHINE, CONTACT YOUR DEALER OR THE SERVICE DEPARTMENT OF GEHL COMPANY BEFORE STARTING OR CONTINUING OPERATION.**

**CALIFORNIA  
Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.

# **GEHL**®

**GEHL Company 143 Water Street, P.O. Box 179, West Bend, WI 53095-0179**