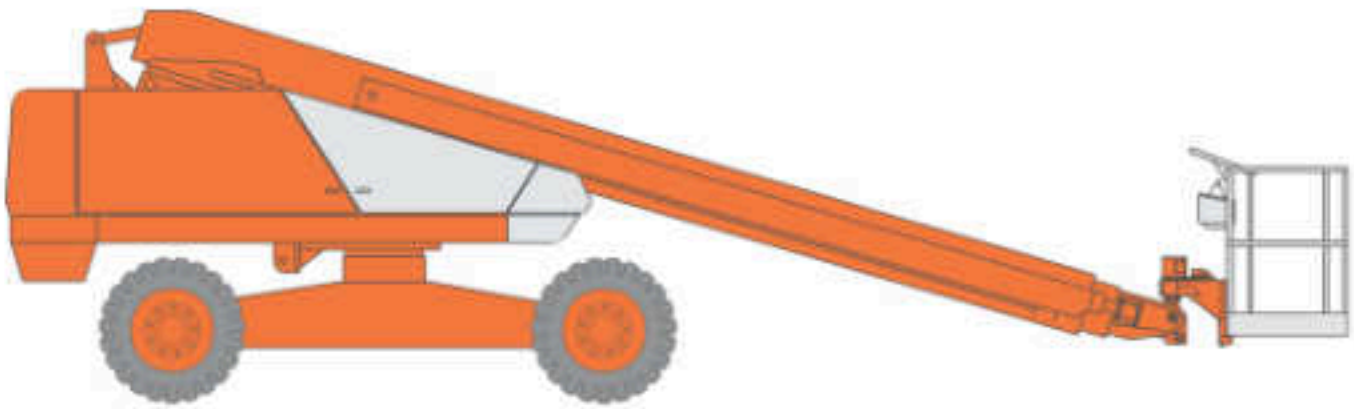
Operator's Manual



TB120

Snorkel

P/N 0191914
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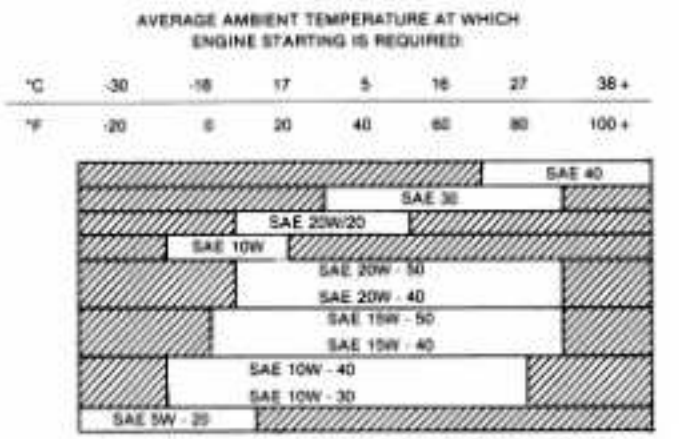
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■ ENGINE DATA

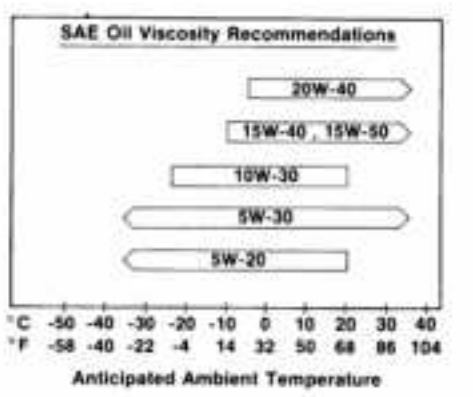
ENGINE MAKE	CONTINENTAL	CONTINENTAL	CUMMINS
MODEL	TM27		4B3.9
FUEL	gasoline	LPG	diesel
FUEL GRADE	unleaded 85 octane (motor method)	HD5 Gas Processors Association Standard 2140 Category: special duty propane	ASTM No. 2 D Cetane # > 40 (For operating temp. below 32°F / 0°C use "winterized" No. 2 D.)
COOLANT	50% water + 50% ethylene glycol		
OPERATING TEMPERATURE	180°F - 202°F (81°C - 94°C)		141°F - 211°F (60°C - 100°C)
OIL SUMP CAPACITY	6 qt USA (5.7 liters)		10 qt USA (9.5 liters)
OIL FILTER CAPACITY	1 qt USA (0.95 liters)		
OIL GRADE	API: SE, SF, SE/CD, SF/CD		API: CE/SF, CD/SF
OIL WEIGHT	see chart below		see chart below
RUNNING TIME	One full tank of gasoline or diesel will last an entire eight hour shift, under normal working conditions. It normally takes between one and two tanks of LPG per eight hour shift.		

■ ENGINE OIL CHARTS

CONTINENTAL ENGINE



CUMMINS ENGINE



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■ PLATFORM-CONTROL BOX

Controls for operating the TB120 from the platform are located on the platform-control box, with the exception of the yellow foot switch which is on the platform floor.

NOTE: The number of each control below corresponds to the control's call-out on the next page.

1. **EMERGENCY STOP**: Press the large red button down at any time, under any conditions, and the entire machine stops — the engine turns off, the brakes automatically set, and nothing moves. This switch must be pulled to its up (or out) position if the TB120 is to be controlled from the platform.

2. **EMERGENCY POWER OPERATION**: If the engine stops and cannot be restarted, hold the switch toward you and a small, battery-powered hydraulic-pump comes on to supply power for the machine. Boom movements will be slow and have long lag times under EMERGENCY POWER.

3. **ENGINE THROTTLE**: Leave this switch set on LO unless you want to *drive* at maximum speed (see DRIVE RANGE below).

4. **PLATFORM ROTATION**: CW rotates the platform clockwise (as seen from above) relative to the end of the tip boom. CCW rotates the platform counterclockwise.

5. **PLATFORM LEVEL**: UP rotates the platform up relative to the end of the tip boom. DN (down) rotates the platform down.

6. **DRIVE RANGE**: This switch works with the HIGH RANGE SPEED SELECTOR VALVE that is on top of the chassis near the rotation bearing. Together with the position of the main boom, the switch and valve determine how fast the TB120 can travel along the ground. See the DRIVE RANGE Table below for settings and maximum speeds. Switching from LO to HI changes the driving conditions from low speed and high torque to the wheels to high speed and low torque to the wheels.

DRIVE RANGE Table

MAX. SPEED	DRIVE RANGE	HRSS VALVE	boom position
3.0 mph (4.8 km/h)	HI	up	stowed
1.5 mph (2.4 km/h)	HI	down	stowed
0.75 mph (1.2 km/h)	LO	--	stowed
0.75 mph (1.2 km/h)	--	--	extended but below mid-elevation
creep	--	--	above mid-elevation

NOTE: ENGINE THROTTLE, at the platform-control box, must be set to HI for MAX. SPEED.

⚠CAUTION

Prolonged driving in HI (3 mph, 4.8 km/hr) heats the hydraulic oil. Periodically check the thermometer at the hydraulic-oil tank sight-glass. Do not let the oil exceed 200°F (93°C). Stop the engine and let the oil cool if necessary.

7. **MAIN BOOM EXTEND/RETRACT**: EXTEND extends the booms. RETRACT retracts the booms. Speed of movement is proportional to how far you push the controller.

8. **ANTI-RESTART MASTER SWITCH**: This switch works like an automobile ignition switch. Hold it at START until the engine starts then release it to ON. If the engine dies in ON, the key must be turned to OFF before it will go back to START. Turn the switch to OFF if the platform is to stay in one position for a long time, that will turn the engine off and save fuel.

9. **HORN**: See "SAFETY DEVICES" chapter.

10. Foot Switch: You must step down on the foot switch, and hold it down, any time you use any platform control that causes the platform to move. Stepping on the foot switch increases the engine speed and activates other switches/controls in preparation to do work. (The foot switch is to the platform what the GROUND OPERATION switch is to the ground-control box.)

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At the start of each work day (or 8 hour shift) a TB120 qualified operator must perform the DAILY INSPECTION AND MAINTENANCE listed in the table below.

The purpose of the daily inspection and maintenance is to keep the TB120 in proper working condition and to detect signs of malfunction at the earliest possible time.

⚠DANGER

Do not operate a TB120 that is known to be damaged or malfunctioning. Defective parts or equipment malfunctions jeopardize the safety of the operator and other personnel, and can cause damage to the machine.

DAILY INSPECTION AND MAINTENANCE TABLE

(Set the **MASTER KEY SWITCH** to OFF before you begin this inspection)

ITEM	SERVICE REQUIRED
1. Engine fuel level	Check fuel gauge (full)
2. Fuel tank cap	Visually inspect (installation)
3. Engine oil	Check oil level (between dipstick lines)
4. Fuel leaks	Visually inspect (hoses, connections, etc.)
5. Engine coolant	Check fluid level and radiator hoses
6. Wiring harnesses	Visually inspect (installation, condition)
7. Battery terminals	Visually inspect (no corrosion)
8. Battery fluid level	Check fluid level (in contact with filler neck)
9. Hydraulic oil	Check fluid level (between lines on gauge)
10. Hydraulic oil leaks	Visually inspect (hoses, tubes)
11. Tires	Visually inspect (condition)
12. Bolts and fasteners	Visually inspect (looseness)
13. Structural damage & welds	Visually inspect (weld cracks, dents)
14. Guardrails	Visually check condition
15. Platform gravity gate	Visually inspect (operation)
16. Self-closing gate	Actuate and visually check condition
17. Lanyard anchor points	Visually check condition
18. Axle/boom interlock	Check operation
19. Emergency power motor/pump	Check operation (causes correct motion)
20. Air filter	Check condition (gauge)
21. Charging system	Visually inspect (gauge)
22. Ground-control box switches and alarms	Actuate and visually inspect for operation
23. Level sensor	Actuate and listen for alarm
24. Platform-control box switches and alarms	Actuate and visually inspect for operation
25. GFCI (Ground Fault Circuit Interrupt)	Actuate and visually check for operation
26. Platform work lights	Turn them on to see that they work
27. Flashing lights	Turn them on to see that they work
28. Driving lights	Turn them on to see that they work
29. Slide pads	Visually inspect (boom wear marks)
30. Whiffles and wire ropes	Visually inspect (even tension, condition)
31. Envelope management system	Check operation
32. Placards and decals	Visually inspect (installation, condition)

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DANGER

Death or serious injury will result from tip over if Envelope Management System (EMS) is tampered with or improperly maintained.

1. Only trained qualified service personnel should work on EMS.
2. The EMS must be re-calibrated by trained qualified service personnel when any of the EMS components are replaced or adjusted. These components include joysticks, boom angle sensors, boom length sensors and MotionPac Electronic Control Units.
3. MotionPac Electronic Control Units must only be replaced with same model units. The model number of Snorkelift listed on the Electronic Control Unit name plates must match the model number of this Snorkelift unit.
4. Turn battery disconnect switch off and disconnect the EMS harnesses from the MotionPac Electronic Control Units before welding anyplace on this unit.

DANGER

A "RUNAWAY" SNORKELIFT CAN CAUSE **DEATH** OR SERIOUS INJURY. CHECK WITH TOW VEHICLE MANUFACTURER OR MANUFACTURER'S LITERATURE TO SEE THAT TOW VEHICLE CAN SAFELY TOW AND STOP TOTAL WEIGHT OF SNORKELIFT ON THE STEEPEST GRADE YOU WILL ENCOUNTER. REMEMBER, SNORKELIFT DOES NOT HAVE BRAKES WHEN IT IS TOWED.

BE CERTAIN TOW VEHICLE BRAKES ARE SET AND TOW BAR IS CONNECTED TO BOTH TOW VEHICLE AND SNORKELIFT BEFORE YOU TURN SNORKELIFT DISCONNECT-PLATES OVER.

AT THE END OF THE TOW, BEFORE YOU DISCONNECT THE SNORKELIFT FROM THE TOWING VEHICLE, TURN THE DISCONNECT-PLATES BACK OVER SO THE NIPPLES ARE OUT. THAT WILL PREVENT THE MACHINE FROM ROLLING WHEN YOU DISCONNECT IT FROM THE TOW VEHICLE.

DO NOT EXCEED 10 MPH (16 KM/HR) WHEN TOWING. AVOID SHARP TURNS.

DANGER

YOU MUST NOT OPERATE THIS DEVICE UNLESS

1. YOU HAVE BEEN TRAINED IN THE SAFE OPERATION OF THIS DEVICE AND
2. YOU KNOW AND FOLLOW THE SAFETY AND OPERATING RECOMMENDATIONS CONTAINED IN THE MANUFACTURER'S MANUALS, YOUR EMPLOYER'S WORK RULES, AND APPLICABLE GOVERNMENTAL REGULATIONS.

AN UNTRAINED OPERATOR EXPOSES HIMSELF AND OTHERS TO DEATH OR SERIOUS INJURY

EXTEND RAISE

AXLES

RETRACT LOWER

DANGER

CRUSHING HAZARD. Be certain area under jack shoe plate is unobstructed and can support rear axle weight.

(LPG option only)

CAUTION

THIS MACHINE IS EQUIPPED WITH

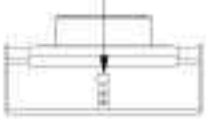
LIQUID WITHDRAWAL

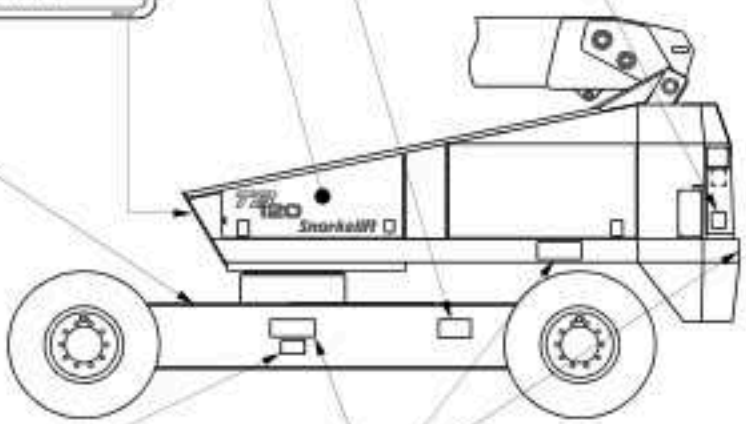
L.P. GAS SYSTEM

- LIQUID OR VAPOR WITHDRAWAL L.P.-GAS CYLINDER MAY BE USED.
- ALWAYS KEEP L.P.-GAS CYLINDER SHUT-OFF VALVE CLOSED WHEN NOT USING L.P.-GAS SYSTEM.

DANGER

DO NOT ALTER OR DISABLE LIMIT SWITCHES, SAFETY SWITCHES, OR INTERLOCKS.





DANGER

- THIS UNIT IS EQUIPPED WITH FOAM FILLED TIRES. WHEEL WEIGHT IS CRITICAL FOR UNIT STABILITY.
- REPLACE WITH FACTORY APPROVED FOAM FILLED TIRES ONLY.
- DO NOT ATTEMPT TO INFLATE.

DANGER

ELECTROCUTION HAZARD

KEEP CLEAR

DEATH OR SERIOUS INJURY CAN RESULT FROM CONTACT WITH THIS EQUIPMENT OR VEHICLE IF IT SHOULD BE ELECTRICALLY CHARGED.

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