

HILMAN TRAKSPORTER

Operations and Service Manual^{R6}

Model 130-BP



Manufactured by



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SPECIFICATIONS

POWER UNIT

Length: 65" (1651 mm)
Width: 30" (762 mm)
Height: 47" (1194 mm)

Weight with Crawler: 2200 lb (998 kg)
Weight without Crawler: 1660 lb (753 kg)

Rear wheel drive (hydraulic)

Front wheel steering (hydraulic)

Engine: Kubota Model DF752-BI-A
3 cylinder, liquid cooled, 24 hp (17.9 kW), propane
fueled, 12 volt, low oil pressure shut down switch

Travel Speeds: Approx. 150 ft/min (46 m/min) or 1.75 mph
Forward and reverse.

Hydraulics: ISO 46W oil for operation between
+100° F (38° C) and +30° F (-1° C)
(for operation other than above specifications, consult
Manufacturer)

** Circuit reservoir holds approximately 35 gallons of hydraulic oil**

Hydraulic Filter: 3 Micron

Hydraulic System Pressure: Adjustable from 0 – 2400 psi (0-165 bar)

Hydraulic Relief Setting: 2700 psi (186 bar)

SPECIFICATIONS

continued

CRAWLER UNIT

Length: 26" (660 mm)
Width: 31" (787 mm)
Height: 6.5" (165 mm)
Weight: 540 lb (245 kg)

Turning Radius: Near zero turn radius
Hose: 30' (9.1 m)

Two (2) independent tracks driven by four (4) hydraulic motors, controlled by two (2) two-way hydraulic proportional valves.

Travel speed is adjustable 0-25 ft/min (7.6 m/min) going forward, reverse, and turning.

Capacity directly down on Crawler unit is 60,000 lb (267 kN) maximum.

RADIO CONTROL

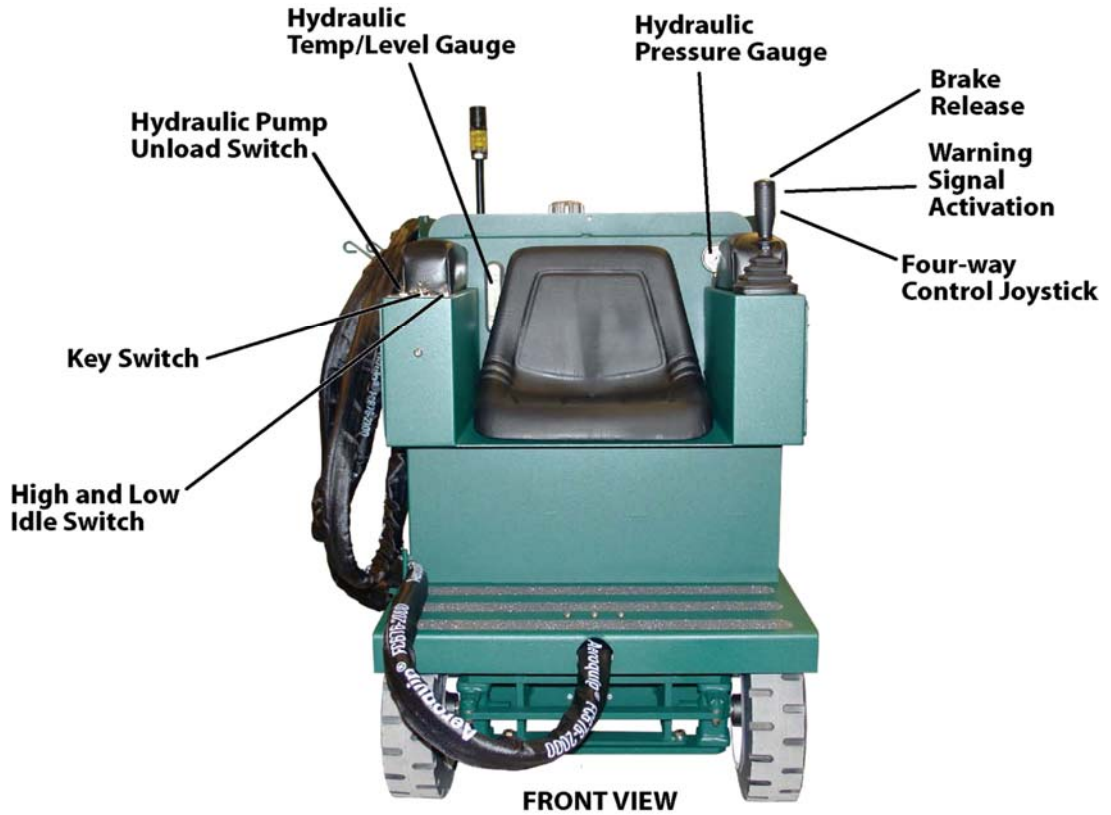
Omnex Controls

900 MHz frequency

300 ft (91 m) operating range

Transmitter powered by 4 "C" Alkaline Batteries

COMPONENTS



COMPONENTS

continued



RIGHT SIDE VIEW



LEFT SIDE VIEW

COMPONENTS

continued



GENERAL UNDERSTANDING OF THE TRAKSPORTER AND ITS COMPONENTS

The Trakporter was designed to move heavy awkward objects in tight, crowded, and confined areas.

There are three (3) general components to the Trakporter: (Refer to page 7)

Power Unit – Supplies hydraulic and electrical power to operate the Crawler, as well as power to drive and steer the power unit.

Crawler – Provides pushing and pulling as well as steering for the object being moved.

Radio Control Transmitter – Provides control of hydraulic oil to motors on Crawler. Provides forward and reverse motion as well as steering.

GENERAL GUIDELINES FOR USE (DO'S AND DON'TS)

1. **Always** use safe rigging practices.
2. The Crawler is designed to operate on a flat, horizontal concrete surface or steel plate sufficient to support the Crawler and the load being carried. Always try and maintain 100% contact between all of the track pads and the floor surface.
3. **Always** “step up” or down concrete edge differences (using cut pieces of Masonite or shim steel) that are greater than 1/4" (6mm) to prevent damage to concrete, or Crawler, and to prolong track life. Understand that anytime you are traversing a step or void, you are losing contact area on some portion of the track pads and the floor surface, thus reducing the effective capacity of the Crawler.
4. **Always** clear a path for the Crawler by removing floor dust, dirt, and debris. This will increase track life by preventing debris from getting lodged into the track/drive system. Make certain that all anchor bolts and studs are cut flush with the floor surface, so there is sufficient clearance for the Crawler (and to avoid “bottoming out” the Crawler). Severe track damage or hydraulic motor damage can occur.
5. Machine is designed for indoor use and storage. Always protect against outdoor conditions such as rain, snow, extreme cold, road salt, etc. Always tarp during transit.
6. **Never** exceed the following capacities on the Crawler turntable:
 - 60,000 lb (267kN) on an extremely flat surface (100% contact between floor and all track pads).
 - 40,000 lb (178 kN) or less with at least 70% contact between the floor surface and all track pads).
7. **Never** attempt to take an object up or down a 1/8" (3mm) per linear foot (or greater) slope.
8. **Always** use the supplied sacrificial rubber pad between the Crawler turntable and the load point, unless the load is affixed to the turntable in some other, semi-permanent, or mechanically fastened way (consult manufacturer if unsure).
9. **Never** load the Crawler in any location except the turntable. The turntable is located such that it will apply the load equally over all of the track pads, keeping the load distributed evenly and giving the user maximum Crawler load capacity.
10. **Always** keep hands/fingers/feet/personnel away from moving track parts or any moving parts on either the Crawler or the Power Unit.
11. **Do not ever** place personnel or yourself in any type of a “pinch point” situation with respect to the object being moved. Prior to lifting or moving, make sure all personnel are kept a safe distance from the object being transported. Better yet, cone off the entire area around the move area so un-knowing personnel do not wander into the vicinity of the object being moved.

RIDING SURFACE AND SUPPORT

Always inspect the concrete or surface to be traveled on for condition, hardness, and sub-support. Ensure there are no basements, tunnels, or voids under slab that may not adequately support the load being moved. If there is any doubt, contact a structural engineering to analyze the strength of the floor prior to moving.

At the maximum allowable load (60,000 lb), the crawler will exert a pressure of approximately 760psi on the ground bearing surface. If the actual load is below the maximum, a load coefficient (L_c) can be used to determine the approximate contact pressure (p).

$$\begin{aligned} \text{Load Coefficient, } L_c &= \frac{\text{Actual Load}}{60,000 \text{ lb}} \\ \text{Contact Pressure, } p &= L_c(760\text{psi}) \end{aligned}$$

An example calculation using an actual load of 30,000 lb:

$$\begin{aligned} L_c &= \frac{30,000 \text{ lb}}{60,000 \text{ lb}} = 0.50 \\ p &= 0.50(760\text{psi}) = 380\text{psi} \end{aligned}$$

It is the user's responsibility to ensure the riding surface is adequate to handle the pressure which is generated between the crawler tracks and riding surface. Failure to do so may result in damage to the riding surface. If necessary, steel plate can be laid over a concrete surface to aid in dispersing the load to a greater area.

STARTING THE POWER UNIT AND DAILY INSPECTION

WARNING! Do not attempt to operate this machine without first reading and understanding this manual and/or receiving training from a qualified manufacturer representative. Serious injury, death, and/or extensive damage may result.

Daily inspection of both the Power Unit and Crawler should be performed to look for obvious problems such as leaks, cracks, loose or missing bolts, etc. Periodically check the engine oil, engine coolant level and hydraulic oil reservoir to assure all are at proper levels. The Crawler should be tilted up and the tracks/drive motors/hydraulic lines visibly inspected before each move to make sure there are no leaks/damage to the Crawler. Check the “umbilical cord” between the Power unit & Crawler carefully for tears in the scuff cover and/or leaks in the flow/return hydraulic lines.

Become familiar with all controls before starting the machine, especially how to shut the machine down in an emergency. There are two ways to shut the machine down in the event of an emergency: one is to use the E-stop button located on the side of the remote control transmitter, and two is to turn the key- switch on the right armrest of the Power unit to the ‘OFF’ position.

To start the unit:

1. Make sure both throttle/idle control switches (one on the right armrest and one on the radio transmitter) are in the low idle position. The hydraulic pump unload switch should be in the off position.
2. Push the spring loaded power switch toward ON position and release. A red flashing indicator light will be illuminated.
3. Cycle the E-stop button within 5 seconds of turning on. To do this, push E-stop button in; while pushing the button in, simultaneously twist the button clockwise to set the E-stop. The red indicator light will go out and a yellow signal light will appear. You should hear a mechanical “click” when this happens.
4. Once the red indicator light has turned to yellow, the transmitter is set and the Power unit can be started. To start the unit, turn the key-switch clockwise and crank the engine until the engine starts (make sure your propane tank valve is open). Do not crank the engine for more than 10 seconds continuously or you could damage the starter motor.
5. Once running, the engine can be switched to high idle from either switch (remote or armrest) but only one switch will control idle at a time. **NEVER** cycle high idle switch ON/OFF more than 2 times in a 10 second period. Slow blow fuse will blow if these instructions are not followed.
6. With the hydraulic pump switch turned off, the engine will start easier and with less back pressure from the hydraulic pump.

7. After starting the engine, switch the pump to 'ON' and the gauge on the left armrest will show system pressure. The pressure can be adjusted with the black adjustment knob next to the gauge.
8. Maximum system pressure is 2400 psi (165 bar). You should typically start at 800 psi (55 bar) and then increase in small increments if you need more torque. Always turn the knob slowly and make small incremental changes to increase torque.

IMPORTANT! Always turn the pump off (unload) when you are not actively using either the Crawler or the Power unit. This will keep the pump from "dumping" the oil back to reservoir, which will tend to overheat the hydraulic oil.

NOTE: The controller has a "sleep" mode feature. After a period of inactivity, the unit will turn itself off and will need to be re-activated (see #2 & #3 above).

GUIDELINES FOR MOVING AN OBJECT WITH THE TRAKSPORTER

1. Inspect the object being moved. Determine the center of gravity in all directions of the object being moved so you can balance the load properly. Become familiar with frame members and how to support a load on three (3) points. Always try and choose a load point that is rigid and will not flex while moving. Know the total weight of the object, how much weight will be placed onto the Crawler, and how much will be on the rollers. Always try to place the load equally between the Crawler and rollers (i.e., $\frac{1}{2}$ of the load onto the Crawler turntable and $\frac{1}{2}$ of the load onto the other two rollers). If more traction is needed for the Crawler, then offset the load so that the Crawler has slightly more than $\frac{1}{2}$ of the load on it (this will also reduce the rolling resistance of the free-spinning rollers at the other 2 load points).
2. Once the object is safely placed on the Crawler and rollers, ease the joysticks in the direction you want to travel. The control joysticks are proportional in function – small movements on the joysticks translate to small/slow movements on each respective Crawler track. Do not make sudden movements as the Crawler needs to create the momentum to move the object (as well as slow the momentum to stop the object). Sudden movement can dislodge the Crawler from under the object, dropping the load and may cause severe damage.
3. Start with the hydraulic pressure at 800 psi (55 bar) (ref. pressure gauge on left armrest). If turning the Crawler under the load is difficult or not working, increase pressure by 200 psi (13.8 bar) and try again. Always keep pressure as low as possible in order to achieve just enough turning/moving torque. The lower the pressure, the smoother the Crawler will operate. Lower pressure will also give an experienced user a better feel for how the load is moving (if the rollers become caught up on cracks, anchor-bolts, floor debris, etc.).
4. Know the path you will be taking the object. Mark out the path prior to the move with safety cones so all personnel working nearby understand that heavy equipment is being moved. Double check for height/width clearance, and floor condition (floor drains, trenches, or obstructions protruding from the floor). Make sure the object being moved will not shift during transport. The Crawler and its hydraulic motors are operating very close to the floor surface. Crossing through a trench drain or striking an anchor bolt may “bottom out” the Crawler and may result in track or motor damage.
5. Always use a spotter on the opposite end of the object to watch the rollers and to assure enough clearance. The Spotter should be aware of tail swing.
6. When placing the Crawler under an object, ensure that you will have sufficient umbilical hose slack between the Power unit and the Crawler. Whenever possible, try and minimize hose dragging and/or having the hose slide either in the load path or under the load.
7. **IMPORTANT:** Never allow umbilical hoses to tighten between Crawler and power unit!

8. Make sure that the object being moved is placed on the center of the turntable, keeping the weight distributed evenly between the tracks. Use the sacrificial rubber pads supplied with the unit between the top of the turntable and the load point. This allows maximum point load contact between the Crawler and the load point and will also allow the Crawler to articulate over any small steps or uneven floor changes.

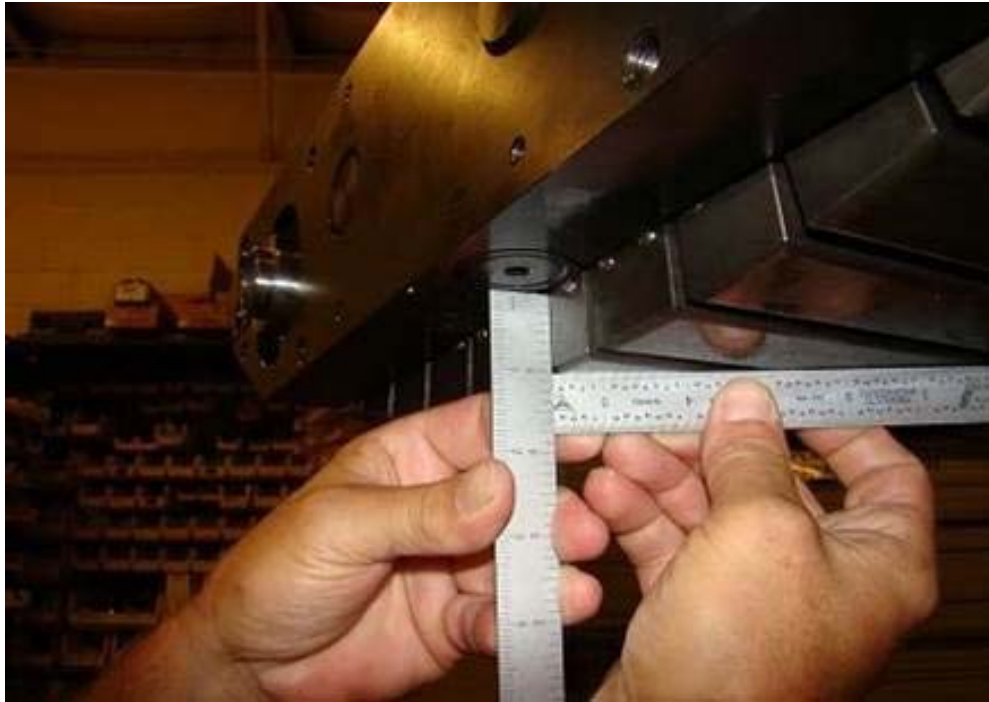
9. Watch the hydraulic oil temperature to ensure it does not exceed 140°F (60°C). Do not under any circumstance use the Trakporter if the hydraulic oil is in the overheated condition. Shut the unit down and let the oil cool down before using. (If this is a persistent problem, Hilman offers a hydraulic oil cooler option to keep the hydraulic oil temp under control).

MAINTENANCE

- Hydraulic Oil:** 35 gallons – Mobil DTE 25 or equivalent (name brand/high quality, ISO 46 weight hydraulic oil).
- Hydraulic Oil Filter:** Hydac – 0095 MA 003 BN
- Maintenance Schedule:** Engine as per enclosed pamphlet.
- Hydraulic System:** Have hydraulic oil tested once a year or 500 hours, whichever occurs sooner (right engine compartment door you will see a SenDec engine hour meter.)
A 25” test sample hose is supplied.
Change oil accordingly to test analysis.
Change hydraulic filter every 500 hours or when sight gage on the filter head changes from green to red.
- Crawler:** Clean and inspect tracks every 10 hours, more often in harsh conditions or if used frequently. Lubricate tracks pads, rollers and connecting bridge links with WD-40 or light hydraulic oil. Every 20 hours, track “sag” should be measured to determine whether the tracks have exceeded their maximum allowable stretch (see picture on page 13). Track “sag” is measured from the bottom center of the crawler as shown in the picture. Remove the swivel turntable on the top of the crawler and screw in the appropriate lifting hoist ring. You will need to lift the crawler from this point enough so both tracks are naturally sagging (and high enough so the measurement can be taken accurately).
- Track sag with new or newly re-built tracks should be approximately .875” when taken from the bottom center as per the picture. Once track sag reaches or exceeds 1.5”, the tracks should be removed from the crawler and replaced or re-built. You will risk damage to the internal components of the crawler if you operate the crawler with excessively stretched tracks. Contact Hilman for assistance on how to remove tracks from the crawler. Excessively stretched tracks can be shipped back to Hilman to be rebuilt.

MAINTENANCE

Continued



TROUBLESHOOTING

Engine won't start and doesn't turn over:

1. Check battery and connections.
2. Check all fuses (fuse panel located in right arm rest control cabinet).

Engine turns over but does not start:

1. Transmitter not on and/or e-stop switch has not been cycled correctly. Transmitter needs to provide signal to receiver. This will allow engine to start.
2. Blown fuse. Check all fuses (fuse panel located in right arm rest control cabinet).
3. Engine was shut down under high rpm- governor arm must reset to low idle manually.
4. Transmitter battery low.
5. Check that propane tank is adequately filled and valve is open.
6. Remote Control fault. See Omnex Control manual troubleshooting section.

Crawler does not seem to have power:

1. Verify pump unload switch is on (load) position.
2. Check pressure gauge for hydraulic pressure. Raise pressure in 200 psi (1.38 bar) increments to increase power.
3. Verify Power unit is running in high idle position.
4. Check hydraulic oil temperature for overheat condition.

**If none of the above checklists resolve the issue, contact the manufacturers for assistance.