

Operating & Maintenance

A TO RAISE HOIST

1. Start Engine in neutral
2. Depress the clutch and engage the P.T.O.
3. Release the clutch and open the hydraulic valve.
If the pump squeals, oil is by-passing in the valve and indicates maximum pressure.
By-passing can occur.
 - At the extremes of cylinder travel
 - If hoist overloaded or jammed and not allowed to work freely
 - If the hydraulic hose is not connected from the pressure port of the pump to the pressure port of the cylinder.
(In a Double Acting System, the return port is set at 1000 p.s.i. and will not lift a full load if that port is connected to the clevis end of the cylinder.)
4. Do not rev the truck engine to an extremely high RPM because a piston pump that operates over 1000 RPM will be damaged.

B TO LOWER HOIST

1. In a Double Acting system, the pump must be running to lower the hoist, otherwise air will get into the system and the reservoir may overflow.
2. Push the dash control to open valve. Be careful – Do not lower heavy loads quickly or damage to the hoist or truck can occur.
3. Idle the engine and hold the valve open until the pump indicates the truck box is locked down on the chassis in a Double Acting System.
4. **Disengage the P.T.O.** when dumping cycle is completed, otherwise the pump wears needlessly, and the drive and pump can be damaged.

C Check that all hydraulic hose connections are tight.

D Check your pump reservoir oil level. Keep dirt and other foreign material from getting into your hydraulic system, oil should be changed once a year.

E Check all welds and bolts to ensure that all connections are secured.

F **Grease your hoist regularly.**



CAUTION



When greasing or checking hoist in its open position, always block the truck box so that it cannot come down.

TROUBLE SHOOTING

1. Hoist not operating properly

- Hydraulic hoses may not be connected to proper ports, check installation instructions (see Fig. 2).
- Insufficient oil in reservoir.
- The power take-off is not working.
- Pump not working, cable control may not be set properly and not operating the pump valve correctly.
- Pump relief valve is not set properly and the pump is not developing required pressure. Check pressure, if not proper return pump to factory.
- Hydraulic cylinder seals are worn or damaged and oil is by-passing piston. (Check pressure).
- Hoist is overloaded, check weight of load and hoist rating at that particular mounting distance and box overhang. (See capacity chart).
- Severe cold spell and the hydraulic oil used is too viscous or heavy-use transmission fluid.
- Noisy operation – drive shaft too long may require a steady bearing or u-joints are not aligned properly, check that the pins on each yoke are parallel to each other.
- Hoist operation is not smooth, but spongy – bleed air from hydraulic system by operating hoist up and down.
- Truck box long beams are not strong enough and under load are bending, twisting and jamming the hoist and preventing it from working freely – stiffen sills and put in a cross-member to stop the sills from twisting.
- Hoist not installed level but hanging down below top of truck chassis - hoist will not develop full power.

NORDIC TL & C SERIES

Installation Instructions

Read and understand the operating and installation instructions fully, before installing or operating the hoist. The following items are **NOT INCLUDED** with the hoist and are required to complete the hoist and box installation:

P.T.O. and control cable Truck chassis spacer (See 5)
Hydraulic Oil Truck box long beams (See 5)

- 1. INSTALL CHASSIS PIVOT BRACKETS** (ITEMS 3, 4) into hoist lever and weld cross channel (ITEM 5) between the chassis pivot brackets. Chassis pivot brackets are short length or optional long length as shown in the mounting diagram.
- 2. LOCATE TRUCK BOX REAR HINGE POSITION** on truck chassis, as close as possible to the rear spring hanger, **NOT OVER 6" ON A SINGLE AXLE TRUCK**, this would be approximately 33" to 36" behind the center of the rear axle. On Tandem Axle trucks, the center of the hinge should be approximately 45" to 53" behind the tandem trunnion center.

NOTE: If a distance of 53" is exceeded between the rear hinge and the center of the trunnion on tandem axle trucks and a distance of 36" on single axle trucks additional reinforcement of the truck frame is required.

Mark rear hinge position. **DO NOT INSTALL HINGE ASSEMBLY** at this stage.

- 3. PLACE HOIST LEVER ON TRUCK CHASSIS** at the position of desired tilt angle. (See capacity chart). A "TL" Series Hoist can be mounted, depending upon clearances on the truck chassis, four different ways, as shown in the hoist mounting diagram.
 - (A). Reverse Up - Hi - Mount**
 - (B). Reverse Inverted - Low - Mount**
 - (C). Conventional Up - Hi - Mount**
 - (D). Conventional Inverted - Low - Mount**

A "C" Series Hoist can **ONLY** be mounted in the (C) or conventional up Position.

Once the hoist position is determined then attach the hoist to the truck chassis with chassis angle (ITEM 8) and bolts provided. Fig. 3 & 4.

IMPORTANT: The hoist lever when resting on the truck chassis in the closed position should be supported so that it sits fairly level. If a truck chassis cross member does not exist to support the weight of the hoist, a cross member should be installed as shown in **FIG. 1**. A section of channel or angle iron may be used.

After the hoist lever is bolted in position, **WELD CHASSIS ANGLES** (ITEM 8) to chassis pivot brackets (ITEMS 3, 4). Fig. 3 & 4

DO NOT WELD TO THE TRUCK FRAME FLANGES – it will weaken the truck frame.

- 4. INSTALL THE HYDRAULIC SYSTEM** Fig. 2 & 8. The hydraulic system is **DOUBLE ACTING**, i.e. The hoist is powered up and down.

Place the hydraulic pump in an appropriate place, as close as possible to the P.T.O. where it will not be interfered with and where the **HYDRAULIC HOSES AND DRIVE SHAFT REACH**. The drive shaft should be as short as practical.

The piston pump and gear pump provided by Nordic rotate in either direction, and should be mounted securely and in proper alignment with the P.T.O.

It is important to connect a **DOUBLE BRAID, HIGH PRESSURE HOSE TO THE PRESSURE PORT ON THE PUMP VALVE MARKED NO. "1"**, on a 3/8" NPT port valve and marked "B" on a 1/2" NPT port valve, and the bottom port at the clevis end of the cylinder, otherwise you will not develop full lifting capacity, because the **pressure on the return port is reduced to 1000 PSI** to protect the hoist from damage when closing the hoist in a double acting hydraulic system. For hose connection layout for low mount position see fig. 8.

If a pump is not purchased from Nordic and another pump is used, **IT IS VERY IMPORTANT THAT THE PRESSURE TO THE CYLINDER RETURN PORT IS REDUCED TO A MAXIMUM 1000 PSI.**

Attach slip u-joint to the pump shaft (except on Direct Mount), and tighten securely. When attaching slip u-joint to the drive shaft, **DO NOT TIGHTEN, ALLOW IT TO SLIP** as the truck bounces, otherwise the pump may be damaged. **THE PINS ON THE YOKES OF THE U-JOINTS SHOULD BE PARALLEL** to each other, otherwise vibration may occur.

- 5. INSTALL CHASSIS SPACER AND REAR HINGE** (fig. 5 & 6)

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HOIST	MOUNTING POSITION AND HEIGHT	BODY CROSS SILLS MIN. SIZE REQUIRED	BODY LONG BEAMS MIN. SIZE REQUIRED	CHASSIS SPACER THICKNESS MIN.
C90*	C Hi-Mount 10 3/4"	4"	6" [1"
TL1522	A Hi-Mount 12 3/4"	4"	8" [1"
TL1627	C Hi-Mount 12 3/4"	4"	8" [1"
TL2522	D Low-Mount 7 3/4"	4"	7" [1"
TL2627	A Hi-Mount 12 3/4"	4"	8" [1"
	B Low-Mount 8 3/4"	4"	8" [1"
	C Hi-Mount 12 3/4"	4"	8" [1"
	D Low-Mount 8 3/4"	4"	8" [1"

NOTE: FOR A BODY WITH NO CROSS SILLS WE SUGGEST USING AN 8" LONG BEAM AND 3/4" SPACER FOR LOW MOUNT HOISTS.

* CAN ONLY BE MOUNTED IN THE CONVENTIONAL UP POSITION

FASTEN THE SPACER TO THE TRUCK CHASSIS. The spacer may be 1" wood or 1" x 2" x 4" long steel lugs. If steel lugs, use approximately four per truck side or a total of eight. Locate one at the rear hinge, one over the truck axle, one at the front of the box and one evenly spaced between the two. If wood is used then it should be the full length of the chassis.

DO NOT WELD TO TRUCK FRAME FLANGES - it will weaken the truck frame.

Install the truck box rear hinge weldment within 1/4" of flush with the spacer by notching truck chassis, aligning evenly and squarely and welding with the low hydrogen electrode. Fig. 5 & 6.

- 6. INSERT THE UPPER ARM SWIVEL BRACKETS** (ITEM 2) and **TUBE SPACER** ITEM 6 into the hoist lever (Fig. 3). In a double acting hydraulic system it is possible to firmly lock the truck body onto the truck chassis and prevent box rattling. This is accomplished by opening the hoist lever approximately 3/16" by placing a temporary spacer between the upper and lower hoist cross tubes, before attaching the swivel brackets to the body long beams. Fig. 3.

If the truck box long beams are already attached to the truck body then position the body on the truck chassis. If the truck box long beams are not supplied with the truck box, then place the long beam channel on the truck chassis **WITH THE FLANGES FACING OUT**. As shown in Fig. 3.

Then place hinge pivot tube, hinge plates and hinge in into rear hinge weldment. Position and weld the hinge plates (ITEM 13) to pivot tube (ITEM 14) and weld to truck box long beams. Fig. 5.

Then secure upper arm swivel brackets ITEM 2 to the truck box long beams by welding. **POSITION TUBE SPACER** ITEM 6 against hoist upper cross tube and stitch weld tube spacer to upper arm swivel bracket tube. Fig. 3.

To stiffen the truck body long beams and prevent them from twisting, **WELD A CROSS-MEMBER** (ITEM 7) between the upper arm swivel brackets as close as possible to the upper arm swivel bracket tubes (ITEM 2). Fig. 4.

- Fill the pump with light hydraulic oil. **SLOWLY OPERATE THE HOIST AND CHECK THAT IT RUNS FREELY**, that the hydraulic fittings and hoses do not catch or rub on sharp objects, and that the hoses are long enough to allow the hoist to fully open. Run it up and down to bleed the air from the system. Add hydraulic oil. **DO NOT OVERFILL.** The hydraulic system is double acting and oil is pumped to both sides of the cylinder during operation.
- GREASE ALL PIVOT POINTS.** Plenty of grease is required on the initial lubrication, fill cavities completely. Regrease after first day's operation.
CAUTION: BLOCK TRUCK BODY SECURELY WHILE INSTALLING OR SERVICING HOIST.
- CAUTION DECALS** are included in the hoist mounting kit. Attach the two caution decals (Block Truck Body Safely Before Servicing Hoist), to either side of the truck body in a position where it can be readily seen. Place the two remaining decals, one shown in fig. 7 on the dash board near P.T.O. and pump control knobs. Read and fully understand all the items on the caution decals, and the operating maintenance instructions before operating the hoist.
- USE THE HOIST SENSIBLY AND SAFELY**
- The distributor or seller of the hoist must make certain that the truck owner receives the **Nordic Operators Manual**.



HEAD OFFICE:
 5 Chester Street
 Winnipeg, Manitoba
 Canada R2L 1W5
 Phone: 204-667-1553
 Fax: 204-663-8497
 Email: wpghoistsales@nordstronsequipment.com

DISTRIBUTION CENTRE:
 #703 - 19TH Avenue
 Nisku, Alberta
 Canada R2L 1W5
 Phone: 780-454-3430
 Fax: 780-454-6224
 Email: niskuhoistsales@nordstronsequipment.com

HOIST MOUNTING DIAGRAM

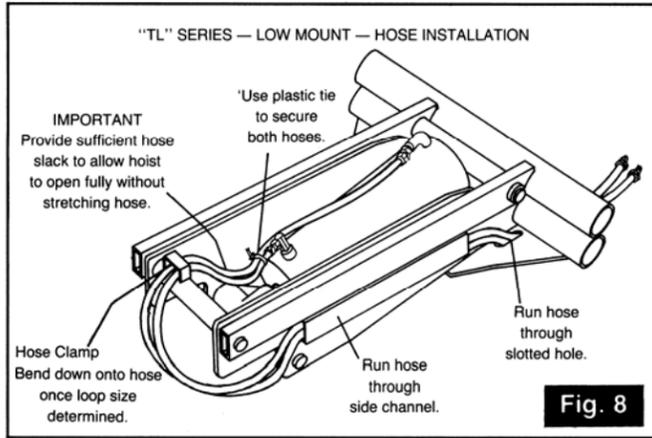


Fig. 8

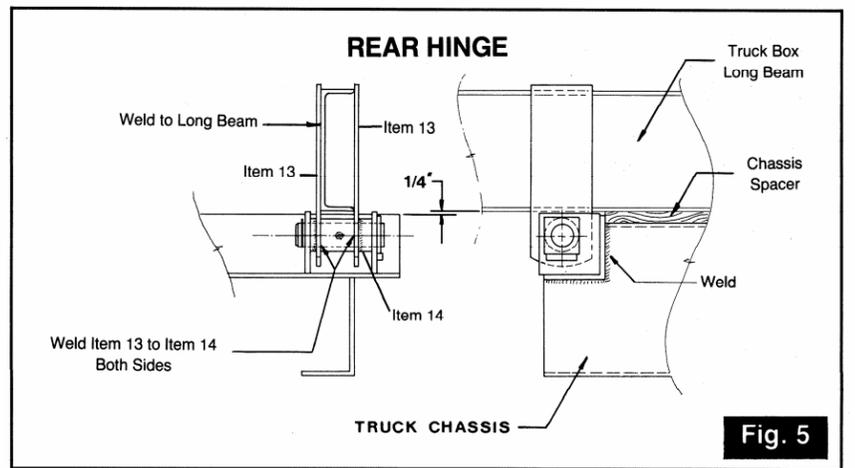


Fig. 5

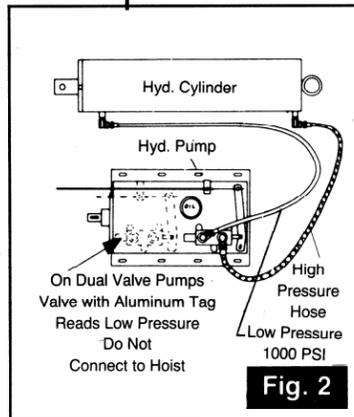


Fig. 2

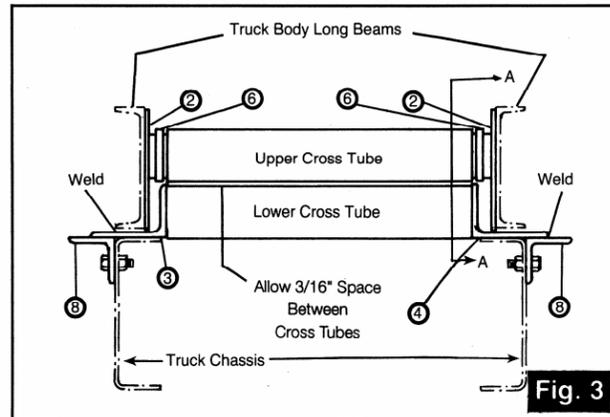


Fig. 3

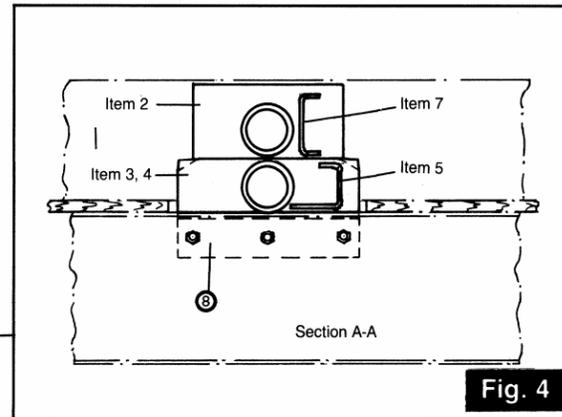


Fig. 4

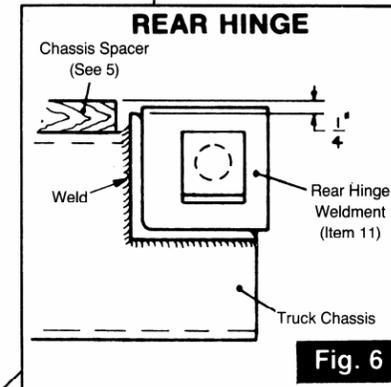


Fig. 6

TL & C Series - Rev. 0

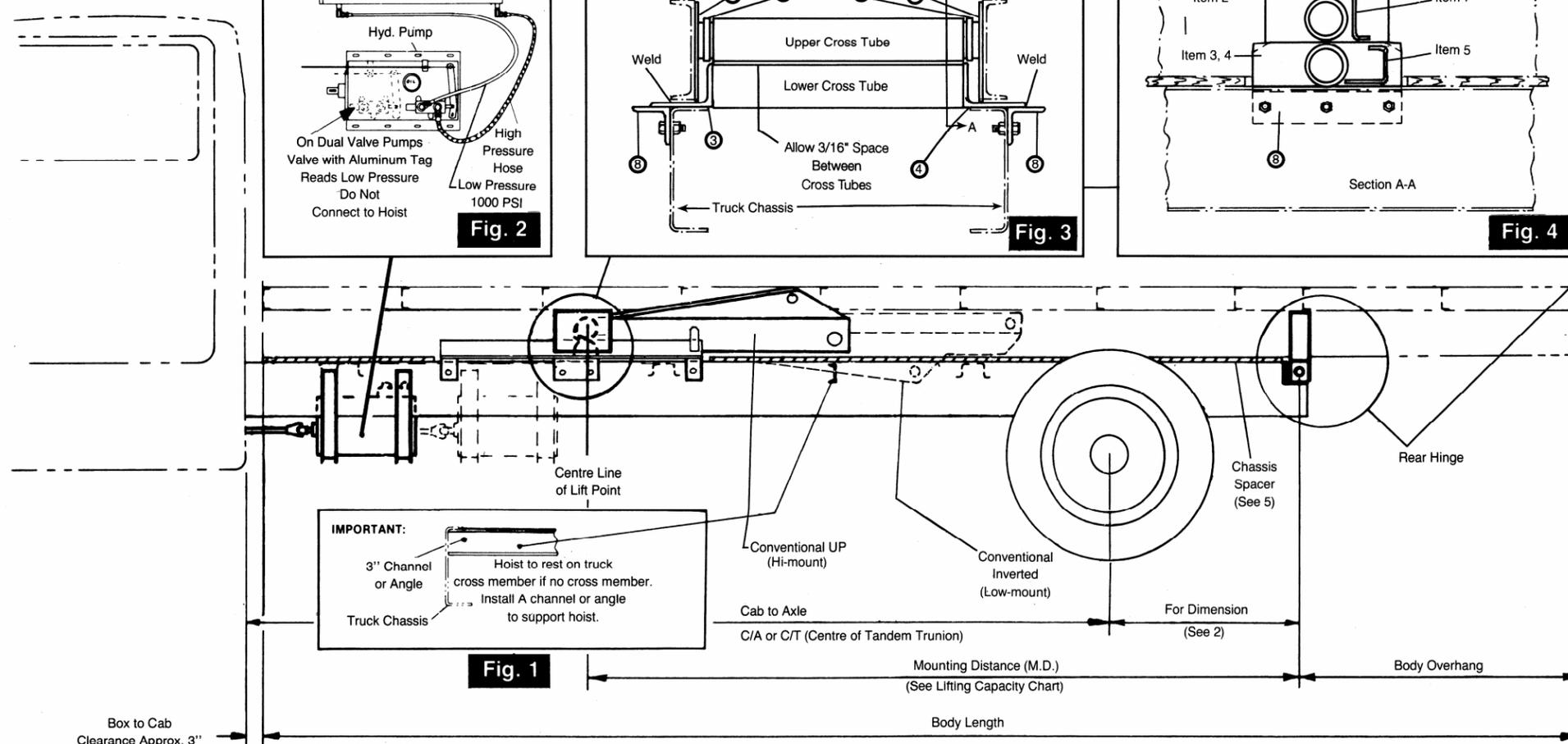
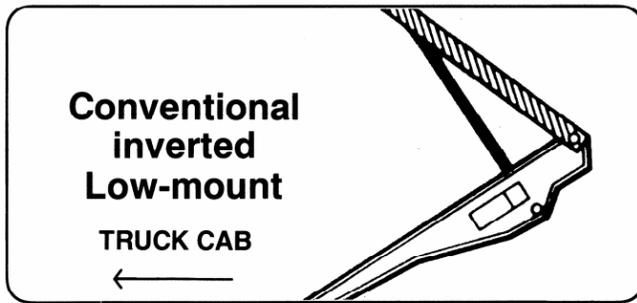
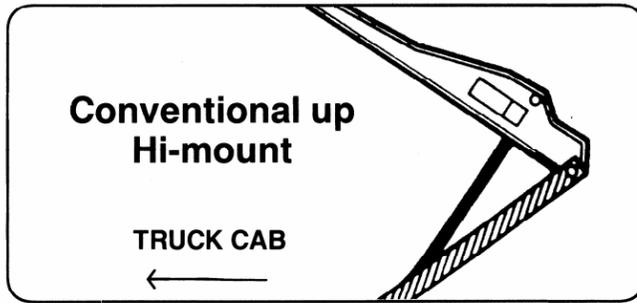
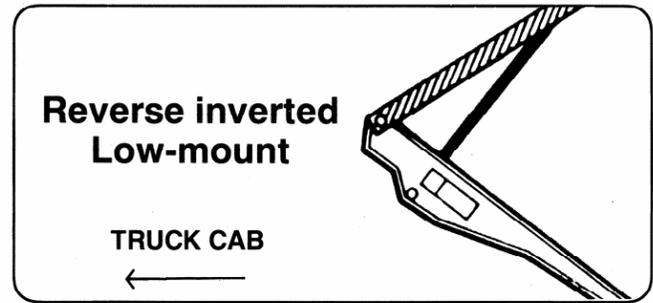
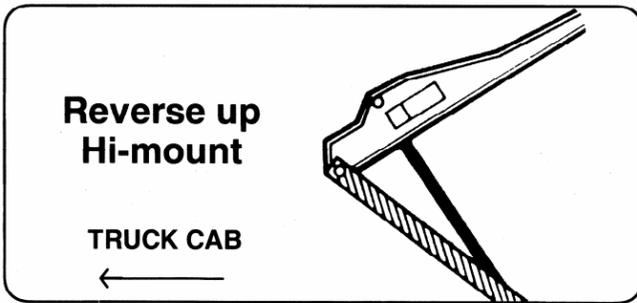


Fig. 1

CAUTION

- DO NOT OPERATE THIS HOIST UNTIL YOU FULLY UNDERSTAND THE OPERATORS MANUAL AND ARE TRAINED IN THE PROPER OPERATION OF THE HOIST.
- DO NOT OVERLOAD YOUR VEHICLE. THE COMBINED WEIGHTS OF THE TRUCK CHASSIS, HOIST AND PLATFORM (OR BODY), AND CARGO MUST NOT EXCEED THE GROSS VEHICLE WEIGHT RATING (GVWR) OF THE TRUCK.
- DO NOT ATTEMPT TO RAISE A LOADED BODY WHEN THE VEHICLE IS NOT ON LEVEL GROUND OR AREA NOT PROPERLY COMPACTED.
- OPERATOR MUST REMAIN AT CONTROLS DURING DUMPING CYCLES.
- AREA AROUND VEHICLE MUST BE KEPT CLEAR OF PERSONNEL DURING OPERATION OF HOIST.
- NEVER ATTEMPT TO ENGAGE OR DISENGAGE P.T.O. EXCEPT BY USE OF CONTROLS IN THE CAB.
- DO NOT DRIVE VEHICLE WITH BODY RAISED.
- DO NOT JERK OR SHAKE A LOADED BODY WITH HOIST IN THE RAISED POSITION.
- BLOCK TRUCK BODY SAFELY BEFORE SERVICING HOIST OR WORKING UNDER RAISED BODY.

Fig. 7





Model (NTEA Classification)	Body Length (Feet)	CA (Inches)	CT (Inches)	Body Overhang (Inches)	Tons at Dump Angle Body & Payload			Capacity Key No.	Mounting Distance MD – Approx.
					40°	45°	50°		
C90 @ 3000 P.S.I. Conversion = C Dump Body = 20	10'	84"		3"	8	7	6.5	6.0	40° – 77"
	11'	84"		15"	9	8	7		45° – 69"
	12'	84"		27"	10	9	8		50° – 62" 55° – 57" 60° – 53"
TL1522 @ 3500 P.S.I. Conversion = D Dump Body = 40	12'	102"		9"	13	11.5	10.5	7.0	40° – 114"
	13'	108"		15"	13	11.5	10.5		45° – 102"
	14'	108"		27"	14	12.5	11.5		50° – 92"
	15'	114"		33"	14	12.5	11.5		55° – 84"
16'	124"		33"	13	11.5	10.5	60° – 78"		
TL1627 @ 3500 P.S.I. Conversion = F Dump Body = 60	15'	124"		23"	19.5	17.5	16	9.3	40° – 143"
	16'	138"	126"	21"	17.5	15.5	14		45° – 128"
	18'	156"	144"	27"	16	14.5	13		50° – 115" 55° – 106" 60° – 98"
TL2522 @ 3500 P.S.I. Conversion = G Dump Body = 70	13'	114"		9"	23	20.5	18.5	14.0	40° – 114"
	14'	124"	114"	11"	21.5	19.5	17.5		45° – 102"
	16'	138"	126"	21"	21	19	17		50° – 92"
	18'	150"	138"	33"	21	19	17		55° – 84"
	18'	156"	144"	27"	19.5	17.5	15.5		60° – 78"
TL2627 @ 3500 P.S.I. Conversion = J Dump Body = 90	20'		168"	22"	26	23.5	21	18.0	40° – 143"
	20'		174"	16"	24.5	22	20		45° – 128"
	22'		186"	28"	24.5	22	20		50° – 115"
	22'		192"	22"	23	20.5	18.5		55° – 106"
	24'		210"	28"	22	19.5	18		60° – 98"
NTL4.5-3 @ 3500 P.S.I. Conversion = J Dump Body = 100	20'		180"	10"	33.5	30	27.5	23.0	40° – 161"
	20'		174"	16"	35.5	32	29		45° – 144"
	22'		198"	16"	32	28.5	26		50° – 131"
	22'		192"	22"	33.5	30	27.5		55° – 120"
	24'		210"	28"	32	28.5	26		60° – 110"

Single Axle – Capacity based on an evenly distributed load, a 3" truck box to cab clearance and a truck box pivot location 36" behind the center of the truck axle.

Tandem Axle – Capacity based on an evenly distributed load, a 3" truck box to cab clearance and a truck box pivot location 53" behind the center of the truck axle.

CAUTION: The combined weights of the truck chassis hoist and platform (or body) and cargo must not exceed the gross vehicle weight rating (GVWR) of the truck.

To Calculate Lift Capacity

$$\text{Lift} = \frac{\text{M.D.} \times \text{Capacity Key No. (from Table)}}{1/2\text{BL} - \text{OH}} = \text{Tons}$$

MD – Hoist Mounting Distance (Ins.)
BL – Body Length (Ins.)
OH – Body Overhang (Ins.)



NORDIC HOIST SPECIFICATIONS

MODEL	C90	TL1522	TL1627	TL2522	TL2627	NTL4.5-3
No. of Cylinders	1	1	1	2	2	2
Cylinder Bore (Ins.)	5	5	6	5	6	4.5
Piston Stroke (Ins.)	14	20	27	20	27	91
Piston Rod Dia. (Ins.)	2 ¹ / ₄	2 ¹ / ₄	2 ¹ / ₂	2 ¹ / ₄	2 ¹ / ₂	TELESCOPIC
Max. Cylinder Extending Pressure Bottom Cylinder Port (P.S.I.)	3000	3500	3500	3500	3500	3500
Max. Cylinder Retracting Pressure Top Cylinder Port (PSI)	1000	1000	1000	1000	1000	SINGLE ACTING
Recommended Pump Min. GPM @ 1000 RPM	1.66	3.31	8.00	8.00	12.00	12.00
Mounting Height (Ins.)						
Low-Mount Installation	N/A	7 ³ / ₄	7 ³ / ₄	7 ³ / ₄	8 ³ / ₄	9 ¹ / ₂
Hi-Mount Installation	10 ³ / ₄	12 ³ / ₄	9 ¹ / ₂			
Recommended Long Beams (Ins)						
Low-Mount Installation**	N/A	7	7	7	8	8
Hi-Mount Installation						
Without Cross Sills	10	12	12	12	12	10
Weight – Approx. (lbs)	336	598	800	887	1187	928

Warranty

Nordstrong Equipment Limited is very proud of the high quality of our **Nordic** underbody truck and trailer hoists and front mount telescopic cylinders. We are industry leaders in design and manufacture and we stand behind the reliability of our products.

It is our policy to replace any part(s) free of charge, FOB the factory, for any parts returned (freight prepaid) and judged by **Nordstrong Equipment Limited** to be defective due to material or workmanship. **Nordstrong Equipment Limited** will warrant all **Nordic** double acting underbody hoists for a period of three years, and all **Nordic** single acting telescopic hoists for a period of two years, from dealer point-of-sale to the end user.

Non-standard usage or abuse of products, or unauthorized modification, repair or alteration will void the warranty.

Nordstrong Equipment Limited will not assume responsibility for loss of time, manufacturing cost, transportation cost, or loss of profits, as a result of defective products.

Items that are not manufactured by **Nordstrong Equipment Limited** are therefore covered by the warranties of the suppliers of these items. We will therefore extend, without assuming any responsibility, any warranty given to us by our suppliers, subject to the terms of such warranties.



Head Office

5 Chester Street
Winnipeg, Manitoba
Canada R2L 1W5
(204) 667-1553
(204) 663-8497 Fax
wghoistsales@nordstrongequipment.com



Distribution Centre

703 – 19th Avenue
Nisku, Alberta
Canada T9E 7V9
(780) 979-1150
(780) 979-1154 Fax
niskuhoistsales@nordstrongequipment.com