

All-Terrain Derrick Operators Manual



www.integraldx.com

(320) 435-0003

11.01.21

All-Terrain Derrick “Drilly Goat” Operators Manual

Note: This manual covers operation and maintenance of the portion of the vehicle that were added or modified by Integral dx and therefore not part of the Altec manuals for the digger derrick or the Pettibone manuals for the chassis.

Integral dx was founded to meet the needs of niche market customers looking for quality and customization.

Under the umbrella of RITALKA, Inc. and headquartered in Montevideo, MN, it is a privately-held corporation that builds all product lines in house partnering with our sister company, SpecSys Inc.

SpecSys Inc., has five manufacturing facilities, which are located in Minnesota, South Dakota and Wisconsin.

Contact Info

121 North 1st St.
Montevideo, MN 56265
www.integraldx.com
(320) 435-0003

Product Lines:

All-Terrain Derrick (ATD)
Beet Piler
Concrete Mixer
Easi-Miner
Spray Paver

RITALKA, INC. Facts:

300
Employees

7

Locations

625,000
Ft² Manufacturing Space

5,000+

Hours/month Engineering Services

35,000+

Hours/month Manufacturing Services

200

Active Suppliers

70

Active Clients



Spraypaver



All-Terrain Derrick



Easi-Miner



Concrete Mixer

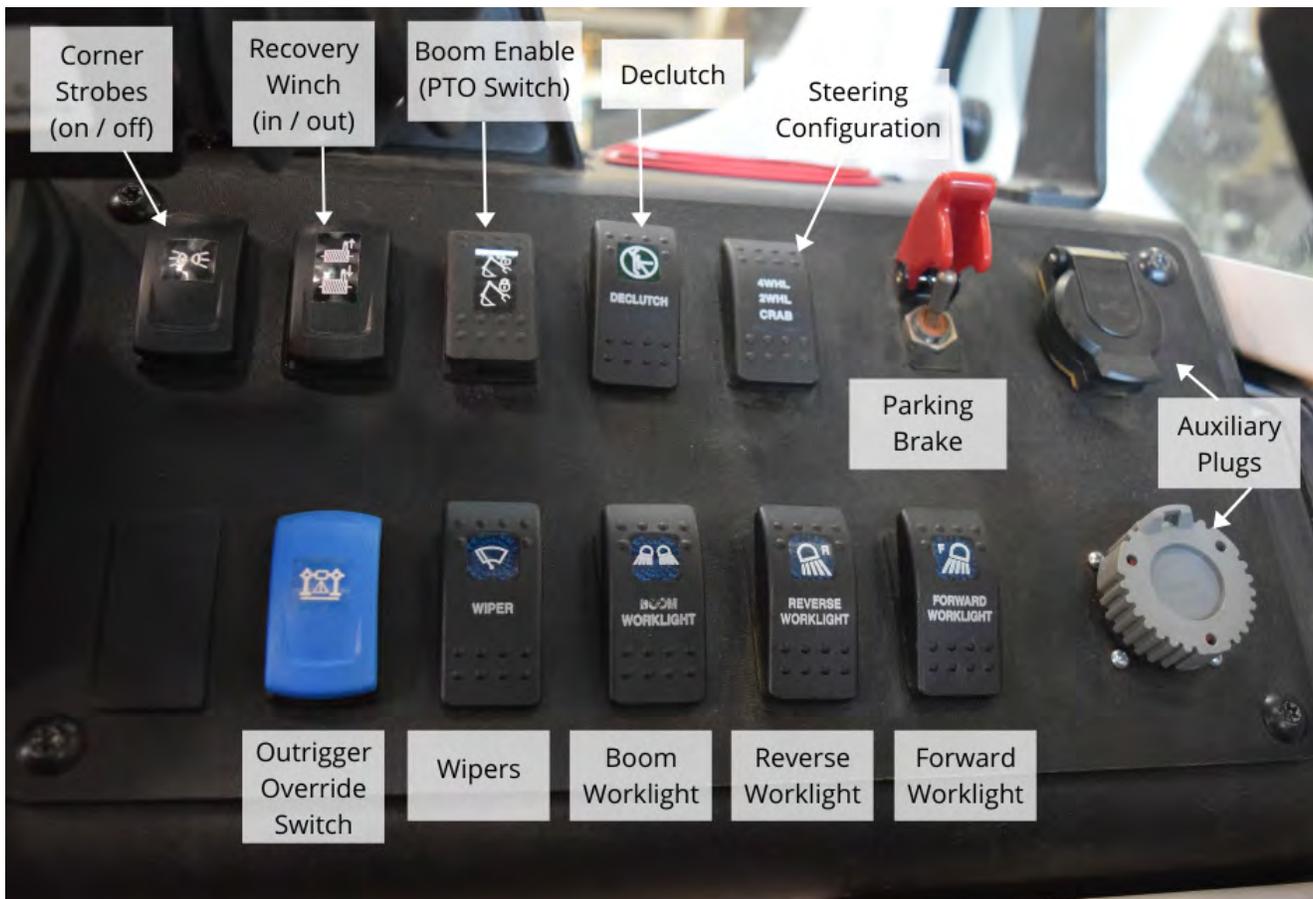


Beet Piler

Layout of Controls

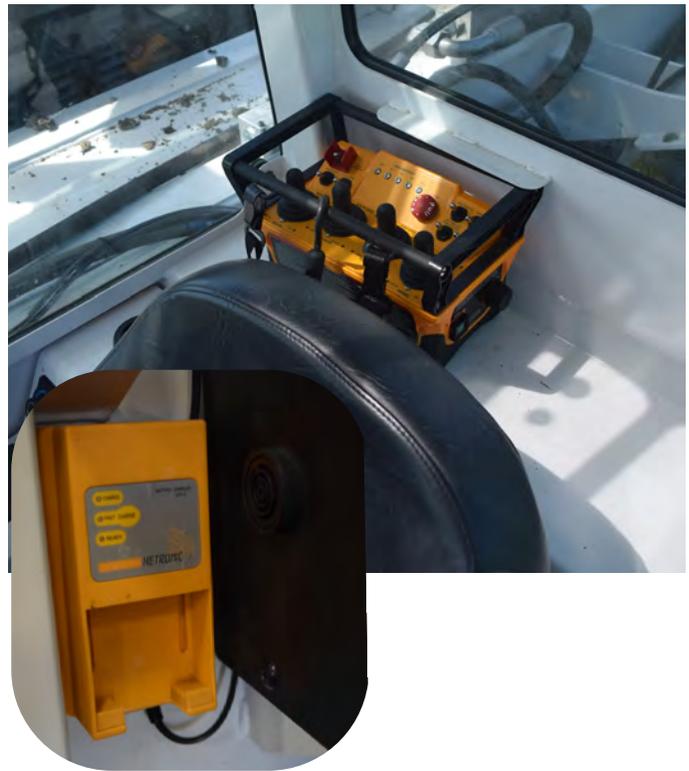
Controls located in the dash of the cab,

- Corner Strobes
- Recovery Winch (in/out)
- Boom enable (Altec term: “PTO switch”)
- Outrigger override switch
- Wipers
- All Lights
- Parking Brake
- Auxiliary Plugs



To the right of the cab are two joysticks. The front joystick adjusts the blade and the rear joystick controls the frame leveling. The remote controls are stored behind the seat, and the battery charging station is located to the front left of the cab next to the dash.

Located at the rear of the ATD are the controls for the boom, outriggers and attachments.



Envelope Control

A sensor has been added to detect the rotational location of the digger derrick and disable it before the boom can cause damage to the cab

This feature prevents an inattentive operator from rotating the boom into the cab or lower it onto the cab. The sensor is mounted on the pedestal right below the point of rotation and it is tripped when a metal plate attached to the upper portion of the digger derrick rotates in front of it. When the sensor is tripped, it cuts off hydraulic flow to the digger derrick functions, thus stopping any movement of the boom. Hydraulic flow is blocked by closing the “DS1” valve in the Altec control valve block.

In order to operate the digger derrick in this restricted zone, the operator must continuously hold down an override button. If operating from the lower controls at the rear of the machine, the switch labeled “OVERRIDE” must be held whenever moving the boom in this zone. If operating from the remote controls, the HORN button serves as the override and must be held down to operate the derrick in the restricted zone. The horn will sound continuously whenever the horn button is held.

The envelope control restriction does not include the zone of the boom support. The digger derrick is capable of crashing into, and damaging, the boom support without being disabled by this system. The envelope control system also does not account for open windows on the cab. If cab windows are open, they can be damaged by the moving boom before it is stopped by this system.



⚠ DANGER
ELECTRICAL HAZARD

Death or serious injury will result if contact with this equipment is made if it should become electrical.

INSTRUCTIONS FOR INSULATION

- Which line is not insulating.
- Extend upper boom past the extension placed or use per that has been dielectrically tested.
- Consider all portions of boom extension placed to be non-conductive.
- Never allow metal components to contact energized conductors or energized conductor and a ground, wire, or other hardware.
- Keep fiberglass upper boom extension clean and free of dirt.
- Dielectrically test at regular intervals per maintenance manual and 10.51.

Normal Operation

Blade

The blade at the front of the ATD can be used for moving and leveling dirt and also serves as an outrigger to stabilize the unit during operation of the digger derrick. The blade is raised up and down using the main joystick in the cab; pushing the joystick forward lowers the blade and pulling the joystick back raises the blade. The blade does not angle or tilt side-to-side. However, tilt of the blade can be achieved using the frame tilt function of the machine. The rear joystick at the operator's right side is used to tilt the frame. Moving the joystick left or right actuates a hydraulic cylinder on the front axle that tilts the entire machine left or right.



Recovery Winch

The recovery winch is mounted near the front of the frame of the ATD. When attached to an anchor point, the winch can be used to move or secure the machine. When the machine is parked, the winch can be used to drag other objects towards it.

The winch is controlled by a switch in the cab. Pushing and holding the switch up lets cable out of the winch. Pushing and holding the switch down retracts cable into the winch. Cable can also be let out of the winch by manually releasing the free-spool clutch. This is done by lifting the handle on the winch housing; the drum will then spin freely and the cable can be pulled out. To re-engage the winch, simply lower the clutch handle; the winch motor or drum may have to be turned slightly for it to lock in gear again.

Be sure to stop running the winch when all of the cable is retracted in or fed out. It does not have an automatic stop.



Digger Derrick

To operate the boom, follow these steps:

1. Make sure the Boom Enable switch in the cab is turned on (up). The boom will not operate without this turned on
2. Lower the blade to stabilize the front of the machine. Use the joystick to control the blade.
3. Unlock the outriggers with the Outrigger Lock switch at the rear of the machine. This allows movement of the rear outriggers, but locks out operation of the boom.
4. Lower the left and right rear outriggers to level and stabilize the machine. The outriggers are operated with switches at the rear of the machine.
5. Lock the outriggers with the Outrigger Lock switch. The outriggers must be locked to enable operation of the digger derrick.
6. Operate the digger derrick according to the Altec operator's manual. Use either the lower controls at the rear of the machine or the remote controls. Make sure the upper/lower controls switch on the rear lower controls corresponds to which set of controls will be used. If using the remote controls, power on the controller unit and then press the horn button to connect it to the receiver. Lights on the receiver will indicate it is connected, or the horn will sound indicating it is connected.



The digger derrick will not function unless all outriggers (blade at front and left and right outrigger at rear) are deployed. Just because the outriggers are deployed and the machine allows the boom to function does not mean the unit is stable and safe. It is the responsibility of the operator to make sure the machine is stable and safe for boom operation.

In certain situations, it may not be possible to fully deploy the outriggers. In order to operate the digger derrick without one or more outriggers deployed, the operator should activate the Outrigger Override switch in the cab. Push this switch momentarily and the system will no longer require the blade or outriggers be lowered to operate the boom. The override will remain in effect until the key is turned off. It is still the responsibility of the operator to make sure the machine is operated in a safe and stable manner if the outriggers are not deployed.

Trailer

The trailer for the ATD is designed so the machine can easily be positioned in the same place every time it is loaded. The ATD should be driven forward onto the trailer until its front wheels contact the wheel chocks. Make sure the blade is raised high enough to clear the ramps and the wheel chocks when driving on. Once the machine is positioned, engage the park brake and set the blade down. Secure the machine to the trailer using a chain and tightened in each corner.



The personnel platform can be stored on the trailer. Using the same provision for attaching the platform to the boom, pin the platform to the support weldment on the front of the trailer. Make sure the platform's cover is in place. Then put a strap over the platform hooking it securely to the loops in front and behind. Tighten the strap to secure the platform

Grease Points

Two grease fittings on each outrigger can be accessed from the underside when the outrigger is in the raised position



There is a grease fitting at the pivot on each end of the outrigger hydraulic cylinder. These can be accessed when the outriggers are lowered.

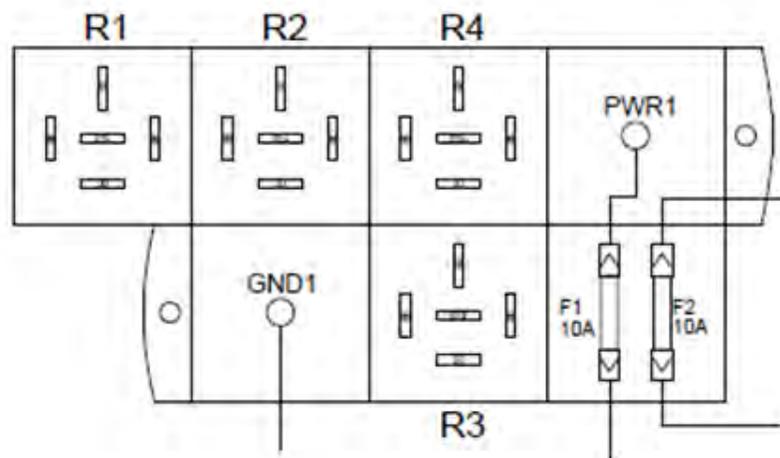
The blade has a grease fitting at its pivot point on the left and right side. It also has a grease fitting on each end of the hydraulic cylinder.



Electrical

For a complete electrical schematic of the system added by Integral dx, see ID30296_Schematic.

It is possible that one of the four corner strobe lights will lose its flash pattern or fall out of sync with the other lights. For instructions how to fix this, see “Vignal DL Light Sync Procedure”. This procedure will also need to be done if one of the corner strobe lights is replaced.



RELAY FUNCTIONS

R1 - ENVELOPE CONTROL
 R2 - OUTRIGGER UNLOCK
 R3 - ISC HIGH
 R4 - ISC LOW

FUSES

F1 - RELAY PWR
 F2 - SPOTLIGHT

Hydraulic

The ATD has two main hydraulic pumps that draw oil from the same reservoir. Both pumps are stacked on a pump drive port on the engine where one pump would be located as the chassis is supplied from Pettibone. The first pump powers the chassis functions; these include the blade, winch, outriggers, steering, brakes, and frame tilt. This is a pressure compensated pump and should be set at a maximum pressure of 3000 psi. The second pump powers the digger derrick. It is a load sense pump; it should be set at a maximum pressure of 3000 psi and a standby pressure of 400 psi. The load sense pump increases pressure to respond to demand as required. Pressure is provided to the digger derrick only when Altec's "DS1" valve is opened electronically by the control system. For a complete hydraulic schematic see IDX30321.

The chassis includes an additional hydraulic pump to circulate oil for cooling and filtering. It is a gear pump mounted directly to the engine.

Hydraulic oil in the system must have a dielectric rating of 35 kV or higher per ASTM D877 in order to maintain the insulating properties of the boom. The unit was filled at the Integral dx factory with Hydrex XV (IDX30323). The system holds 55 gal. of hydraulic oil.

Need Parts?

Choose Genuine Integral dx Parts to keep your equipment operating at peak performance. Our trained staff can help you find the OEM parts you need to extend the life of your Idx product and minimize downtime.

The Integral dx Parts Department can be contacted by phone:
(320) 435-0003 Press 2



Quality OEM parts

guaranteed to fit every time, with the quality you depend on

Excellent Customer Service

we will help you identify the parts you need

Fast Shipping

eliminating unnecessary downtime on your equipment

Designed & Manufactured in the Midwest

with the pride off a workforce dedicated to quality & reliability

OUR LOCATIONS

Address	Area (sq. ft)	Employees
121 North 1st St. Montevideo, MN 56265	29,000 (HQ, office)	32
2120 Broadway N New Ulm, MN 56073	65,000 (mfg.)	50
304 Industrial Drive Redwood Falls, MN 56283	46,000 (mfg.)	42
600 Quadee Drive Watertown, SD 57201	110,000 (mfg.)	57
1123 Hwy. 212 W Granite Falls, MN 56241	125,000 (mfg.)	45
474 Birch Street Prentice, WI 54556	210,000 (mfg.)	68
3535 Plymouth Blvd Unit 110 Plymouth, MN 55447	6,000 (office)	6



Montevideo, MN



Granite Falls, MN



Prentice, WI



New Ulm, MN



Plymouth, MN



Watertown, SD



Redwood Falls, MN

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