

# **ORSCHELN**®

Engine, Valve, and Pump Controls

## The Global Leaders

### in motion control systems.

This catalog includes Orscheln's engine, valve, and pump controls. For more than 40 years, Orscheln has produced hand and foot controls for the on-highway and off-highway heavy-duty markets. Most controls in this catalog continue to utilize mechanical control cables which we produce for both OEM and aftermarket needs. In addition, we have designed foot pedals and hand vernier controls for electronic controlled diesel engines.



Above: Floor mount throttle pedals for electronic engines.

Right photo: Prototype concepts of suspended pedals.

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### **Engine Controls**

Orscheln designs and manufactures floor throttle pedals for both mechanical and electronic governed engines. Our rugged steel mechanical pedal on pages 5-6 is used on various on and off highway equipment. (See Orscheln HP Cable catalog for throttle and vernier control cables.) For electronic controlled diesels, see page 2 for our standard foot pedals. Suspended style throttle pedals are unique to each OEM application.

Please consult the factory for the latest specifications.

New generation vehicles are demanding more reliable electronics, lightweight materials, and corrosion resistant materials. Long life sensors and molded polymers are used to provide lightweight and durable performance.

### Valve and pump controls

Hand levers to remotely operate spool valves are on page 7, and companion Heavy-Duty levers are on pages 9-10. These cable controlled levers provide rugged operation and flexibility for remote location.

For PTO and hoist controls on dump trucks, see pages 11-12 and 13-14. Orscheln offers both "T" handle and side push button styles.

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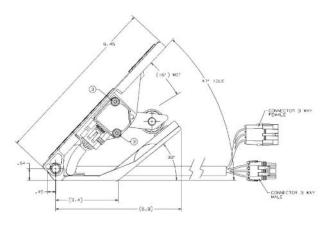
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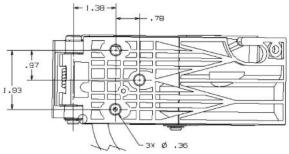
### Electronic Foot Pedal for Heavy-Duty Electronic Diesel Engines

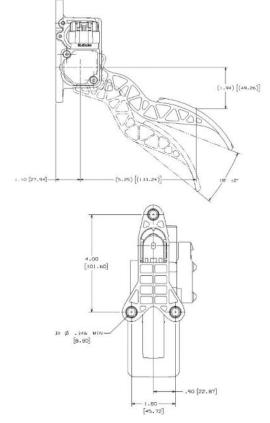


Orscheln Products Floor Mounted and Global Suspended Electronic Throttle pedals are designed for ease of installation and flexibility for ergonomic positioning and mounting per a customer's specifications. The fully polymer pedals are adaptable to a wide range of electronic throttle applications requiring a robust, durable design. The pedals also provide smooth driver operation and feature a durable, longer-life programmable Hall Effect sensor. Rigorous validation testing and 100% electronic inspection ensures quality and reliability. Mating connector for sensor: Delphi/Packard 12066317. Wiring harness is optional on both types of pedals.









### Specifications for Floor Mounted Electronic Foot Pedal

### **Functional**

Actuation Force applied perpendicular to the treadle surface and at a point 7.4 inches (160 mm) from the centerline of the pivot axis.

Initial Movement > 2 lbs. (9 N) Full Throttle < 11.5 lbs. (51 N) Rotational Angle 16-20°

Weigh

Weight of Pedal 1.0 lbs. (.46 Kg)

Validation

Full Stroke Cycles 10 Million Fully Environmentally Tested EMC Tested to 15V/m 100% End-of-the-Line Testing on All Assemblies

**Electrical Specifications** 

Programmable Hall Effect Sensor Dual Analog or PWM

### Specifications for Global Suspended Electronic Foot Pedal

### Functional

Actuation Force applied perpendicular to the pedal pad surface and at a point 5.6 inches (142 mm) from the centerline of the pivot axis.

Initial Movement > 2 lbs. (9 N)
Full Throttle < 8 lbs. (35 N)
Rotational Angle 16-20°

Weight

Weight of Pedal 0.7 lbs. (.32 Kg)

**Validation** 

Full Stroke Cycles 10 Million
Fully Environmentally Tested
EMC Tested to 15V/m
100% End-of-the-Line Testing on All Assemblies

**Electrical Specifications** 

Programmable Hall Effect Sensor Dual Analog or PWM

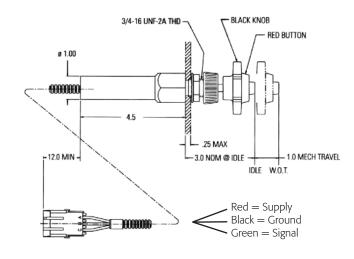
### EV2 (Vernier Control for Electronic Engines)

The Orscheln® Electronic Vernier (EV2), has been designed to provide precise, variable engine speed adjustment on electronically controlled stationary engines, or from a remote operating position on mobile equipment. We have engineered the EV2 to allow capability with most electronically-controlled diesel engines.

The EV2 is easy to operate, even with gloves on. The large (2-1/4") diameter, easily identifiable knob provides continuous engine speed regulation from idle to wide open throttle in seven (7) full turns, providing fine engine speed adjustment. To prevent accidental overrevving, the EV2 cannot be pulled to the wide open throttle position - it must be turned. It does, however, offer a quick shut-down feature activated by pushing in the knob. The EV2 also offers an adjustable friction collar to prevent accidental changes in engine speed. When a change in engine speed is desired, the friction collar may be loosened.

The Orscheln EV2 is easily installed in a very limited amount of space. The EV2 requires a .78" diameter drilled hole, and only 4.5" clearance behind the dash panel. The EV2 is **pre-set** at the factory, with no field adjustment necessary. The potentiometer unit is sealed for protection against moisture and contaminants.





EV2 Product Numbers	Standard Models*	Part Number	Idle	WOT
Cummins	'B' and 'C' Series (no IVS)	EVR001	15%	76%
Detroit Diesel	DDEC I, II, III	55790-1	0%	90%
Mack	VMAC	EVR001	15%	76%
Navistar	T444E, DT446E, 530E	EVR001	15%	76%

VMAC is a registered trademark of Mack Truck. • DDEC is a registered trademark of Detroit Diesel Corporation.

### Chassis Harness / Connector

Requires customer supplied items as follows: Packard Electric Connector - Three Way Weatherpack

EV2 Product Numbers	Packard P/N	Cable Diameter
1 pc. Tower	12015793	
3 pc. Female Terminal (typical)	12010182	#14 - 16 gauge
3 pc. Seal (typical)	12015899	.06"08"

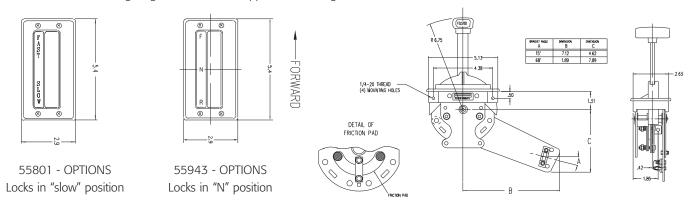
### **Electronic Friction Throttle Control**

The Orscheln Electronic Friction Throttle Control is designed to be a robust control for small electronically controlled engines. Ideal for turf care, construction, and other applications where vibration is an issue. This control has a adjustable friction feature so you can control the stiffness of the action so the throttle is less apt to vibrate off of the desired throttle setting when the machine is in operation. Utilizing the Orscheln 5 volt, dual analog, hall-effect sensor the control can be programmed to meet your specific engine requirements.

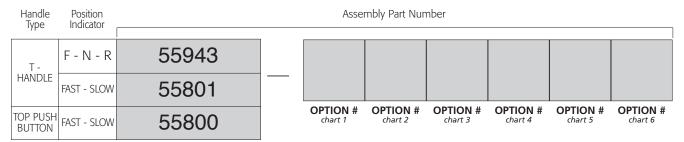


### Throttle Control with Friction Pad

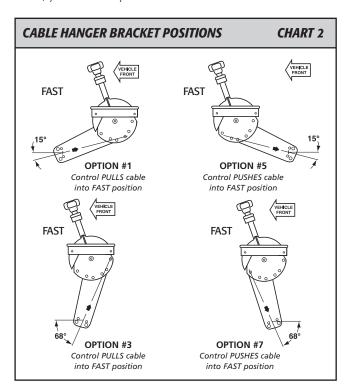
Tough, demanding conditions on mining and construction equipment, drilling rigs, and on and off-highway equipment need a throttle control that is adjustable and stays put. The friction pad was formulated from a special material that gives the control the positive feel and settings needed, especially in an environment with vibration and contaminants. This hand operated control connects to a push-pull cable that is attached to the engine governor, or other apparatus needing variable control.

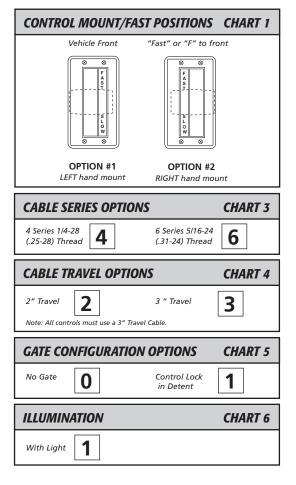


### How to Order the Throttle Control



Follow the charts below to construct the ASSEMBLY PART NUMBER for your specific throttle control. First, choose the type of throttle control you need (first 5 digits). Second, choose appropriate options from each chart and place the option # into the appropriate coded boxes. When combined, you will have your ASSEMBLY PART NUMBER.





### Foot Pedal - Mechanical

The Orscheln foot pedal is the heavy-duty choice for trucks, buses, agricultural equipment, construction equipment, and virtually all other applications that call for a foot operated control. That's because its rugged steel stamping construction offers far greater rigidity, durability, and reliability than aluminum die castings. And because it's designed with oil impregnated bronze bearings that won't wear out like nylon bearings. For ease of installation, it bolts to the floor with three point mounting and incorporates a unique keyhole mount for the cable hub that requires only a single fastener. For flexibility, it has 360° adjustability for cable entry, is available with either two-inch or three-inch travel, and either three or four series cable. And for even greater flexibility, you can connect a modulator to the pedal, eliminating the need for cumbersome linkages to the engine governor. Other features include a self-cleaning boot that deflects dirt and debris, a double torsion pedal return spring, adjustable pedal height, and a factory assembled heel rest. When used with Orscheln cables and modulators, the Orscheln Foot Pedal gives you a complete system you can rely on.

### Specifications for Foot Pedal

Horizontal Cable Entry Vertical Cable Entry Pedal Angle Cable Travel Cable Size Construction

Bearings

Upper Boot Pedal Return Spring Pedal Stop

Floor Thickness Protrusion Underfloor

Main Linkage Bearings
Cable Hub Connection

Pedal Load

Mechanical Advantages

Modulator

woaulator

Heel Rest

360° Adjustable 0° - 30° Adjustable

30° - 53° At Idle 2" - 3" Travel Available

3 or 4 Series Option Steel Stamping - Plated for

Corrosion Resistance Oil impregnated Bronze

Bearings

Neoprene Double Torsion

Adjustable, Enclosed for

Protection Up to .50" Max.

2" Travel: 4 3/4" 3" Travel: 4 3/4" Self Aligning

Keyhole Mounting Requires

Single Fastener\*

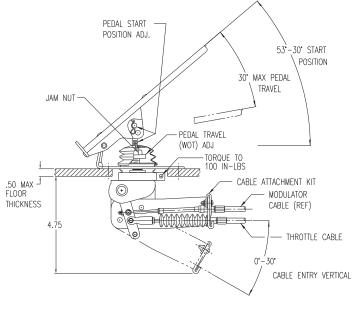
Recommended Maximum Load: 25 lbs. Pedal Load at Installation Should Not Exceed 12 lbs. Recom-

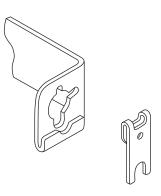
mended Maximum Load at Wide Open Throttle Stop: 100 lbs.\*\*

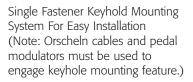
2" Travel: 1.4 3" Travel: 1.0

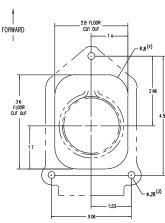
Available With or Without Modulator Pivot (Special

Modulator Required)
With or Without Heel Rest,
Can Be Field Installed









FLOOR CUT OUT TEMPLATE ORSCHEIN MECHANICAL FOOT PEDAL

Floor Cut Out Template for Orscheln Mechanical Foot Pedal

All measurements in inches.

Specifications subject to change without notice.

\*Orscheln cables and modulators must be used to engage keyhole mounting system.

\*\*Based on load applied to pedal surface 6 inches from pedal pivot and 90° to surface.

### How to Order a Foot Pedal - Mechanical

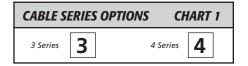
Ordering the foot pedal that meets your needs is not difficult.

Simply follow the instructions below to create the assembly part number.

The first five numbers will be followed by three numbers that are chosen from the charts below.

- 1. Choose either a 2" or 3" Travel. This number is your BASIC NUMBER.
- 2. Choose the appropriate options from charts 1, 2, and 3.
- 3. Place each option number that you have chosen into its corresponding colored box. These create your ASSEMBLY CODE.
- 4. Combine all eight numbers to create the ASSEMBLY PART NUMBER. For example, the final assembly part number could possibly be 95002-300. (2" travel, 3 series, no heel rest, no modulator)

# Assembly Part Number 2" TRAVEL 95002 OPTION # OPTION # Chart 2 Chart 3





MODULATO	R PIVO	т сн.	ART 3
No Modulator	0	With Pivot Modulator	1

### Foot Pedal Service Parts

 Cable Hanger Kit
 Cable Attach Kit

 99000-1 = 2" Travel
 99001-1 = 3 Series

 99000-2 = 3" Travel
 99001-2 = 4 Series

Includes: Includes:

Hanger Assembly Lock Plate Assembly and Screw Flange Nuts (2) Pin and Hair Pin Cotter

Clevis

 Upper Boot Kit
 Heel Rest Kit

 99002-1
 99003-1

Includes: Includes: Upper Boot Heel Rest

Pin and Hair Pin Cotter Self Tap Screws (2)

Jam Nut

### Modulators for Foot Pedal \*

### Modulators

98000-Length = 2" Travel 98001-Length = 3" Travel

Allison Transmissions Only

\* Orscheln cables and modulators must be used to engage keyhole mounting system.

### Cables \*

<b>3 Series</b>	<b>4 Series</b>
#10-32UNF-2A	1/4-28UNF-2A
352X3-Length = 2" Travel	452X3-Length = 2" Travel
353X3-Length = 3" Travel	453X3-Length = 3" Travel

Other configurations available. Consult Factory. X = Specify 2 for bulkhead, 3 for clamp.

### **RVO Controls**

The Orscheln remote valve operator (RVO) control system permits highly efficient remote cable operation of hydraulic spool valves. While the control head is in easy reach of the operator, the noise, heat, and inconvenience of high pressure hydraulic lines are removed from the cab area. In addition to economical installation, the Orscheln system also allows greater flexibility when planning valve placement.

A remote valve control system consists of a control head, a cable, and a valve connection kit. Orscheln systems are designed for ease of installation, operation, and maintenance in a wide variety of equipment in agriculture, construction, off-highway trucks, and industrial applications.



See Orscheln HP Cable Catalog for more Information

**100-45600 - Length** Input end connects to control head, output end connects to

universal connection kit.

**100-45622 - Length** Input end connects to control

head, output end is a series 2"

travel bulkhead type connection. **100-45623 - Length** Input end connects to control

head, output end is a 4 series 2"

travel clamp type connection

**Rods, sleeves** stainless steel

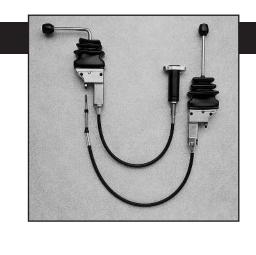
**Temp. rating** -65°F to +225°F.

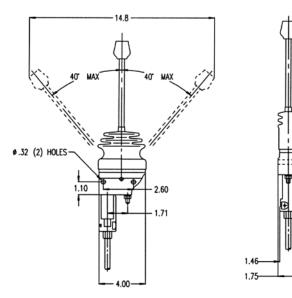
(Hi-temp avail. to +300°F)

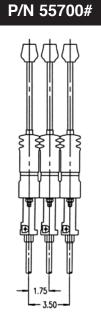
**Bend Radii** 5"

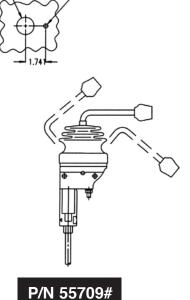
**Cable Servicing** 

**Connection Kits** See page 8 of this catalog.









ø.375 HOLE

₱1.500 HOLE

13.05

### Specifications for Remote Valve Operator

**Control Head** 55700#, 55709# 90° Handle **Handle** Plated Steel

BootPVC Dip MoldedHousingDie Cast AluminumKnobBlack PhenolicOverall Length16.4 Inches

**Spring Action** Spring Centered 40°

Forward/Rear
1.75 Inches Max.

Stackable
Create Multiples,
Combinations, Both

55700 and 55709 When Stacked, Cables

Can Be Serviced Without Complete Disassembly.

### Valve Connection Kits - RVO and Heavy-Duty Levers - 4 Series Only

Note: Requires special cable. Not for use with H.D. Levers with 3" travel.

Valve	Valve Model	Orscheln Kit Part No.
Commercial Intertech	A 20 Rear Entry A 35 Spring Return Rear Entry D 50 A 35 Front Entry C 102, C 101 Pump, 1 1/2" Dia. Nose Only VA-20 Front Entry	59102 59118 59120 59134 59172
Cross	BA, BC, CA, CD	59104
Energy	CVP, CVS D, CVA-200	59100
Gresen	25P, CP, CS, V20, V42 V-70 V50	59100 59109 59383-1
Husco	5000 6000	59119 59103
Hydro- Control	HC-D2 Rear Entry	59127
Parker	VDP-12	59108
Prince	5100	59354-1
Racine	3/8 1/2	59103 59108
Rexroth (Borgwarner)	MP-18, 30-S2 MP-18	59101 59178

### Cables to be used with connection kits

Heavy-Duty Lever 2" TRVL Remote Valve Control 100-45630-Length 100-45600-Length

Cables not included, must order separate.

### **Heavy-Duty Levers**

Orscheln's Heavy-Duty Levers are built especially for rugged, demanding applications in the construction, farm, and specialty truck business. In addition to the standard version, a push button version is also available which provides convenient push button operation and a choice of five gate configurations to offer a variety of design applications where the lever needs a detent locking mechanism.

The mechanical advantage of both levers is 5:1 with operating loads from 125 to 400 pounds dependent on cable series and travel. Superior corrosion resistance is provided by a handsome black matte finish Electrocoat Coating for the lever mechanism, which will meet 5% Salt-Spray, 336-500, with zinc plate for fasteners. Other advantages include a lightweight design and a pivot bushing.

# Ø 1.94

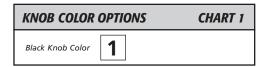
ALTERNATE HANDLE

POSITIONS

1,25

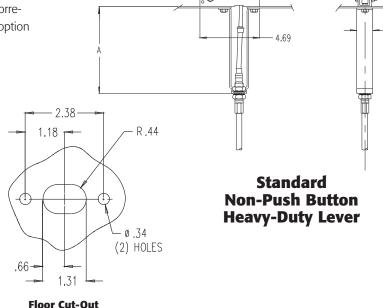
### How to Order a Standard Non-Push Button Lever

To build an Assembly Part Number, please refer to the option charts below, and place the option numbers into the corresponding color coded boxes. Please Note: Knob color option only exists as black, which is #1.



CABLE SERIES	CHART 2	
4 Series 4	6 Series	6

TRAVEL DISTANCE	CHART 3
2 Inches 2	3 Inches 3



Assembly Part Number

2.5

13" Handle 58000

9" Handle 58018

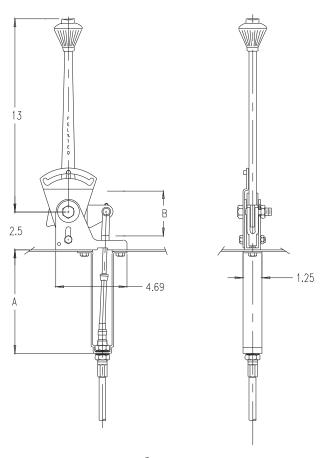
OPTION # OPTION # Chart 2 Chart 3

### **Push Button Heavy-Duty Levers**

Recommended Cables for Push Button and Standard Levers:

Cable Part Number	Dim. "A"	Travel Dim. "B"	Cable Series	Input Max. Load Lb.
100-4222-length	5 1/2"	2"	4	150
100-4223-length	5 1/2"	2"	4	150
100-4322-length	7"	3"	4	125
100-4323-length	7"	3"	4	125
100-6222-length	5 1/2"	2"	6	250
100-6223-length	5 1/2"	2"	6	250
100-6322-length	7"	3"	6	210
100-6323-length	7"	3"	6	210

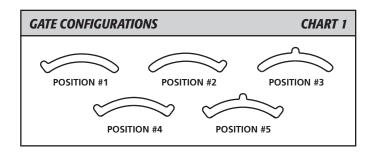
Cables not included. All dimensions in inches. Mounting dimensions same for push button and standard levers.



Push Button Heavy-Duty Lever

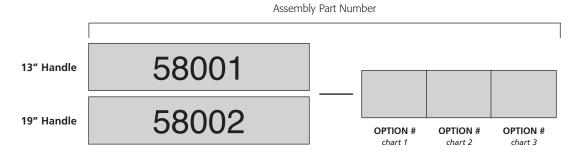
CHART 2

### How to Order a Push Button Heavy-Duty Lever



4 Series 4	6 Series 6
TRAVEL DISTANCE	CHART 3

CABLE SERIES OPTIONS



### **NG Dump Body Control**

The NG (New Generation) Dump Body Control is for operation of pumps, hydraulic spool valves, and PTO's.

Designed and manufactured with World Class techniques, this control combines rugged steel components, heat treated in critical areas, with a simple modular construction to produce a "New Generation" of mechanical control products. This new line of products combines the strength and reliability of our current mechanical controls with the latest in manufacturing technologies to produce a high value control system for our customers.

As an added feature for easy installation, we have incorporated a quick-connect cable mounting system into this control. Utilizing a clamp built into the cable mounting bracket, the assembler needs only a standard 1/4 x 1" bolt and locknut to attach the cable to the control. This allows faster assembly of the cable, while using common mounting hardware available anywhere.

Just like the T-Handle unit, this Dump Body Control features a positive locking detent system which minimizes the possibility of the control being unintentionally bumped or knocked out of detent. The Hoist Control locks in "N" (neutral) position and the PTO locks in "OUT" position. To release from detent, just push in on the side push button and move the lever to desired position. The illuminated position strip and lever indicator provide position range indication day and night.



### Specifications for NG Dump Body Control

Cable Size Required 4 Series, 3" Travel Cable with Clamp Type Hub and 1/4-28 Rod Threads

(Cable #100-4323-Length for Bulkhead or #100-4333-Length for clamp mounting)

(Cable #100-45734-Length for Orscheln Universal Connection Kits)

**Cable Travel Produced** 2 1/2"

**Cable Bracket Angle** 90 Degrees for Tower Installation

**Cable Mounting**Built-in Cable Clamp Requires a 1/4 x 1" Bolt w/Locknut

**Control Construction** Steel Chassis and Handle Assembly

Polymer Knob and Trim Covers

**Corrosion Protection** Black E-coat for Handle

Zinc Plate for Other Metal Components

**Control Mounting** Right Hand Mount for Tower Mounting Configuration

**Illumination** 28 VD

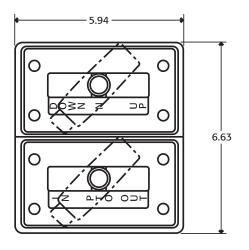
**Handle Configuration** Side Push Button Angled at 45 Degrees

**Hoist Operation** Lever Locks in "N" Position

Pushing Lever to "DOWN" (Forward) Pushes Cable

**PTO Operation** Lever Locks in "OUT" Position

Pushing Lever to "IN" (Forward) Pulls Cable



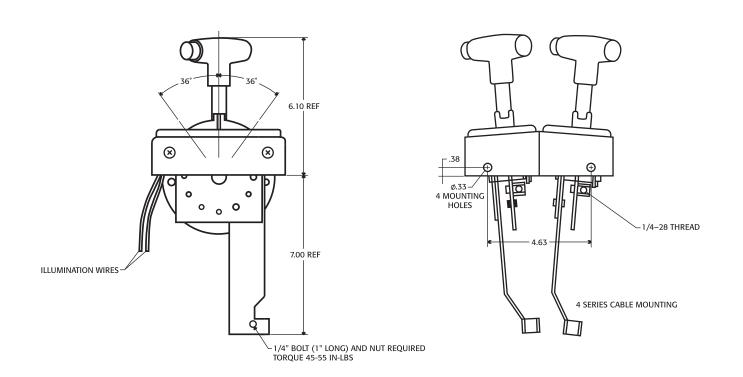
### **Hoist Control Notes**

- Lever locks in the "N" position.
- Pushing lever to "DOWN" position pushes cable.

### PTO Control Notes

- Lever locks in the "OUT" position.
- Pushing lever to "1N" position pulls cable.

Part Numbers			
Dual Controls		Single Controls	
NG0003	NG PTO / Hoist Control	NG0001	NG Hoist Control
	(PTO on left, hoist on right, as shown)	NG0002	NG PTO Control
NG0004	NG Hoist / PTO Control (Hoist on left, PTO on right)	NG0005-1	Knob Service Kit



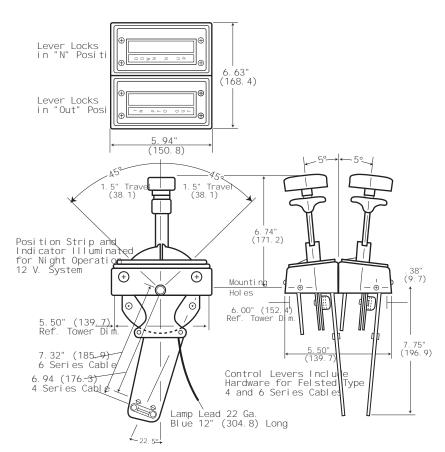
### T-Handle Dump Body Control Systems

The Orscheln T-Handle Dump Body Control is used to control the PTO and/or pump for dump body hoists. This control is standard as a dual unit (PTO and Hoist) or available as a single unit (PTO or Hoist), or a triple control unit (two Hoists and a PTO). Quad units are also available. Also available with the PTO control as a factory installed option, is a switch for a dash light, or secondary electrical function when PTO is engaged ("IN" position).

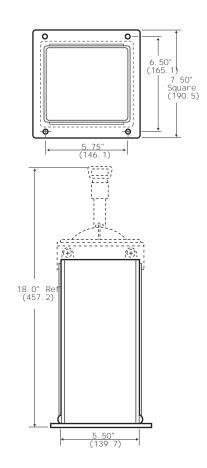
These controls feature a positive detent locking system which practically eliminates any possibility of the control being unintentionally bumped or knocked out of detent. The Hoist Control locks in "N" (neutral) position, and the PTO locks in "out" position. To release from detent, just pull up on "T" lift below the knob and move lever to desired position.

The illuminated position strip and lever indicator provide position range identification at night.

Orscheln Dump Body Controls are constructed of high quality materials and workmanship incorporating hardened steel parts and a rugged housing. The stand has a tough coating for durability and long life. The control is sealed to keep engine noise, dirt and fumes from entering the cap. All controls have a maximum 3" standard cable travel and, for ease of installation, come complete with mounting hardware for both 4 & 6 series cables.

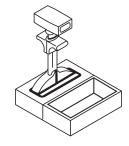


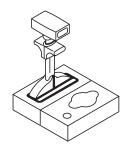


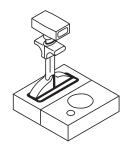


### **T-Handle Dump Body Control Systems**

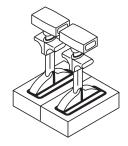


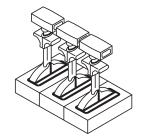


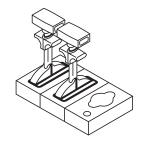


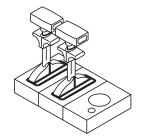


Fits into 59000 Tower	Fits into 59015 Tower	Fits into 59015 Tower	Fits into 59015 Tower
55064 PTO 55064-1 PTO w/Switch 55065 Hoist	55317 Hoist/Open	55317-2 Hoist/Muncie PTO	55317-3 Hoist/Chelsea PTO









Fits into 59015 Tower	Fits into 59016 Tower	Fits into 59016 Tower	Fits into 59016 Tower
55062 Hoist/PTO 55062-1 Hoist/PTO w/Switch 55066 Hoist/Hoist	55067 Hoist/Hoist/PTO 55067-1 Hoist/Hoist/PTO w/Switch	55780-2 Hoist/Hoist/Muncie PTO	55780-3 Hoist/Hoist/Chelsea PTO

Note: All Orscheln Hoist Controls lock in "Neutral" Position. All Orscheln PTO Controls Lock in "OUT" Position.

### **Additional Dump Body Accessories**

Towers				
59000	Single			
59015	Double			
59016	Triple			

**Cables** 

Air PTO Kits				
(Top Plate and I	17			
59057	Chelsea			
59312-1	Muncie			

Accessories		
	c: l	
59002	Single Top	
	Mount Flange	
59009	Single Wedge	
	Mounting Kit	
	(17" Angle Wedge)	

100-4323-Length" Bulkhead/Clamp
100-4333-Length" Clamp/Clamp
100-6323-Length" Bulkhead/Clamp
100-6333-Length" Clamp/Clamp

(See Orscheln HP Cable Catalog)

Mount Kit				
59241-1 50270	Twin Triple			







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