

F.A.S.T. DISTRIBUTOR

## Felsted® Engine, Valve, and Pump Controls



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# ***The Global Leaders*** ***in motion control systems.***

This catalog includes Felsted's engine, valve, and pump controls. For more than 25 years, Felsted 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 the new generation of electronic controlled diesel engines.



**FELSTED®**

*Above: Floor mount throttle pedals for electronic engines.*

*Right photo: Prototype concepts of suspended pedals.*

## **Engine Controls**

Felsted 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 Felsted HP Cable catalog for throttle and vernier control cables.) For the new electronic controlled diesels, see page 2 for our standard floor 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. Felsted offers both "T" handle and side push button styles.

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Specifications in this catalog are subject to change without notice.

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

The foot pedal delivers a precision signal that interacts with the engine's electronic fuel management systems. Polymer components create a lightweight pedal, as much as half the weight of current pedals in the marketplace. This fast-reacting pedal provides smooth driver operation, and features a durable, longer-life potentiometer. Quality testing ensures reliability and durability.



### Specifications for Electronic Foot Pedal

#### Functional

Actuation Force applied perpendicular to the treadle surface and at a point 7.4 inches (188 mm) from centerline of the pivot axis.

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

#### Weight

Weight of Pedal	1.9 lbs. (.86 Kg)
-----------------	-------------------

#### Durability

Full Stroke Cycles	10 Million
Dither Cycles $\pm 1$	
Degree, Mid Range	80 Million

#### Electrical Specifications

Potentiometer	2.5 k $\pm 15\%$ Ohm's
Maximum Voltage	13.5 Vdc
Power Rating	0.15 W @ 85° C
Max continuous current	20 mA
*Minimum output	0.5% $\pm 0.5\%$ of ref. V.
*Maximum output	93% $\pm 2\%$ of ref. V.

\*Minimum and Maximum outputs controlled by mechanical assembly of pedal.

35° $\pm 3^\circ$

48° $\pm 3^\circ$

Electronic Pedal Product Numbers	Standard Models	*35° Pedal Angle	48° Pedal Angle
Caterpillar		EFP107-00	EFP102-00
Cummins		EFP108-00	EFP103-00
Detroit Diesel		EFP109-00	EFP104-00
Mack	VMAC	EFP110-00	EFP105-00
Navistar		EFP111-00	EFP106-00

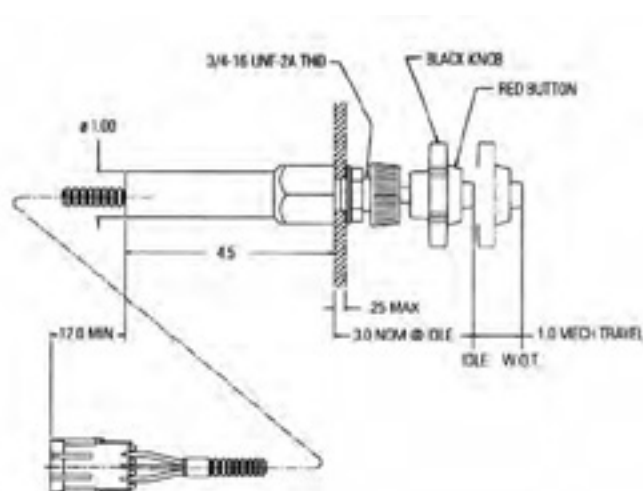
## EV2 (Vernier Control for Electronic Engines)

The Felsted® 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 overrewing, 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 Felsted 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
Cummins	'B' and 'C' Series (no IVS)	EVR001
Detroit Diesel	DDEC I, II, III	55790-1
Mack	VMAC	EVR001
Navistar	T444E, DT446E, 530E	EVR001
*Consult factory for availability on other models.		

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

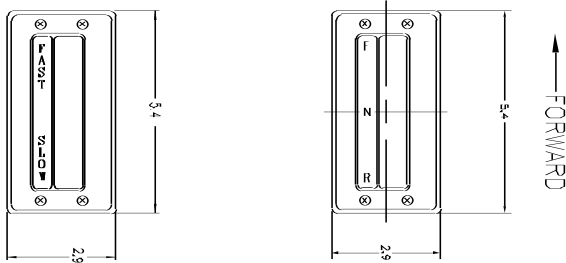
### Chassis Harness / Connector

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"

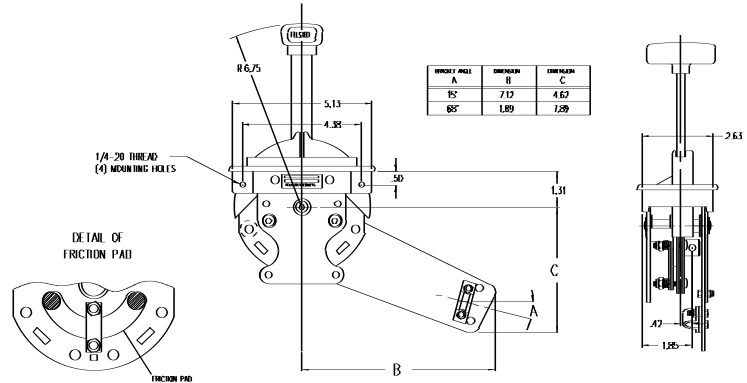
## Throttle Control with Friction Pad

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.



55801 - OPTIONS  
Locks in "slow" position

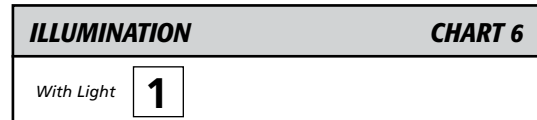
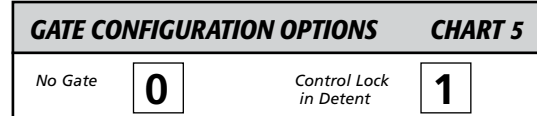
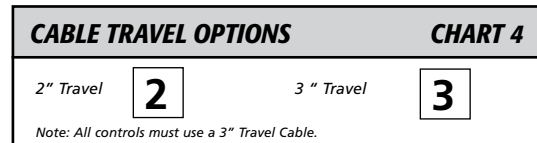
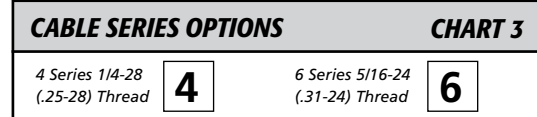
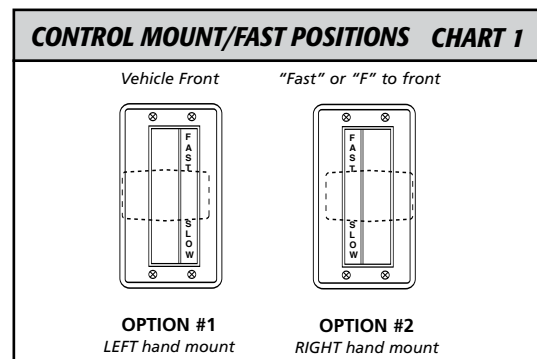
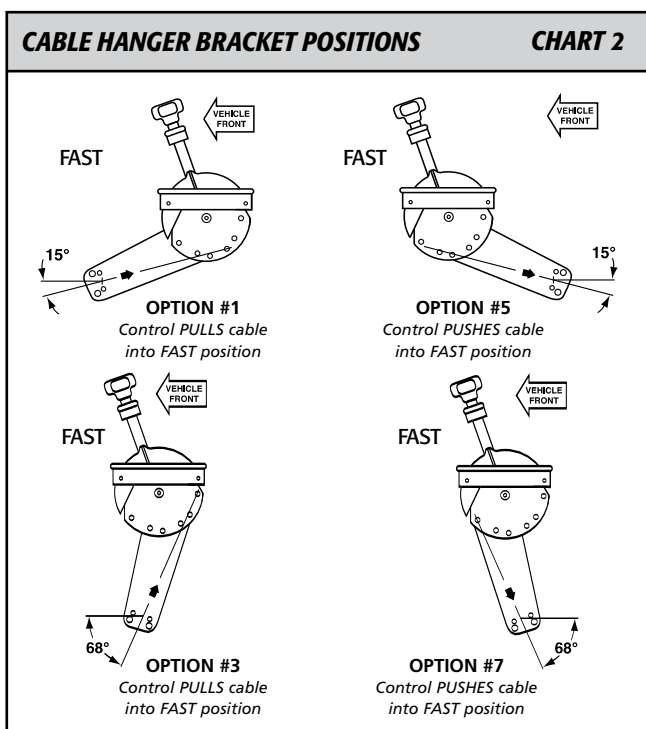
55943 - OPTIONS  
Locks in "N" position



## How to Order the Throttle Control

Handle Type	Position Indicator	Assembly Part Number						
T - HANDLE	F - N - R	55943						
	FAST - SLOW	55801						
TOP PUSH BUTTON	FAST - SLOW	55800						
			OPTION # chart 1	OPTION # chart 2	OPTION # chart 3	OPTION # chart 4	OPTION # chart 5	OPTION # chart 6

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.



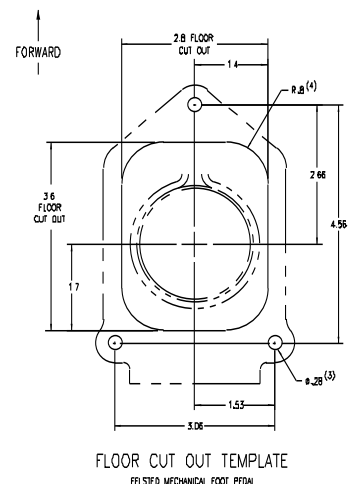
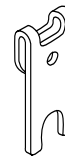
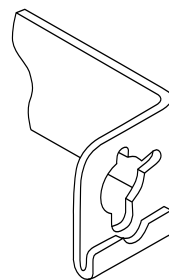
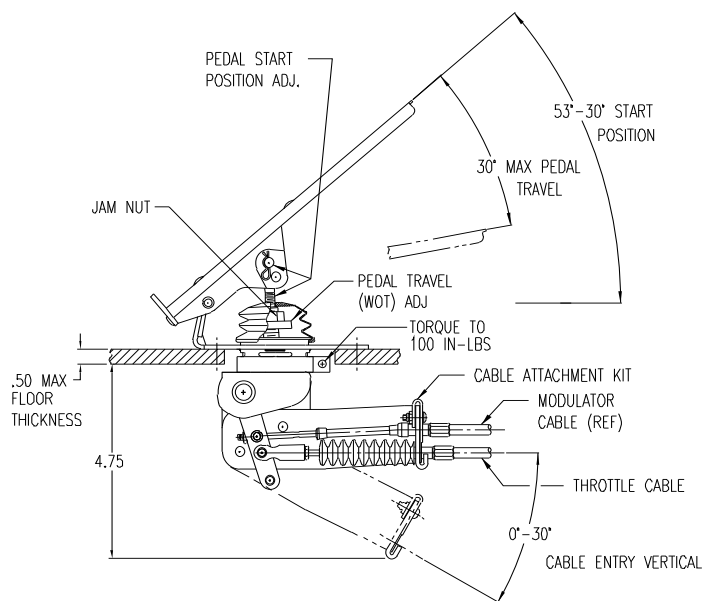
## Felsted Foot Pedal - Mechanical

The Felsted 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 Felsted cables and modulators, the Felsted Foot Pedal gives you a complete system you can rely on.



### Specifications for Foot Pedal

<b>Horizontal Cable Entry</b>	360° Adjustable
<b>Vertical Cable Entry</b>	0° - 30° Adjustable
<b>Pedal Angle</b>	30° - 53° At Idle
<b>Cable Travel</b>	2" - 3" Travel Available
<b>Cable Size</b>	3 or 4 Series Option
<b>Construction</b>	Steel Stamping - Plated for Corrosion Resistance
<b>Bearings</b>	Oil impregnated Bronze Bearings
<b>Upper Boot</b>	Neoprene
<b>Pedal Return Spring</b>	Double Torsion
<b>Pedal Stop</b>	Adjustable, Enclosed for Protection
<b>Floor Thickness</b>	Up to .50" Max.
<b>Protrusion Underfloor</b>	2" Travel: 4 3/4" 3" Travel: 4 3/4"
<b>Main Linkage Bearings</b>	Self Aligning
<b>Cable Hub Connection</b>	Keyhole Mounting Requires Single Fastener*
<b>Pedal Load</b>	Recommended Maximum Load: 25 lbs. Pedal Load at Installation Should Not Exceed 12 lbs. Recommended Maximum Load at Wide Open Throttle Stop: 100 lbs.**
<b>Mechanical Advantages</b>	2" Travel: 1.4 3" Travel: 1.0
<b>Modulator</b>	Available With or Without Modulator Pivot (Special Modulator Required - See Back Page)
<b>Heel Rest</b>	With or Without Heel Rest, Can Be Field Installed



Single Fastener Keyhole Mounting System For Easy Installation  
(Note: Felsted cables and pedal modulators must be used to engage keyhole mounting feature.)

### Floor Cut Out Template for Felsted Mechanical Foot Pedal

All measurements in inches.

Specifications subject to change without notice.

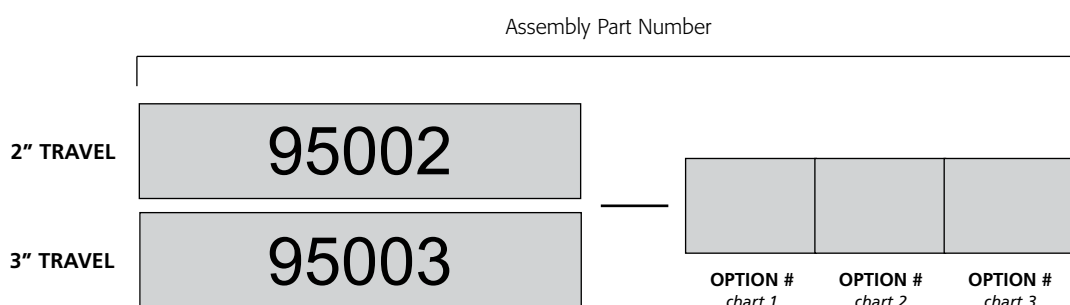
\*Felsted cables and modulators must be used to engage keyhole mounting system.

\*\*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)



CABLE SERIES OPTIONS		CHART 1
3 Series	<b>3</b>	4 Series <b>4</b>

HEEL REST OPTIONS		CHART 2
No Heel Rest	<b>0</b>	With Heel Rest <b>1</b>

MODULATOR PIVOT		CHART 3
No Modulator	<b>0</b>	With Pivot Modulator <b>1</b>

## Foot Pedal Service Parts

### Cable Hanger Kit

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

Includes:  
Hanger Assembly  
Flange Nuts (2)

### Cable Attach Kit

99001-1 = 3 Series  
99001-2 = 4 Series

Includes:  
Lock Plate Assembly and Screw  
Pin and Hair Pin Cotter  
Clevis

### Upper Boot Kit

99002-1

Includes:  
Upper Boot  
Pin and Hair Pin Cotter  
Jam Nut

### Heel Rest Kit

99003-1

Includes:  
Heel Rest  
Self Tap Screws (2)

## Modulators for Foot Pedal \*

### Modulators

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

Allison Transmissions Only

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

## Cables \*

### 3 Series

#10-32UNF-2A

352X3-Length = 2" Travel  
353X3-Length = 3" Travel

### 4 Series

1/4-28UNF-2A

452X3-Length = 2" Travel  
453X3-Length = 3" Travel

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

## RVO Controls

The Felsted 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 Felsted 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. Felsted 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.

### Control Cables

See *Felsted 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

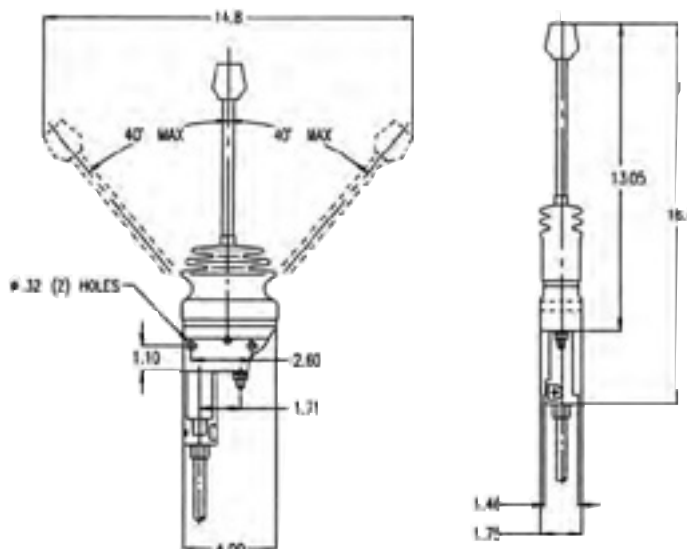
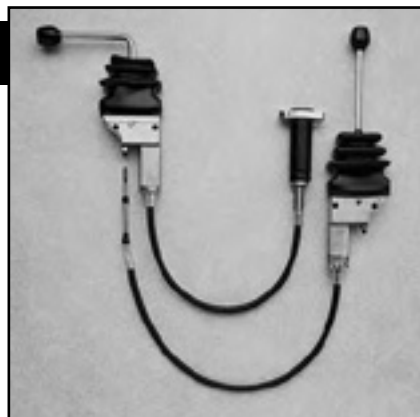
-65°F to +225°F.  
(Hi-temp avail. to +300°F)

#### Bend Radii

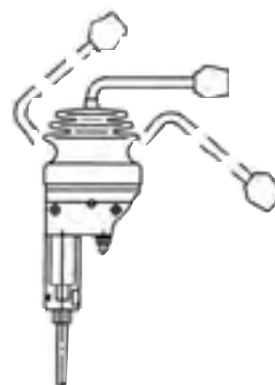
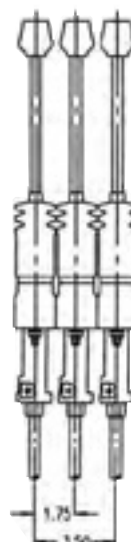
5"

#### Connection Kits

See page 8 of this catalog.



P/N 55700#



P/N 55709#

### Specifications for Remote Valve Operator

<b>Control Head</b>	55700#, 55709# 90° Handle
<b>Handle</b>	Plated Steel
<b>Boot</b>	PVC Dip Molded
<b>Housing</b>	Die Cast Aluminum
<b>Knob</b>	Black Phenolic
<b>Overall Length</b>	16.4 Inches
<b>Spring Action</b>	Spring Centered 40° Forward/Rear
<b>Travel</b>	1.75 Inches Max.
<b>Stackable</b>	Create Multiples, Combinations, Both 55700 and 55709
<b>Cable Servicing</b>	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.

<b>Valve</b>	<b>Valve Model</b>	<b>Felsted Kit Part No.</b>
Commercial Intertech	A 20 Rear Entry	59102
	A 35 Spring Return Rear Entry	59118
	D 50	59120
	A 35 Front Entry	59134
	C 102, C 101 Pump, 1 1/2" Dia. Nose Only	59172
	VA-20 Front Entry	59218
Cross	BA, BC, CA, CD	59104
Energy	CVP, CVS D, CVA-200	59100
Gresen	25P, CP, CS, V20, V42	59100
	V-70	59109
	V50	59383-1
Husco	5000	59119
	6000	59103
Hydro- Control	HC-D2 Rear Entry	59127
Parker	VDP-12	59108
Prince	5100	59354-1
Racine	3/8	59103
	1/2	59108
Rexroth (Borgwarner)	MP-18, 30-S2	59101
	MP-18	59178
<b>For kits not listed, check with factory.</b>		

### **Cables to be used with connection kits**

Heavy-Duty Lever 2" TRVL  
Remote Valve Control

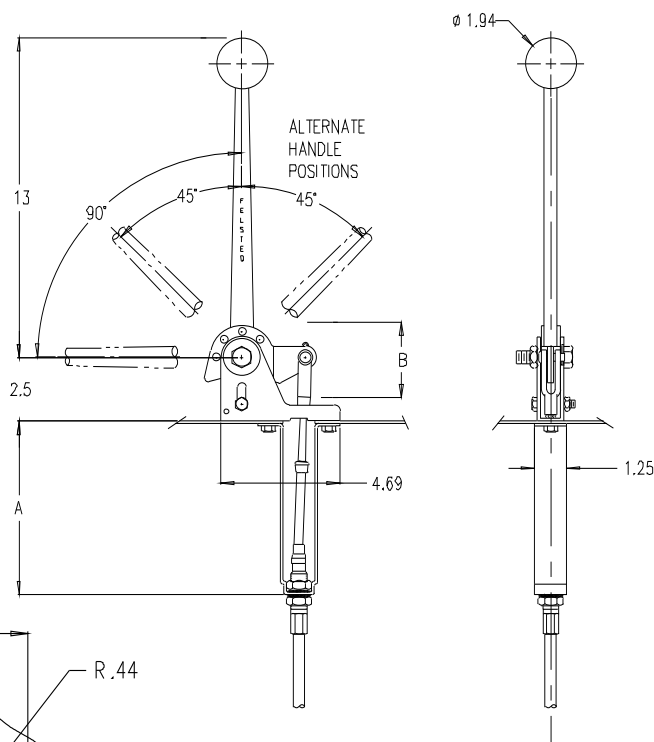
100-45630-Length  
100-45600-Length

### **Cables not included, must order separate.**

## Heavy-Duty Levers

Felsted'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.



**Standard  
Non-Push Button  
Heavy-Duty Lever**

**Floor Cut-Out**

Assembly Part Number

Hollow Steel Handle

**58000**

Solid Steel Handle

**58100**

**1**

OPTION #  
chart 1

OPTION #  
chart 2

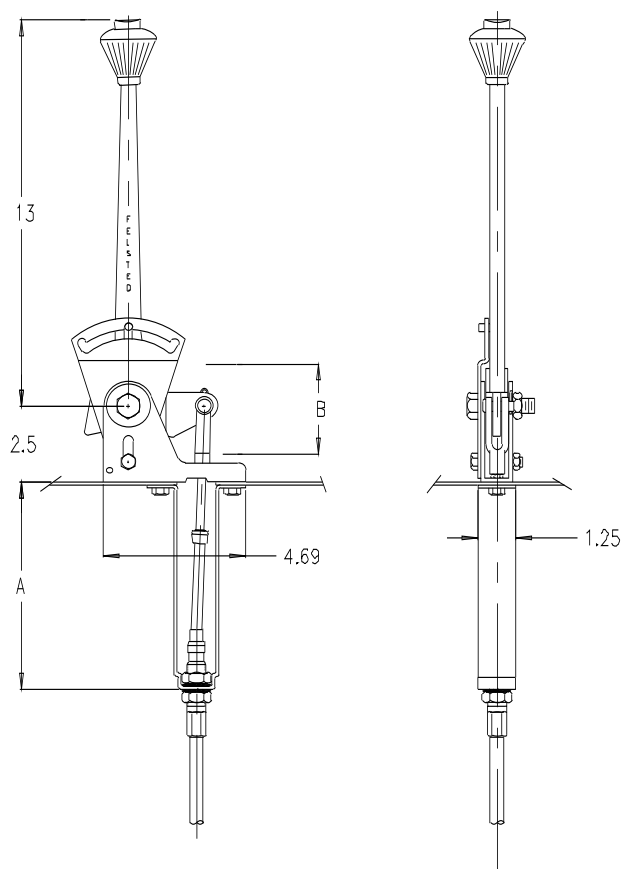
OPTION #  
chart 3

## 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**

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

GATE CONFIGURATIONS		CHART 1
	POSITION #1	
	POSITION #2	
	POSITION #3	
	POSITION #4	
	POSITION #5	

CABLE SERIES OPTIONS		CHART 2
4 Series	<b>4</b>	6 Series <b>6</b>

TRAVEL DISTANCE		CHART 3
2 Inches	<b>2</b>	3 Inches <b>3</b>

Assembly Part Number

Push Button Style

**58001**

OPTION #  
chart 1

OPTION #  
chart 2

OPTION #  
chart 3

## 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.

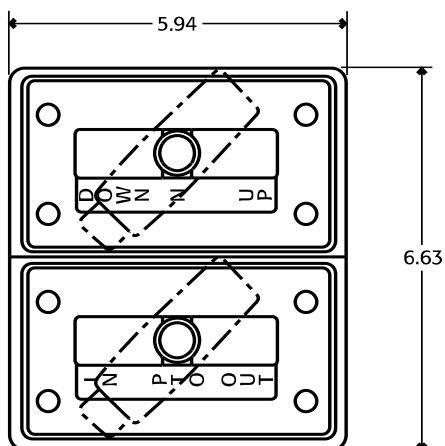
Just like the T-Handle unit, this Dump Body Control features a positive locking detent system which minimizes the possibility of the control being unintentionally bumped or knocked out of detent. The Hoist Control locks in "N" (neutral) position and the PTO locks in "OUT" position. To release from detent, 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

<b>Cable Size Required</b>	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 Felsted Universal Connection Kits)
<b>Cable Travel Produced</b>	2 1/2"
<b>Cable Bracket Angle</b>	90 Degrees for Tower Installation
<b>Cable Mounting</b>	Built-in Cable Clamp Requires a 1/4 x 1" Bolt w/Locknut
<b>Control Construction</b>	Steel Chassis and Handle Assembly Polymer Knob and Trim Covers
<b>Corrosion Protection</b>	Black E-coat for Handle Zinc Plate for Other Metal Components
<b>Control Mounting</b>	Right Hand Mount for Tower Mounting Configuration
<b>Illumination</b>	28 VDC
<b>Handle Configuration</b>	Side Push Button Angled at 45 Degrees
<b>Hoist Operation</b>	Lever Locks in "N" Position Pushing Lever to "DOWN" (Forward) Pushes Cable
<b>PTO Operation</b>	Lever Locks in "OUT" Position Pushing Lever to "IN" (Forward) Pulls Cable

## NG Dump Body Control



### 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.

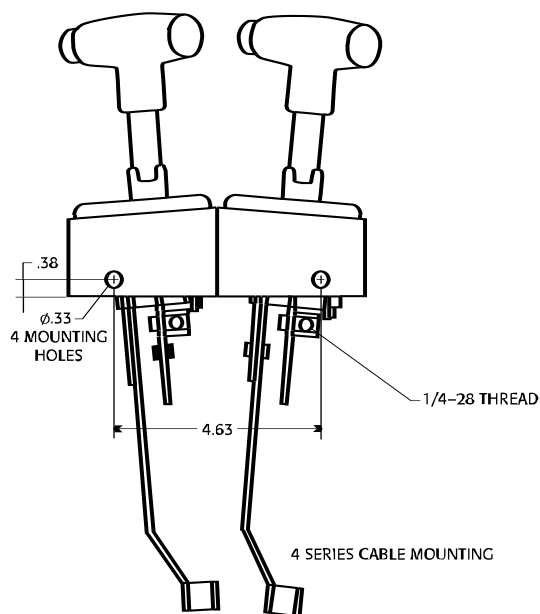
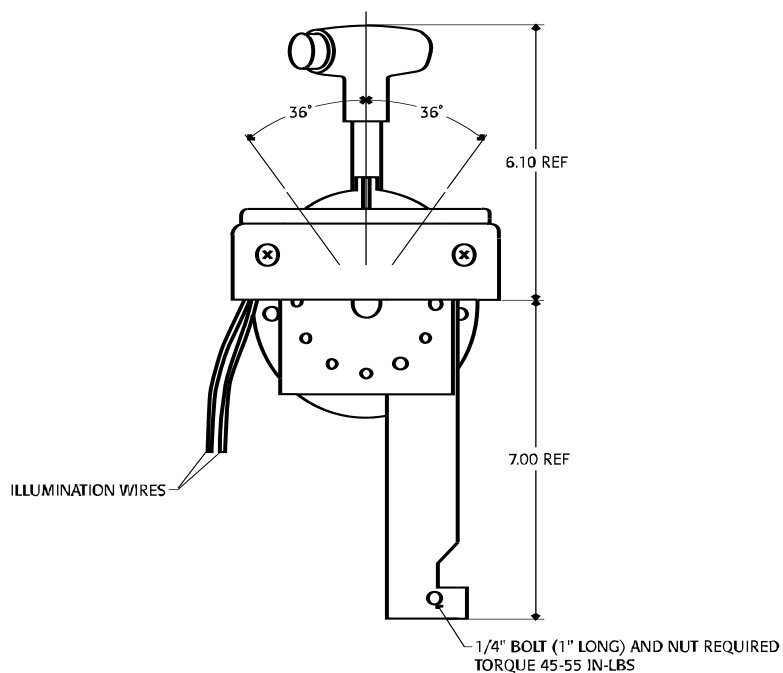
### Part Numbers

#### Dual Controls

NG0003	NG PTO / Hoist Control (PTO on left, hoist on right, as shown)
NG0004	NG Hoist / PTO Control (Hoist on left, PTO on right)

#### Single Controls

NG0001	NG Hoist Control
NG0001	NG PTO Control
NG0005-1	Knob Service Kit



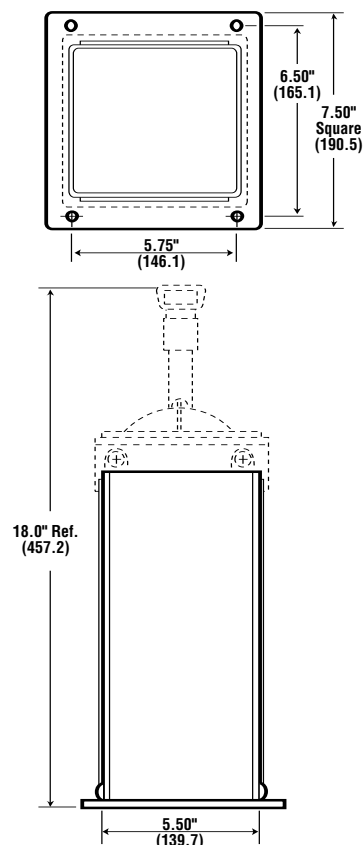
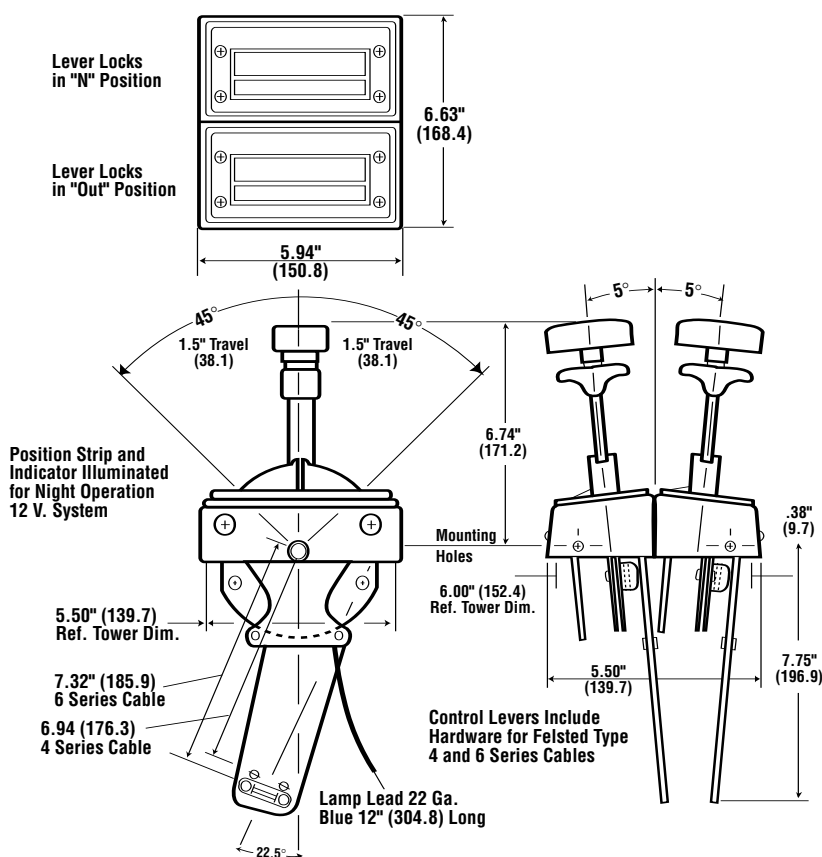
## T-Handle Dump Body Control Systems

The Felsted 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).

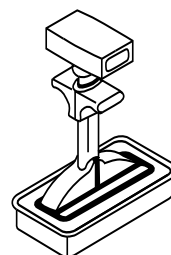
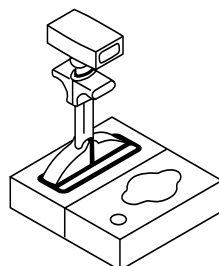
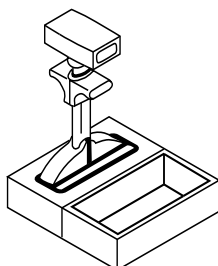
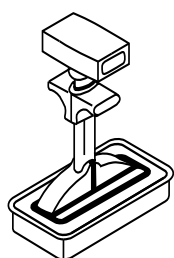
These controls feature a positive detent locking system which practically eliminates any possibility of the control being unintentionally bumped or knocked out of detent. The Hoist Control locks in "N" (neutral) position, and the PTO locks in "out" position. To release from detent, just pull up on "T"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

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

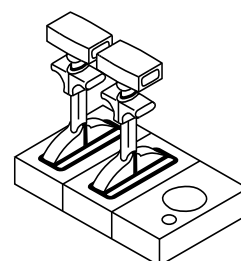
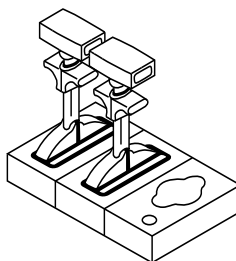
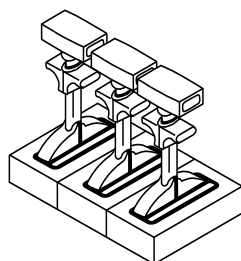
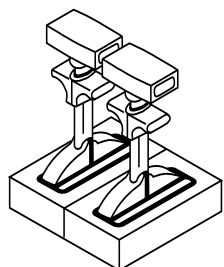
Felsted Dump Body Controls are constructed of high quality materials and workmanship incorporating hardened steel parts and a rugged housing. The stand has a tough coating for durability and long life. The control is sealed to keep engine noise, dirt and fumes from entering the cap. All controls have 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



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



<i>Fits into 59015 Tower</i>	<i>Fits into 59016 Tower</i>	<i>Fits into 59016 Tower</i>	<i>Fits into 59016 Tower</i>
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 Felsted Hoist Controls lock in "Neutral" Position. All Felsted PTO Controls Lock in "OUT" Position.*

## Additional Dump Body Accessories

### Towers

59000	Single
59015	Double
59016	Triple

### Air PTO Kits

(Top Plate and Hardware Only)

### Accessories

59002	Single Top Mount Flange
59009	Single Wedge Mounting Kit (17" Angle Wedge)

### Cables

100-4323-Length" Bulkhead/Clamp	(See Felsted HP Cable Catalog)
100-4333-Length" Clamp/Clamp	
100-6323-Length" Bulkhead/Clamp	
100-6333-Length" Clamp/Clamp	



**check » shift » accelerate » park**

## Markets

TRUCK



BUS



CONSTRUCTION



AGRICULTURE

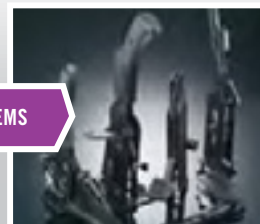


MILITARY

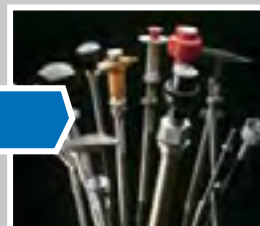


## Products

PARK BRAKE SYSTEMS



MECHANICAL  
CONTROL CABLES



FLUID LEVEL INDICATORS



ELECTRONIC THROTTLE  
CONTROL SYSTEMS



SHIFT CONTROL SYSTEMS



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