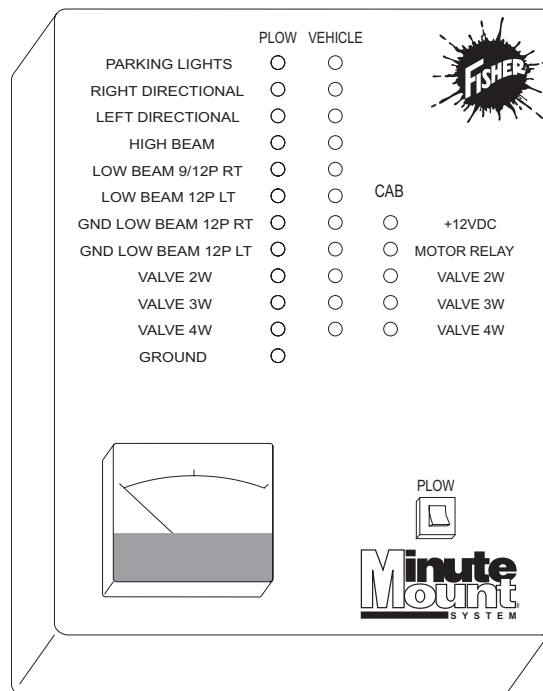




# Electrical Tester Operator's Manual for Straight-Blade Snowplows with Isolation Module Electrical System



## **⚠ CAUTION**

Read this document before testing any FISHER® snowplows.

## **⚠ CAUTION**

See your FISHER® outlet for application recommendations. The Kit Selection Guide has specific vehicle and snowplow requirements.

# SAFETY

## SAFETY DEFINITIONS

### WARNING

Indicates a potentially hazardous situation, that if not avoided, could result in death or serious personal injury.

### CAUTION

Indicates a situation that, if not avoided, could result in damage to product or property.

**NOTE:** Identifies tips, helpful hints, and maintenance information the owner/operator should know.

## BEFORE YOU BEGIN

### WARNING

Lower blade when vehicle is parked. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.

### WARNING

The tester shall keep bystanders clear of the blade during this test. Do not stand between the vehicle and the blade. A moving or falling blade could cause personal injury.

### CAUTION

Before starting any test, the snowplow must be properly attached to the vehicle.

- Park the vehicle on a level surface, place shift lever in PARK or NEUTRAL and set parking brake.

## PERSONAL SAFETY

- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt and dust.
- Avoid touching hot surfaces such as the engine, radiator, hoses and exhaust pipes.
- Always have a fire extinguisher rated BC handy, for flammable liquids and electrical fires.

## FIRE AND EXPLOSION

### WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

## BATTERY SAFETY

### CAUTION

Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

Batteries contain sulfuric acid which burns skin, eyes and clothing.

Disconnect the battery before removing or replacing any electrical components.

## FUSES

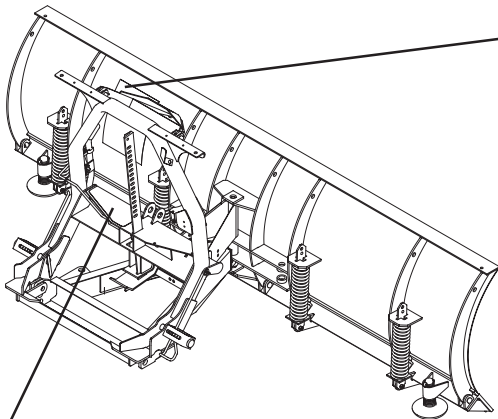
The vehicle control harness contains two automotive-style fuses. One fuse is for the snowplow park/turn lamp power and the other is for the snowplow control power. If a problem should occur and fuse replacement is necessary, the replacement fuse should be of the same value as the original. Installing a fuse of a larger value could damage the system.

# SAFETY

## WARNING/CAUTION & INSTRUCTION LABELS

Become familiar with and inform users about the warning labels on the back of the blade, and the instruction label located either on the headgear or back of the blade.

### Minute Mount® 2 System with Straight Blades



#### Instruction Label

Headgear  
Jack (fully raised)  
Jack (lowered)  
Pin Release Handle (raised)  
Stop  
Jack Lock  
Attachment Arm  
Pushplate  
Pin Release Handle (lowered)  
Jack  
Connecting Pin

1. Push **Pin Release Handle** down to pull out **Connecting Pins**.
2. Drive vehicle slowly to engage **Pushplates** into **Attachment Arms**.
3. Stand in front of blade. Fully raise **Pin Release Handle** to release **Connecting Pins**.
4. Push **Headgear** toward vehicle to allow **Connecting Pins** to fully engage **Pushplates**.
5. Pull out **Jack Lock**. Push **Pin Release Handle** into **Stop**.
6. While holding **Jack Lock** out, use **Jack Handle** to raise **Jack** fully. Release **Jack Lock**.
7. Attach all electrical connectors.

1. Place control in Lower/Float to put blade down.
2. Pull and hold **Jack Lock** out. **Jack** will drop to ground. Then pull **Pin Release Handle** away from **Stop** and **Jack Lock**. Release **Jack Lock**.

3. Stand in front of blade. While pushing **Headgear** toward vehicle with left hand, push **Pin Release Handle** down to disengage **Connecting Pins**. Make sure **Connecting Pins** are fully retracted.
4. Detach all electrical connectors.

U.S. Patents 4,280,062; 4,999,935; 5,353,530; 5,420,480; RE 35,700; 6,253,470; CAN Patent 2,060,425; and other patents pending.

Read Owner's Manual For Complete Instructions

ATTACH
DETACH

27451

### Warning/Caution Label

**WARNING**

**LOWER BLADE WHEN VEHICLE IS PARKED.**

**REMOVE BLADE ASSEMBLY BEFORE PLACING VEHICLE ON HOIST.**

**DO NOT EXCEED GVWR OR GAWR INCLUDING BLADE AND BALLAST.**

**CAUTION**

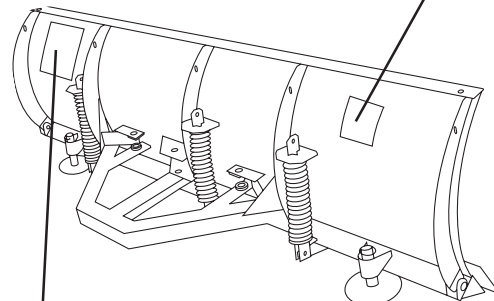
**READ OWNER'S MANUAL BEFORE OPERATING OR SERVICING SNOWPLOW.**

**TRANSPORT SPEED SHOULD NOT EXCEED 45 MPH. REDUCE SPEED UNDER ADVERSE TRAVEL CONDITIONS.**

**PLOWING SPEED SHOULD NOT EXCEED 10 MPH.**

**SEE YOUR SALES OUTLET FOR APPLICATION RECOMMENDATIONS.**

### Original Minute Mount® System with Straight Blades



#### Instruction Label

U.S. Patents  
 4,280,062; 4,999,935;  
 5,353,530; 5,420,480  
 and other patents  
 pending

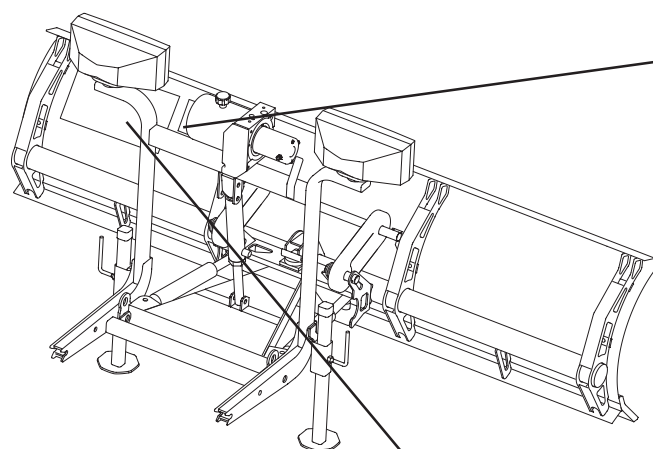
MOUNTING PLOW	REMOVING PLOW
<div style="text-align: center; font-size: x-small; margin-bottom: 10px;">A</div> <ol style="list-style-type: none"> <li>1. Drive vehicle forward fully engaging pushplates into attachment arms.</li> </ol> <div style="text-align: center; font-size: x-small; margin-bottom: 10px;">B</div> <ol style="list-style-type: none"> <li>1. Twist connecting pin to release tension.</li> <li>2. Remove electrical covers on vehicle.</li> <li>3. Attach electrical connector to corresponding connector on vehicle.</li> <li>4. Repeat steps B 1-3 on passenger side of vehicle.</li> <li>5. Connect hydraulic hoses to quick disconnects. (BELT DRIVE ONLY)</li> </ol> <div style="text-align: center; font-size: x-small; margin-bottom: 10px;">C</div> <ol style="list-style-type: none"> <li>1. Release carrying chain and reattach it leaving plenty of slack.</li> <li>2. Push headgear upward toward vehicle until connecting pins snap in place.</li> <li>3. Pull jack lever outward and</li> </ol>	<div style="text-align: center; font-size: x-small; margin-bottom: 10px;">C</div> <ol style="list-style-type: none"> <li>1. Remove slack from carrying chain and reattach.</li> <li>2. Back vehicle away from plow.</li> </ol> <div style="text-align: center; font-size: x-small; margin-bottom: 10px;">B</div> <ol style="list-style-type: none"> <li>1. Disconnect electrical connector and reinsert in protective cover.</li> <li>2. Insert release rod under jack collar.</li> <li>3. Push down on release rod as you pull and twist connecting pin.</li> <li>4. Repeat Steps B 1-3 on passenger side.</li> <li>5. Disconnect hydraulic hose couplings and cover with dust plugs.</li> </ol> <div style="text-align: center; font-size: x-small; margin-bottom: 10px;">A</div> <ol style="list-style-type: none"> <li>1. Place cab control in "Lower/Float".</li> <li>2. Push lift arm down.</li> <li>3. Pull jack lever outward. Jack stand will adjust to proper height.</li> </ol>

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# SAFETY

## Homesteader™ Personal Plow

## Warning/Caution Label



### WARNING

LOWER BLADE WHEN VEHICLE IS PARKED.

REMOVE BLADE ASSEMBLY BEFORE PLACING VEHICLE ON HOIST.

DO NOT EXCEED GVWR OR GAWR INCLUDING BLADE AND BALLAST.



### CAUTION

READ *OWNER'S MANUAL* BEFORE OPERATING OR SERVICING SNOWPLOW.

TRANSPORT SPEED SHOULD NOT EXCEED 45 MPH. REDUCE SPEED UNDER ADVERSE TRAVEL CONDITIONS.

PLOWING SPEED SHOULD NOT EXCEED 10 MPH.

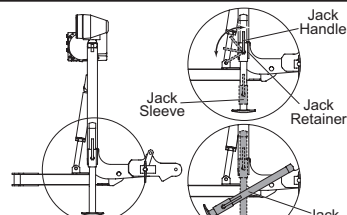
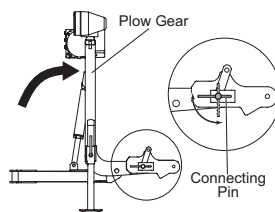
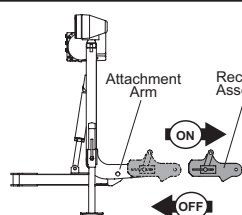
SEE YOUR SALES OUTLET FOR APPLICATION RECOMMENDATIONS.

## Instruction Label

***This snowplow is for personal/homeowner use only.***

### ATTACH INSTRUCTIONS

1. Make certain both **connecting pins** are fully retracted.
2. Drive vehicle slowly to completely insert **attachment arms** into **receiver assembly** slots.
3. Twist both **connecting pins** to release spring tension, then push **plow gear** toward vehicle so **connecting pins** fully engage holes in **attachment arms**.
4. Loosen one **jack handle** and slide **jack sleeve** down below **jack retainer**. Remove **jack** and retighten **jack handle**. Repeat for other **jack** and store them.
5. Connect all electrical cables from vehicle to snowplow.



U.S. Patents 4,999,935; 5,420,480; 6,253,470; RE35,700; CAN Patent 2,060,425; and other patents pending.

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5. Back vehicle away from snowplow.

6. See Owner's Manual for proper snowplow storage.

3. While pushing **plow gear** toward vehicle to release **connecting pin** tension, pull **connecting pin** out on one side and twist pin handle to keep pin retracted. Repeat procedure for other **connecting pin**.
4. Disconnect all electrical cables.

1. Put blade on ground using LOWER/FLOAT on snowplow control. Leave control ON and in FLOAT.
2. Attach **jacks**. Loosen **jack handle**, put **jack** on ground, and raise **jack sleeve** until fully engaging **jack retainer**. Tighten **jack handle**. Repeat for other **jack**.

### DETACH INSTRUCTIONS

Read Owner's Manual for Complete Instructions

# STRAIGHT BLADE ELECTRICAL TEST PROCEDURE

## TEST PREPARATION

- Connect the Electrical Tester's red clip to the positive battery terminal and the black clip to the negative terminal. Connect the black clip last. When disconnecting, disconnect it first.
- If a tester LED does not come on, the fault could be an open lamp element, an open circuit, or both.
- The tester cannot verify that lamp elements wired in parallel are good.
- All vehicle lamps must be operational. An open lamp may cause false test results.
- **For Fish-Stik® Control:** Automatically cancels float in angle right or left.

**For Joystick Solenoid Control:** After activating the LOWER function, valve 2W will remain activated until float is canceled. Before you test the ANGLE LEFT or the ANGLE RIGHT function, cancel float (and deactivate valve 2W) by momentarily activating the RAISE function.

- The Electrical Tester is protected by a circuit breaker. A tripped breaker indicates a direct short. Reset by pushing in the button located on the front panel.
- There are no user-serviceable parts inside the Electrical Tester. For repair, return the Electrical Tester to your sales outlet.

3. Use the amp meter adjusting screw to adjust the meter to zero.
4. Connect the tester leads to the vehicle battery.
  - **The tester +12VDC LED is ON.**
5. Turn the ignition to RUN. **Do not** start the engine.
6. Plug the cab control into the vehicle control harness.

**For Fish-Stik Control:** The LED\* under the control logo is on. Press the power button.

**For Joystick Solenoid Control:** Turn the control power switch on. The control indicator LED is on.
7. Operate the cab controls. Refer to the chart below and verify the current draw. For all but the LOWER function, listen for a click as the motor relay energizes.
8. If required, repair or replace components, and retest.
9. The test is complete. Turn off the ignition and disconnect the tester.

For further information refer to the *Straight Blade Mechanic's Guide featuring the Isolation Module Electrical System*.

\* Early hand-held control models do not have logo or FLOAT LED's.

## CURRENT DRAW TEST

A zero (0) reading indicates an open circuit. A low or high reading indicates a poor connection, a burned out bulb, a bad cartridge coil, or corrosion. The currents listed are approximate.

1. Connect the tester 2-pin connector to the plow battery cable.
2. Connect the plow control harness (3-pin) to the vehicle control harness. Connect the plow lighting harness (11-pin) to the vehicle lighting harness.

CONTROL – CURRENT DRAW (AMPS)

RAISE	1.5
LOWER*	1.5
ANGLE RIGHT	1.5
ANGLE LEFT	3.0

\* After activating the LOWER function, cancel FLOAT by activating the RAISE function.

# STRAIGHT BLADE ELECTRICAL TEST PROCEDURE

## CAB CONTROL TEST

This procedure tests the cab control functions only.

1. Connect the tester leads to the vehicle battery.

- The tester +12VDC LED is ON.

2. Plug the cab control into the tester.

**For Fish-Stik® Control:** The LED\* under the control logo is ON. Press the power button. The POWER LED is ON.

**For Joystick Solenoid Control:** Turn the control power switch on. The control indicator LED is ON.

3. Operate the control, and refer to the charts below. Verify that the indicated Cab LED's come on. Cancel float after the LOWER function by activating the RAISE function.

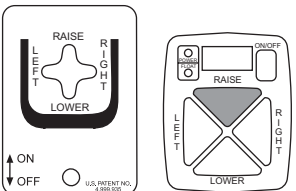
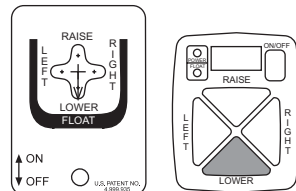
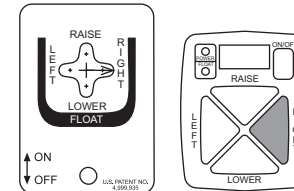
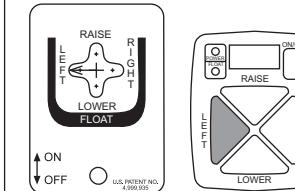
4. **For Fish-Stik Control:** Verify the control time-outs. For all except the LOWER function, if you press and hold the buttons, the tester's Motor Relay and Valve LED's time out automatically. For the LEFT and RIGHT buttons the time-out is approximately 4.25 seconds. The time-out for the RAISE button is 2.5 seconds.

Press and hold the LOWER button – after .75 seconds the FLOAT LED\* comes on. Cancel float by pressing the RAISE button.

5. If any LED does not come on, repair or replace components, and retest.
6. The test is complete. Disconnect the tester.

For further information refer to the *Straight Blade Mechanic's Guide featuring the Isolation Module Electrical System*.

\* Early hand-held control models do not have logo or FLOAT LED's.

RAISE	LOWER	ANGLE RIGHT	ANGLE LEFT
			
<b>CAB</b> <input checked="" type="radio"/> +12VDC <input checked="" type="radio"/> MOTOR RELAY <input type="radio"/> VALVE 2W <input type="radio"/> VALVE 3W <input checked="" type="radio"/> VALVE 4W	<b>CAB</b> <input checked="" type="radio"/> +12VDC <input type="radio"/> MOTOR RELAY <input checked="" type="radio"/> VALVE 2W <input type="radio"/> VALVE 3W <input type="radio"/> VALVE 4W	<b>CAB</b> <input checked="" type="radio"/> +12VDC <input checked="" type="radio"/> MOTOR RELAY <input type="radio"/> VALVE 2W <input checked="" type="radio"/> VALVE 3W <input type="radio"/> VALVE 4W	<b>CAB</b> <input checked="" type="radio"/> +12VDC <input checked="" type="radio"/> MOTOR RELAY <input type="radio"/> VALVE 2W <input checked="" type="radio"/> VALVE 3W <input checked="" type="radio"/> VALVE 4W

# STRAIGHT BLADE ELECTRICAL TEST PROCEDURE

## SNOWPLOW HARNESS TEST

This procedure tests continuity in the snowplow harnesses.

1. Connect the tester 12-pin connector to the **"Y" Adapter Cable** (part number 26482) 12-pin connector. Connect the **"Y" Adapter Cable's** 7 and 11-pin connectors to the snowplow harnesses.
2. Connect the **"Y" Adapter Cable** ORANGE/BLACK wire to a good vehicle ground. Connect the tester 2-pin connector to the snowplow battery cable.
3. Connect the tester leads to the vehicle battery.

- The tester +12VDC LED is ON.

**NOTE: The tester 2-pin connection is not used for systems with a 7-pin plow harness.**

4. Refer to the chart at right and verify the indicated snowplow LED's are ON.
5. If any LED is not ON, repair or replace components, and retest.
6. The test is complete. Disconnect the tester.

For further information refer to the *Straight Blade Mechanic's Guide featuring the Isolation Module Electrical System*.

Isolation Module System	
	SNOWPLOW LED
PARKING LIGHTS	●
RIGHT DIRECTIONAL	●
LEFT DIRECTIONAL	●
HIGH BEAM	●
LOW BEAM 9/12P RT	●
LOW BEAM 12P LT	○
GND LOW BEAM 12P RT	○
GND LOW BEAM 12P LT	○
VALVE 2W	●
VALVE 3W	●
VALVE 4W	●
GROUND	●

# STRAIGHT BLADE ELECTRICAL TEST PROCEDURE

## VEHICLE CONTROL HARNESS TEST

This procedure tests continuity in the **vehicle control harness only**.

1. Disconnect the snowplow electrical connectors from the vehicle.
2. Connect the tester 12-pin connector to the **"straight" Adapter Cable** (part number 26483) 12-pin connector. Connect the **"straight" Adapter Cable** 7-pin connector to the vehicle control harness.
3. Connect the snowplow lighting harness to the vehicle lighting harness.
4. Connect the tester leads to the vehicle battery.
  - **The tester +12VDC LED is ON.**
5. Turn the ignition to RUN. **Do not start the engine.**

6. Plug the control into the vehicle.

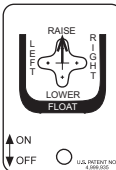
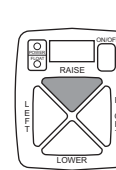
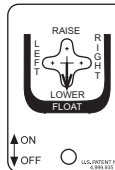
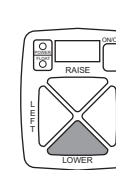
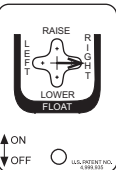
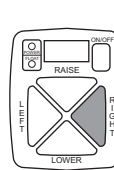

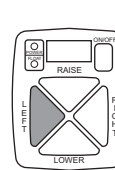
**For Fish-Stik® Control:** The LED\* under the control logo is on. Press the power button. **The POWER LED is ON.**

**For Joystick Solenoid Control:** Turn the control power switch on. **The control indicator LED is ON.**

7. Refer to the control function charts and verify that the indicated vehicle LED's come on. For all but the LOWER function, listen for the click as the motor relay energizes.
8. If indicated LED does not come on or the motor relay does not energize (do not hear the click), repair or replace components, and retest.
9. The test is complete. Turn off the ignition and disconnect the tester.

For further information refer to the *Straight Blade Mechanic's Guide featuring the Isolation Module Electrical System*.

\* Early hand-held control models do not have logo or FLOAT LED's.

CAB CONTROL			
RAISE	LOWER**	ANGLE RIGHT	ANGLE LEFT
 	 	 	 
<p>PLOW VEHICLE</p> <p>VALVE 2W ○ ○</p> <p>VALVE 3W ○ ○</p> <p>VALVE 4W ○ ●</p> <p>GROUND ○</p>	<p>PLOW VEHICLE</p> <p>VALVE 2W ○ ●</p> <p>VALVE 3W ○ ○</p> <p>VALVE 4W ○ ○</p> <p>GROUND ○</p>	<p>PLOW VEHICLE</p> <p>VALVE 2W ○ ○</p> <p>VALVE 3W ○ ●</p> <p>VALVE 4W ○ ○</p> <p>GROUND ○</p>	<p>PLOW VEHICLE</p> <p>VALVE 2W ○ ○</p> <p>VALVE 3W ○ ●</p> <p>VALVE 4W ○ ●</p> <p>GROUND ○</p>

\*\* After activating the LOWER function, cancel float by activating the RAISE function.



## NOTES

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Fisher Engineering  
P.O. Box 529  
Rockland, ME 04841



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