DICKEY-john®
CORPORATION

SAFETY NOTICES

Safety notices are one of the primary ways to call attention to potential hazards.

This Safety Alert Symbol identifies important safety messages in this manual

When you see this symbol, carefully read the message that follows.

Be alert to the possibility of personal injury or death.

⚠ WARNING

Use of the word WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Use of the word CAUTION with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

Use of the word CAUTION without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in equipment damage.

DICKEY-john® CORPORATION

DICKEY-john®

INSTALLATION GUIDE

The Gate Height Sensor (GHS) allows the granular system to be more accurate by automatically adjusting the conveyor speed to meet the application rate when the gate height is changed . The Gate Height Sensor is connected to the main harness lead that is labeled GATE on new harnesses and labeled PRESSURE on old harnesses.
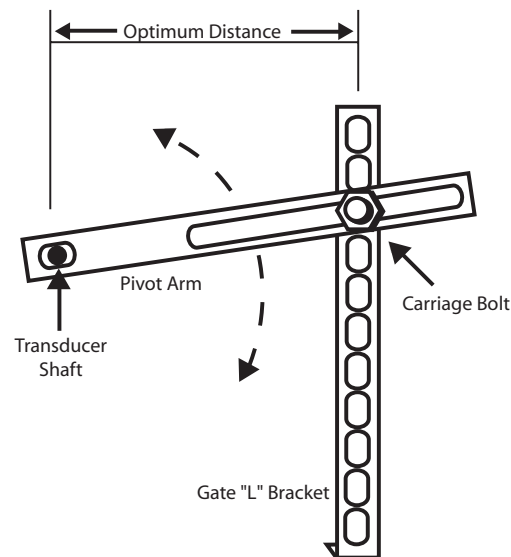
⚠ WARNING

If you have a pressure controlled liquid system, you cannot use the Gate Height Sensor.

PIVOT ARM AND GATE "L" BRACKET

As the gate is raised and lowered, the pivot arm slides on the carriage bolt/spacer, rotating the Transducer input shaft. Thus, once calibrated, the transducer knows the height of the gate from this rotation.

Figure 1

Pivot Arm and Gate "L" Bracket

PREPARATION

Before mounting the Gate Height Sensor, a location must be selected based upon the total working gate height of the spreader. The following chart provides the optimum distance between the "L" bracket and the transducer shaft for specific maximum gate heights. This distance is called the "Pivot Arm Distance".

DICKEY-john®

Figure 2

Optimum Pivot Arm Distance Chart

Max Gate Height	Optimum Pivot Arm Distance
12 inches	7.8 inches (not less than)
10 inches	6.5 inches (not less than)
8 inches	5.2 inches (not less than)

For other Max Gate Heights, the optimum Pivot Arm Distance is 65% of the max gate height.

INSTALLATION

With the gate open to exactly 1/2 of its maximum opening, hold the "L" bracket in place (vertically) and choose a convenient hole in the "L" bracket for the carraige bolt that drives the pivot arm. Scribe a horizontal line through the carriage bolt center onto the panel left (or right) of the gate to be used as a vertical locator for the Transducer shaft. Thus, the pivot arm will be horizontal when the gate is 1/2 open (mid position).
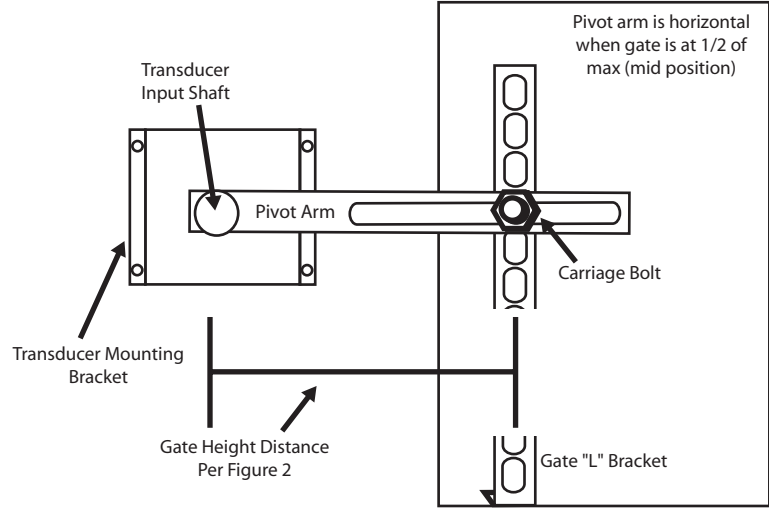
With the vertical position of the Transducer known, select horizontal positions for the "L" bracket and the Transducer so that the distance between the "L" bracket (center) and the Transducer shaft (center) is near, but not less than, the Optimum Pivot Arm Distance from Figure 2.

Refer to Figure 3 for an overview. The Transducer can be mounted left of the gate when facing the rear of the truck (as shown in Figure 3), or on the right. The same mounting principles apply. When mounting the Transducer on the left, the Transducer should be oriented so that the anti-rotation pin is on top (Transducer wires down). When mounted on the right, the anti-rotation pin should be on the bottom (Transducer wires exiting upward). In this case, loop the wires down to clear the cover plate.

Figure 3 provides an overview of the mounting configuration.

INSTALLATION MANUAL

DICKEY-john®

Figure 3

Mounting Configuration

Pivot arm is horizontal when gate is at 1/2 of max (mid position)

Transducer Input Shaft

Pivot Arm

Carriage Bolt

Transducer Mounting Bracket

Gate Height Distance Per Figure 2

Gate "L" Bracket
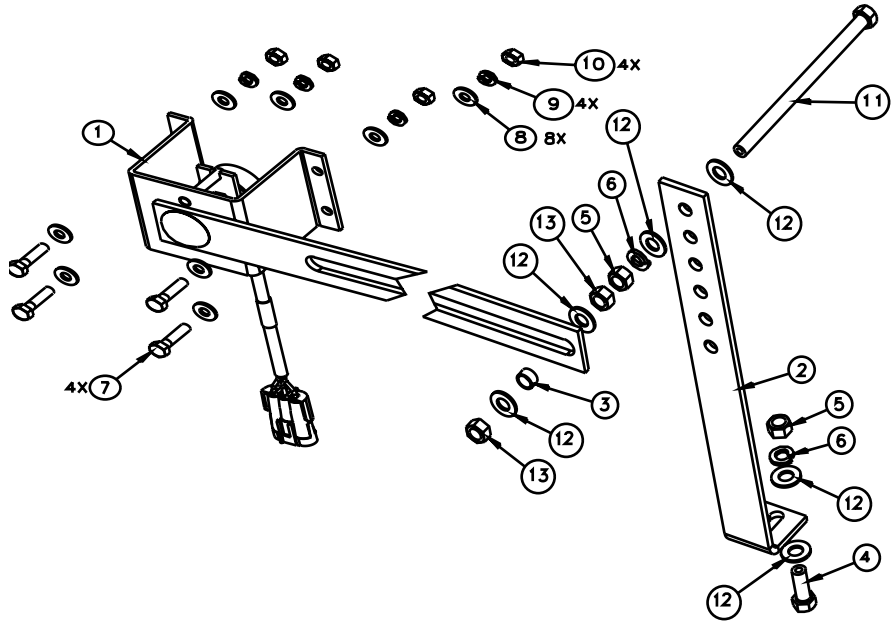
DICKEY-john®

GATE HEIGHT SENSOR COMPONENTS

The following diagrams illustrate the Gate Height Sensor with all parts that comprise the unit.

Figure 4

Gate Height Components

The following items are included in the Gate Height Sensor kit:

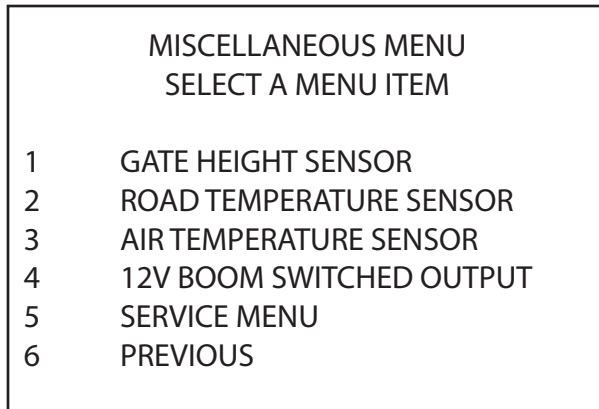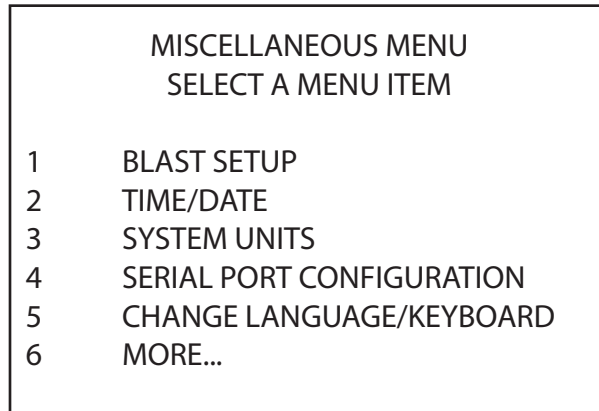| Item	Component #	Description	Qty
1	466492370	GHS Transducer mounting bracket assembly	1
2	466491730	L-bracket, GHS	1
3	466491760	Spacer, 3/8" Slider, GHS	1
4	200140096	Screw 3/8-16 x 1 HH SST	1
5	200400070	Nut, 3/8-16 SST	2
6	200650022	Lockwasher 3/8 SST	2
7	200140097	Screw 1/4-20 x 1 HH SST	4
8	200000123	Washer, Flat SST	8
9	200650024	Lockwasher 1/4" SST	4
10	200400002	Nut Hex 1/4-20 SST	4
11	200140098	Screw 3/8-16 x 6.00 HHC SST	1
12	200000133	Washer, Flat 3/8" SST	6
13	205660024	Nut, Self Locking 3/8-16 SST	2

DICKEY-john®
CORPORATION

SOFTWARE CONFIGURATION

Version 6.5 software has removed pressure control from the Control Point and utilizes the pressure sensor input for the gate height. When enabled, the gate height will be displayed to the nearest .1 inch (1 cm) on the lower right corner of the OPERATE screen. The configuration and calibration of the Gate Height Sensor is found under **Miscellaneous** (F12), **More** (6), **Gate Height Sensor** (1).

Figure 5

Configuration Screen

```
        MISCELLANEOUS MENU
        SELECT A MENU ITEM

    1      BLAST SETUP
    2      TIME/DATE
    3      SYSTEM UNITS
    4      SERIAL PORT CONFIGURATION
    5      CHANGE LANGUAGE/KEYBOARD
    6      MORE...
```

```
        MISCELLANEOUS MENU
        SELECT A MENU ITEM

    1      GATE HEIGHT SENSOR
    2      ROAD TEMPERATURE SENSOR
    3      AIR TEMPERATURE SENSOR
    4      12V BOOM SWITCHED OUTPUT
    5      SERVICE MENU
    6      PREVIOUS
```
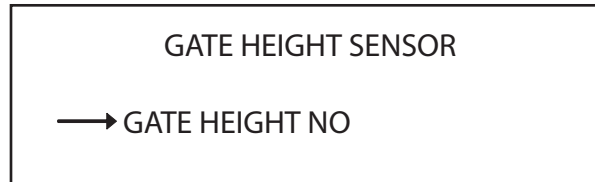
The initial gate height screen has a YES or NO option for the sensor configuration. If NO is selected, the following screen will appear.
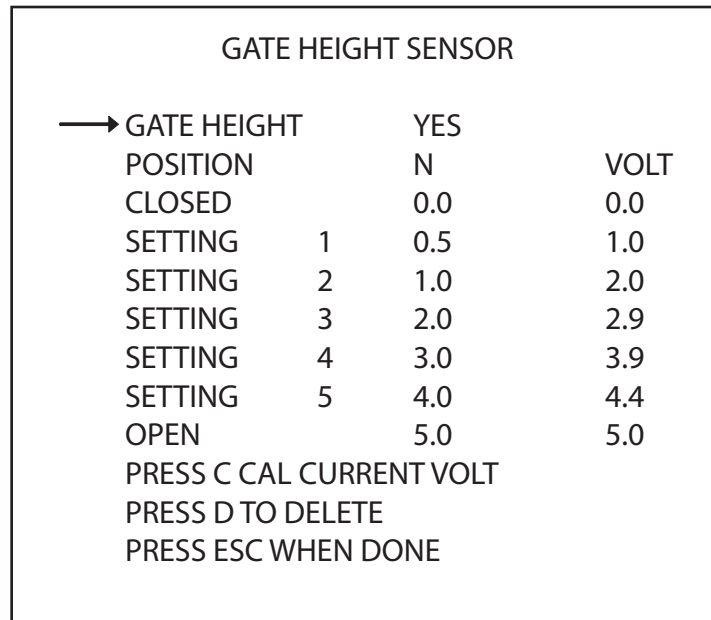
DICKEY-john®

Figure 6

Sensor Configuration Screen - "NO" Option

```
┌─────────────────────────────────────┐
│                                      │
│        GATE HEIGHT SENSOR            │
│                                      │
│  ──→ GATE HEIGHT NO                  │
│                                      │
└─────────────────────────────────────┘
```

If YES is selected, the following screen will appear.

Figure 7

Sensor Configuration Screen - "YES" Option

```
┌──────────────────────────────────────────┐
│                                           │
│          GATE HEIGHT SENSOR               │
│                                           │
│  ──→ GATE HEIGHT        YES               │
│      POSITION           N         VOLT    │
│      CLOSED             0.0       0.0     │
│      SETTING    1       0.5       1.0     │
│      SETTING    2       1.0       2.0     │
│      SETTING    3       2.0       2.9     │
│      SETTING    4       3.0       3.9     │
│      SETTING    5       4.0       4.4     │
│      OPEN               5.0       5.0     │
│      PRESS C CAL CURRENT VOLT             │
│      PRESS D TO DELETE                    │
│      PRESS ESC WHEN DONE                  │
│                                           │
└──────────────────────────────────────────┘
```

There are five user-definable gate heights to enter which will aid in the gate height calibration. Enter five gate height settings that will be used when spreading material.

DICKEY-john® CORPORATION

CALIBRATION

To calibrate the Gate Height Sensor, press "C" and the following screen will appear.

Figure 8

Sensor Configuration Screen

```
                    GATE HEIGHT SENSOR

    ⟶ GATE HEIGHT          YES
        POSITION             N           VOLT
        CLOSED              0.0          0.0
        SETTING      1      0.5          1.0
        SETTING      2      1.0          2.0
        SETTING      3      2.0          2.9
        SETTING      4      3.0          3.9
        SETTING      5      4.0          4.4
        OPEN                5.0          5.0
        PRESS C CAL CURRENT VOLT
        PRESS D TO DELETE
        PRESS ESC WHEN DONE
```

NOTE: *When calibrating the gate height, not all of the positions need to be calibrated. The only required calibration positions are CLOSED and OPEN. Settings 1-5 were added for better accuracy at the operator's desired gate heights. If a two-point calibration is desired, enter the gate height value for the CLOSED and OPEN positions and capture their respective voltages. Then individually select settings 1-5 and press D to delete them. Press ESC when finished.*

1. Point the cursor on the left side of the screen to CLOSED. Set the gate to the closed position.
2. Measure the height at the closed position and enter the gate height value for the CLOSED setting.
3. Press C to capture the current gate height voltage at the CLOSED setting.
4. Move the cursor to SETTING 1. Set the gate to the lowest operating gate height setting.
5. Measure the height at SETTING 1 and enter the gate height value for SETTING 1.
6. Press C to capture the current gate height voltage for SETTING 1.
7. Repeat these steps for SETTINGS 2-5 starting with the next lowest setting.
8. Move the cursor on the Calibration Screen to the OPEN position.
9. Set the gate to the OPEN height.
10. Measure the height at the FULL open position and enter the gate height for the OPEN setting.
11. Press C to capture the current gate height voltage at the OPEN setting.
12. Press ESC when complete.

DICKEY-john®

If the voltage from the sensor is outside the voltage range between the CLOSED and OPEN position values, the display will state GATE LOW or GATE HIGH. If GATE LOW is displayed, the signal from the sensor is below the CLOSED voltage. If GATE HIGH is displayed, the signal from the sensor is above the OPEN voltage. In either case, an alarm will be activated to notify the driver. The alarm will tell the driver to check the gate height and set the gate to X.X (the gate height at which the granular calibration was run) for that granular channel.

If the gate height is enabled, all of the desired granular materials that have been enabled must be calibrated. If materials that have been enabled are not calibrated, the Control Point will not control that material based on gate height.

The following is a diagram of an installed Gate Height Sensor system.

Figure 9

Installed Gate Height Sensor