



Installation Instructions Two Channel Shaft Monitor

Used with Drill models:

- Used with:
- 2N-2410
 - 2N-2420
 - 2N-3010
 - 2N-3020



When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

General Information

This kit provides the implement components necessary to enable the shaft monitor function of the electro-hydraulic console that is standard on 2SNT drills.

Refer to Figure 1

These instructions explain how to install a Two Channel Shaft Monitor Option. The kit adds a rotation sensor to the main seed box meter drive shaft of each drill box.

In operation, when the main seed box shaft of any drill box stops rotating for more than 20 seconds, an alarm sounds in the tractor cab.

One kit updates one entire drill:

Kits	Kit Description
197-106A	2 CHANNEL SHAFT MONITOR KIT

Parts and Tools Required:

- Instructions for performing a calibration on this model drill.
- Basic hand tools, and
- two people suggested for bracket installation.

Compatibility Check

Refer to Figure 1

This kit is compatible with bare shafts, or shafts inside round plastic spacer tubes between meters. It is compatible with large 817-075C seeder cups (1³/₄ inch flute width) on the above-listed models.

Notations and Conventions

The following terms are used throughout this manual.

Call-Outs

- ① to ⑨ Single-digit callouts identify components in the currently referenced Figure. These numbers may be reused for different items from page to page.
- ⑪ to ⑳ Two-digit callouts in the range 11 to 23 reference new parts from the list on page 5.

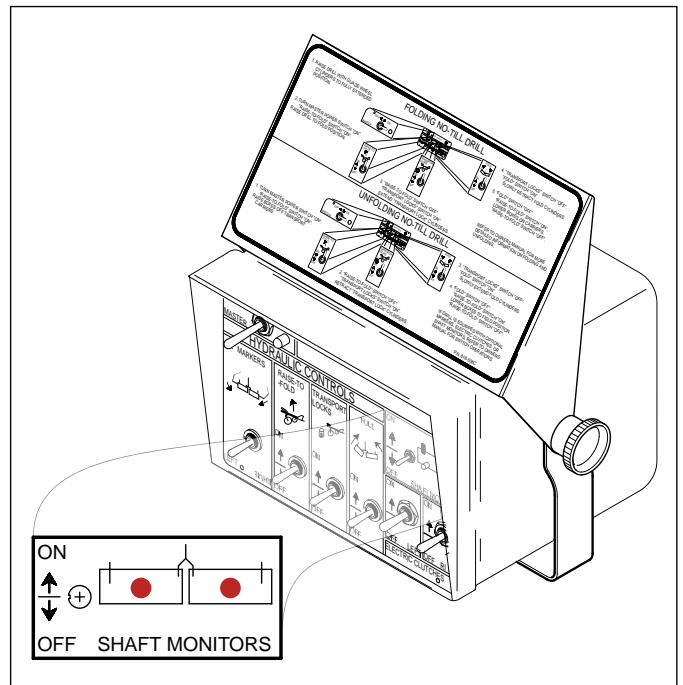
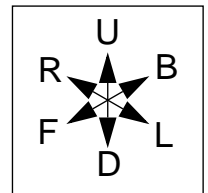


Figure 1
2 Channel Console

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Note: Paragraphs in this format provide useful information related to the current topic.

“Left” and “Right” are facing in the direction of machine travel. An orientation rose in the line art illustrations shows the directions of Left, Right, Front, Back, Up, Down.



Prepare the Drill

1. Clean out main seed boxes.

CAUTION

Possible Chemical Hazard

This installation requires contact with interior components of the main seed box. If treated seed has ever been used in the box, follow chemical supplier instructions for protective equipment and cleaning residue from the seed box.

2. Move the drill to a location with adequate lighting, and a clear surface beneath for recovery of any fallen parts.
3. Unfold the drill. Consult the Operator manual for details and safety considerations.
4. Raise the drill or otherwise configure it so that the meter drive shaft may be rotated while the drill is stationary.
5. Install all locks or supports necessary to support the drill while it is being worked on.
6. Shut off any tractor used to position the drill and remove the key.

Refer to Figure 2

7. Set the seed rate handles ①, for all main seed boxes, to 50 on the 0-to-100 scales.

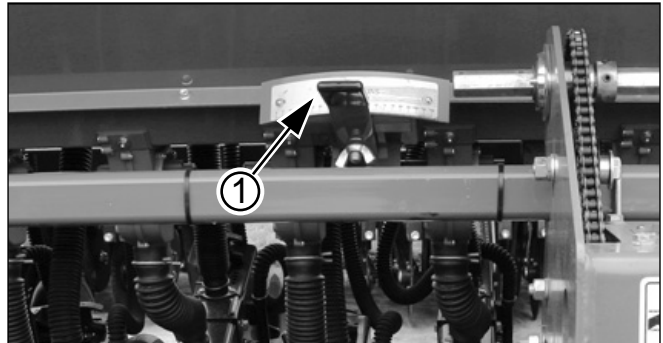


Figure 2
Set Rate Handles to 50

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Identify Mounting Positions

Sensor Mount Install

Refer to Figure 3 on page 3

1. Select one new:
 - ⑫ 116-029D, 2SNT SENSOR MOUNT
2. Find the box section between cups with the two, #8 screws ③, washers, and nuts already in place. Remove the nuts and washers and use for installing the sensor mount ⑫.

If any shaft protective tubing is installed, remove and discard.

Make sure that the locations between cups have the following attributes:

- not obstructed to the front by a seed rate handle, and
 - there is adequate exposed surface on the drive shaft to place the shaft monitor hose ⑬ and shaft monitor magnets ⑭.
3. Mount the end of the sensor mount ⑫ with the holes over the two, #8 screws ③. Make sure the slotted-end of the mount is down and pointing towards the front of the drill.

Notes:

| Gaps with lock collars generally provide exposed shaft.

4. Install the washers and nuts removed in step 2 and tighten the sensor mount ⑫ in place.
5. Attach the reed sensor switch ⑮ at the slotted end of the bracket using two #4-40 screws ⑯, washers ⑰, and nuts ⑱ as shown in Refer to Figure 3. Do not tighten screws at this time.
6. Repeat step 1 through step 4 to install the bracket in the other main seed box.

Install Magnets

Shaft Install

Refer to Figure 3

1. De-grease and dry the seed box shaft ②.
2. Rotate the shaft so that two faces are vertical, and two are horizontal.
3. Select one new:
⑬ 197-270D SHAFT MONTITOR HOSE
4. Slip the shaft monitor hose ⑬ over the shaft ② and center approximately with the middle of the sensor mount ⑫. If necessary, trim hose to fit between the shaft lock collars.
5. Select two new:
⑭ 10630171101 SHAFT MONITOR MAGNETS
6. Slip each magnet ⑭ over the hose ⑬, and position as shown in figure 3. Run each magnet clamp up against each lock collar, then tighten the clamps.
7. Slide the reed sensor switch ⑮ in the mount side-to-side, and front-to-back until it is centered between the magnets and tighten the #4-40 screws ⑯.
8. Repeat steps 1 through 7 to install the other sensor and magnets.

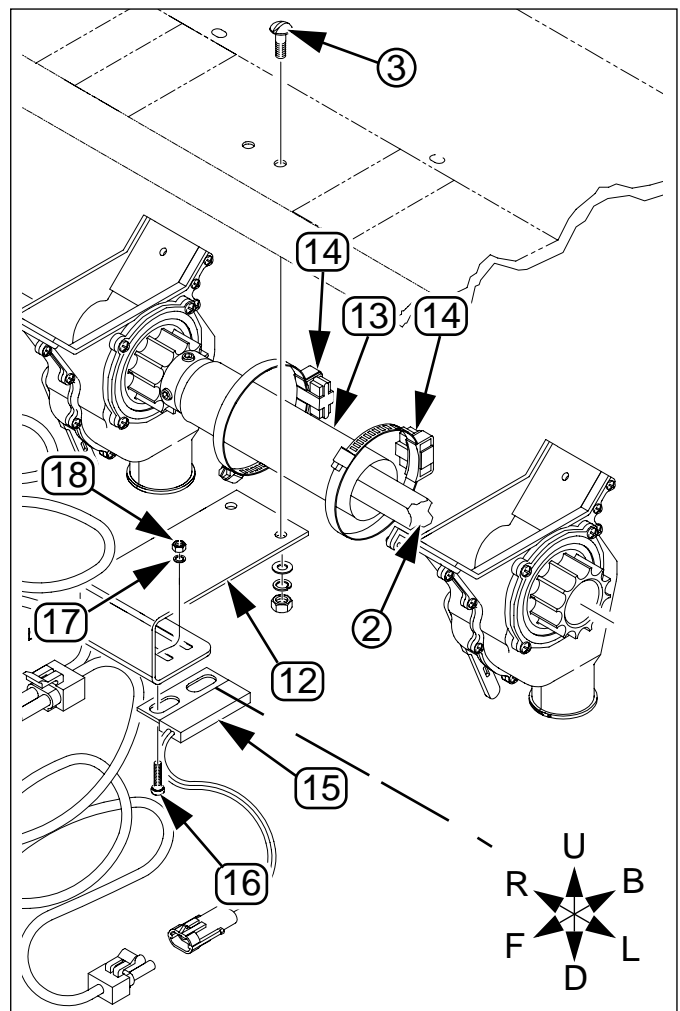


Figure 3
Magnet on Shaft

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Refer to Figure 4

- Typical installation.

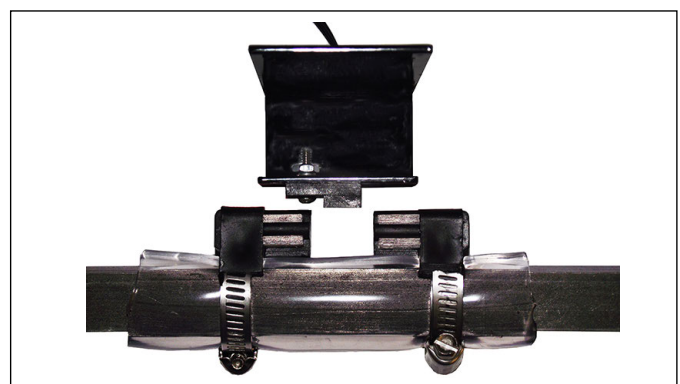


Figure 4
Magnet/Sensor Clearance

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Install Harness

General Harness Guidelines

- Before installing cable ties, uncoil and dress the cable assembly (21) and extensions (22) across the drill and to the hitch. This assures that the cables are long enough, and correctly oriented left/right.
- Keep cables clear of moving parts and pinch points, such as chains, sprockets and rotating shafts.
- Keep cables clear of sharp edges (or protect edges).
- Keep cables clear of any machine parts that get hot.
- Allow slack at hinge points, or route the cable so that it passes through the hinge axis.
- Take advantage of holes and open tubes on the drill. However, avoid routing through a tube if a mated connector set would end up inside the tube.
- Evaluate routing and attachment points. Ample ties are provided for most situations. The ties can also be used around hydraulic hoses to secure the cable.
- Leave a little slack between attachment points. A cable stretched taut could be damaged by normal temperature swings.
- Where there is an extended run of unsupported cable, make sure each end of the sag is supported by a cable tie, and that there are no connections in the sag.
- Where excess cable exists (such as on two-point drills), plan a location for coiling it up and securing it. Having the coil near the hitch provides flexibility if any later troubleshooting required.
- Before making outside connections, apply a generous amount of dielectric grease around the inside surface of all female (receptacle) connectors.

Appendix

Part Lists

New Parts

The part call-out numbers in this list match all Figures in these installation instructions. Part descriptions match those in your updated Parts Manual. Quantities are units ("ea").

Kit Contents

197-106A TWO CHANNEL SHAFT MONITOR OPTION

Callout Number	Quantity in Kit	Part Number	Part Description
11	1	197-114M	24' & 30' SHAFT MONITOR MANUAL
12	2	116-029D	2SNT SENSOR MOUNT
13	2	197-270D	SHAFT MONTITOR HOSE
14	4	10630171101	SHAFT MONITOR MAGNETS
15	2	117-0159-964 ^a	REED SENSOR SWITCH (INCLUDES 21 & 23)
16	4	311-0005-013 ^a	SCREW PHP HD 4-40 UNC-2A
17	4	312-1001-008 ^a	WASHER #4 LOCK
18	4	313-1000-004 ^a	NUT HEX #4 UNC-2B
19	1	823-119C	2SNT SHAFT SENSOR CABLE
20	2	063-0172-375 ^a	SENSOR SHAFT
21	1	115-0159-661	SENSOR CABLE ASSEMBLY
22	2	115-0171-490 ^a	SENSOR CABLE EXTENSON 3FT
23	1	117-0159-564	2SNT SHAFT MONITOR

a. Order replacements from Raven Industries, Inc.

Great Plains Manufacturing, Inc.

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