10260 Retrofit to 10260A Non-Contact Sensor Instructions Kits 51404974-501 through -512

Document Number

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Summary

Retrofitting your 10260 actuator from slidewire to non-contact sensor is a procedure that uses several smaller replacement kits. **Each replacement kit comes with its own instructions—***do not use them*. Refer only to this document.

These instructions cover all versions of retrofits available.

Parts

See Table 2 on pages 13-15 for a list of all parts. In the installation procedure some parts are referred to by "item number"; Table 2 cross-references the item number with the part number and description.

Overview of procedure

- Remove all three covers to gain access.
- Remove rotary position sensor assembly, if so equipped.
- Remove cams and slidewire(s), if so equipped.
- Remove and replace switches, if so equipped.
- Install new cams, if applicable.
- Install non-contact sensor and bracket.
- Install transformer.
- Connect wiring to output card.
- Install output card above cams.
- Install/replace 4-20 input (Motor positioner board), if applicable.
- Connect wiring.
- Adjust limit and auxiliary switches by calibrating the cams.
- Calibrate non-contact sensor.

Abbreviations used

NCS: Non contact sensor

Procedure

See Table 1 for retrofit upgrade procedure.

WARNING

Electric shock. Disconnect power from all sources (including optional 24 Vdc) before accessing components inside the instrument. **Failure to do so may result in death or serious injury.**

ATTENTION

When retrofitting the following model numbers a dedicated "Hot" wire (18 gage) is required to power the transformer. This wire to be supplied by customer. Wiring instructions provided in Step 8 of this procedure.

Model numbers affected: 01026x-x-XXXX where XXXX is 0000, 0031, 0034, 0041, 0042, 0043, 0050, 0060, 0070, 0100, 0134, 0141, 0142, 0143, 0160, 0170, 0200, 0234, 0241, 0242, 0243, 0260, 0270 and 0300.

CAUTION

- When working with circuit cards always protect against electrostatic discharge by wearing a
 grounded wrist strap. Failure to do so may damage the product.
- Keep all wiring away from movable parts inside the unit. Failure to do so may damage the wires during operation.

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Table 1 10260A Retrofit Procedure

Step **Action** 1 Remove top cover and both rear covers. 2 Remove entire 4-20 output rotary position sensor assembly, if so equipped: TOP VIEW Spring Electronics Rotary Cam Follower Plain Washer Retaining Plate a/n 23197 FRONT VIEW Figure 1 Rotary position sensor assembly Identify and mark wire from rotary sensor board connected to terminal #3. Identify and mark wire from rotary sensor board connected to terminal #4. At the rotary sensor board end cut wires connected to terminals #3 and 4. Remove nuts and spacers securing plate assembly and remove hardware and electronics assembly. See Figure 1. Using small wire nut crimps, connect the wires from terminals #3 and #4 on the Rotary Position Sensor Assembly to the gray and yellow wires on 51404956-001. From the Molex connector (end opposite the 2 ring terminals) cut the gray and yellow wires about 3" away. Strip 1/4" of insulation off the ends of all four of the wires. Using the small wire nut crimps, connect the Yellow wire to the wire from terminal #3, and the Gray wire to the wire from terminal #4. The Molex connector will be installed on the J1 header of 51404885-502 (the current output). See Figure 9.

Table 1 10260A Retrofit Procedure

Step Action 3 Remove cam assembly, if so equipped: If your instrument has only 2 limit switches and cams, remove each item from the camshaft, one at a time and place it aside in the order you removed it. The last items you remove are the slidewire contact and a brown spacer—discard these and reinstall all removed items in their original order (Figure 2). Replace the hex nut on the cam bushing with the new brass lock nut. Since you discarded the slidewire contact, loosen the 2 hex head screws, realign the cams directly over the switches, and tighten the hex head screws. Figure 2 Two-cam reassembly If installing 2 cams, install adapter (51205699-001) with 2 hex screws (304895) on camshaft. If your instrument has 3 or more switches and cams, loosen 2 hex head screws securing cam assembly to shaft and remove all items (cams, washers, spacers) from the shaft. If slidewire is present, you must also remove the slidewire contact along with the cams--see step 4. If using any auxiliary switches (that is, more than 2 switches), discard entire cam assembly. New cam assembly will be used. 4 Remove single or dual slidewire assembly, if so equipped: Single slidewire Dual slidewire iolet Blue White/ Light White/ Gray Blue Red Orange Figure 3 Slidewire assembly There are 3 wires on each slidewire assembly. Your wire colors may vary from Figure 3. Cut all wires close to their slidewire connections. If installing retrokit -501, -502, -511, or -512 and two slidewires are present, the gray wire is no longer needed; cap it with a small wire nut crimp. With cable 51404922-001 (yellow and orange wires), use small wire nut crimps to connect the violet to yellow and light blue to orange. Connection will be made later (to J4). With cable 51205704-001, use small wire nut crimps to connect white/blue to red, white/orange to yellow, and white/red to blue. Connections will be made later (to J6).

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Table 1 10260A Retrofit Procedure

C4	Antina
Step	Action
4 (cont'd)	• If installing retrokit –501, –502, –511, or –512 and one slidewire is present, with cable 51205704-001 (yellow, blue and red wires) use small wire nut crimps to connect violet to red, light blue to yellow, and gray to blue. Connections will be made later (to J6).
	• If installing retrokit –503 or –504, cut all wires close to their connections to the slidewire. The gray wire is no longer needed; cap it with a small wire nut crimp. With cable 51404922-001 (yellow and orange wires), use small wire nut crimps to connect the violet to yellow and light blue to orange. Connection will be made later (to J4).
	• If installing retrokit –505 or -506, and a Rotary Position Sensor Assembly was present, connect the Molex connector onto J1 (see Step 2 for construction instructions). Remove green wire from 51404956-001 by carefully cutting the cable tie and connect the ring lugs from the mounting screw on 51404885-502 to a screw into the case (a mounting screw may be used for this purpose).
	• If installing retrokit –505 or –506, and no Rotary Position Sensor Assembly was present on the unit use cable 51404956-001 to connect the current output on 51404885-502 to two vacant screws on the customer wiring terminals (terminals 20 and 21 may be used if not already taken). Using 51404956-001, plug the Molex connector (end opposite the 2 ring terminals) into J1 on 51404885-502 (see Figure 9). Place the ring lug on the green wire under the mounting screw of 51404885-502. Secure the other end of the green wire to a screw into the case at a convenient location. The other end of the gray and yellow wire (with the ring lugs on them) should be routed through the hole in the bottom of the compartment and onto the screw terminals indicated above. The gray wire is the negative connection; and the yellow wire is the positive terminal. "
	• If installing retrokit –507 through –510, cut all 3 (or 6) wires shown at both ends—they are no longer needed.
	• If a second slidewire is present on the right side, cut the wires and terminate them with small wire nut crimps, as they will no longer be used. Exception: on models with 4-20 mA input and slidewire output do not terminate the cut wires. Exception model numbers: 1026x-x-XXXX-xxxxxxxxxx-x where XXXX = 0083, 0183, 0283, 1583, 1683. On older models, 1026x-xx-XX-xxx-xxx-xxx-xxx where XX = 82, 83. With cable 51205704-001, use small wire nut crimps to connect white/blue to red, white/orange to yellow, and white/red to blue. Connections will be made later (to J6).
	 Remove screws securing slidewire(s) plus the 2 screws above securing the slidewire contact wire. Remove all slidewire hardware, including slidewire contact(s) along with cams.
5	If your instrument has 3 or more switches, replace them:
	 This kit contains 4 switches pre-assembled. If your instrument has less than 4 switches install the pre-assembled switch assembly and only wire 2 or 3 switches. If your instrument has more than 4 switches, add the extra switches to the 4-switch assembly, according to Figure 4. Longer bolts are provided to accommodate extra switches.
5	

Table 1 10260A Retrofit Procedure

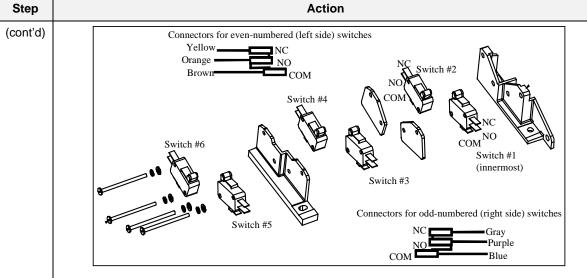


Figure 4 Exploded view of upgrade switch assembly (51205550-501)

- The switch kit contains 3 groups of 6 colored wires. Connect these wires to the switch assembly using one wire group for every 2 switches. See Figure 4 for connections.
- Looking in the rear of the instrument, notice that the existing switches are on the left side with their terminals facing left, with Switch #1 farthest in (nearest the front of the instrument), then Switch #2, then Switch #3, etc. Compare this to the new switch assembly that has Switch #1 farthest back but has odd-numbered switches on the right, not the left as before. See Figure 4.
- You will replace the switches but leave the old wiring in place. Therefore you must cut each old
 wire, cut its corresponding new wire, and connect them with small wire nut crimps provided. Be
 sure to cut and connect one wire pair before moving on to the next pair. See Figure 5.
 NOTE: Wire colors may be different on your old switches but the terminals are always as shown
 (NO top, COM middle, and NC bottom).

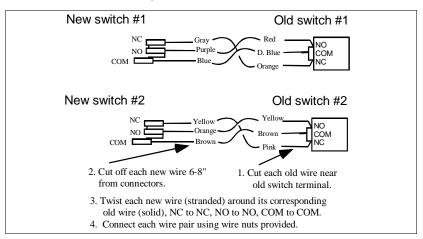


Figure 5 Connecting new wires to old wires

You should now have a new switch assembly that is wired to the old wires. Use a slotted screwdriver to remove the 2 or 4 screws securing the old switches. Install the new switch assembly using the 2 or 3 screws (155) and washers provided. See Figure 7. For retro kits 51404974-503 through 510, also connect ground wire as shown in Figure 7. Leave the screws somewhat loose so the cams can be installed easier.

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Table 1 10260A Retrofit Procedure

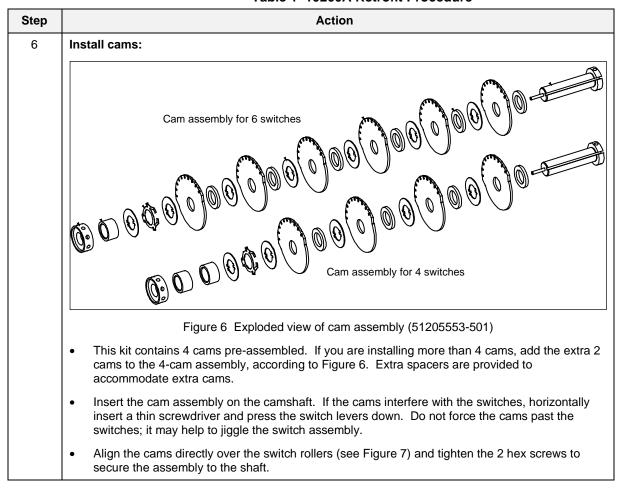
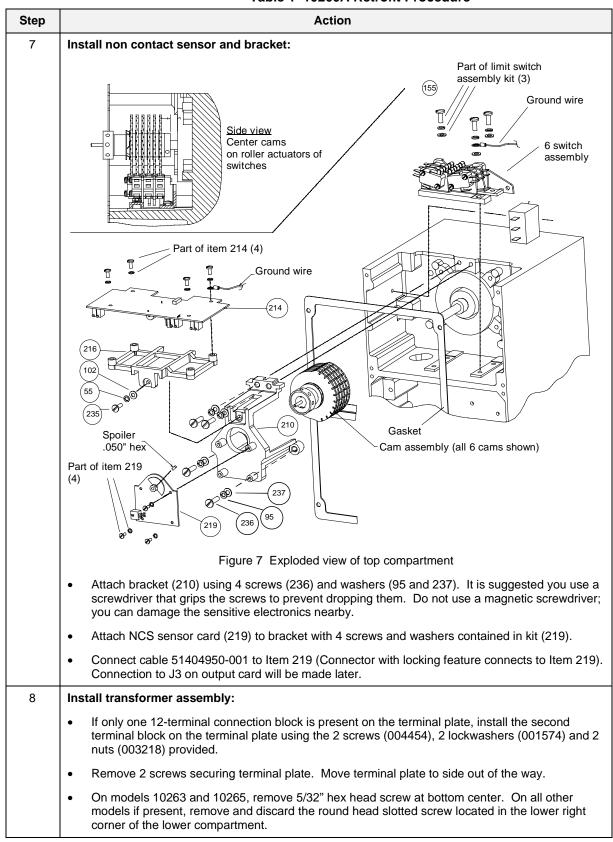


Table 1 10260A Retrofit Procedure



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Table 1 10260A Retrofit Procedure

Step	Action
8 (cont'd)	See Figure 8. Remove resistor and capacitor from lower compartment and install transformer/bracket assembly. Leave resistors (if any) on right side in place.
(cont u)	Discard resistor mounting plate and reinstall resistor and capacitors on transformer assembly using either Items 167 and 168 or Items 55 and 235 as shown in Figure 8.
	If round head screw was discarded in the previous step, replace with Item 235.
	Feed the 3 groups of 3 colored transformer wires up through hole to upper compartment.
	 For 120 V, cut red wire and terminate with large wire nut crimp. For 240 V, cut black wire and terminate with large wire nut crimp.
	• When retrofitting the following models no's: 01026x-x-0000, 0031, 0034, 0041, 0042, 0043, 0050, 0060, 0070, 0100, 0134, 0141, 0142, 0143, 0160, 0170, 0200, 0234, 0241, 0242, 0243, 0260 and 0270, connect the dedicated "Hot" wire and the black (120 V) or red (240 V) wire from the transformer to terminal 24. Connect green ground wire from the transformer to the ground lug on the transformer assembly as shown in Figure 8, but do not assemble hardware. Hardware will be assembled later.
	 When retrofitting model no: 01026x-x-0300, connect the dedicated Hot wire and the black (120 V) or red (240 V) wire from the transformer to terminal 13. Connect green ground wire from the transformer to the ground lug on the transformer assembly as shown in Figure 8, but do not assemble hardware. Hardware will be assembled later.
	 For all other model no's connect black (120 V) or red (240 V) wire to Hot terminal. Connect white wire to Neutral terminal. Connect green ground wire from the transformer to the ground lug on the transformer assembly as shown in Figure 8, but do not assemble hardware. Hardware will be assembled later.
	For kits 51404074-507 through -510, wire capacitor as shown in Figure 8.
	Attach resistor here (on CAT/PAT models 10261, 10262, 10264, 10266, 10267, 10268)
	Green to Motor Positioner card J2, if present Use items 166 and 167 to mount. Reattach capacitor in any of these locations depending on model. See * below for wiring. Use items 235 and 55 to mount. Leave resistors in place (models 10263 and 10265)
	* Capacitor wiring for Kits 51404974-507 through -510 only: 1. Connect green to green motor wire. Connect black to black motor wire. Black Black Black
	Figure 8 Transformer assembly

Table 1 10260A Retrofit Procedure

Step	Action										
9	Install motor positioner card, if applicable:										
	If using existing motor positioner card, leave that card's J1 and J2 wiring as is.										
	If adding motor positioner card:										
	Check motor positioner card for proper voltage: -507 and -508 kit = 120 V, -509 and -510 kit = 240 V.										
	If adding or replacing a positioner card, remove the old card (if applicable), install the new card (51404978) inside the back cover using the 4 screws to secure it.										
	On the motor positioner card connect cables 51404922 to J1 and 51404923 to J2.										
	Keep the pair of wires with the Molex connector (the one that is not the ring lugs) in the upper compartment. This connector will be installed later. Feed the remaining wires through the hole in the casting leading to the lower compartment.										
	Connect the green wire lug to the chassis ground on the transformer assembly plate using Items 166 (6-32 Hex Nut) and 167 (#6 internal tooth lockwasher).										
	Unsolder the 2 existing capacitor wires from the capacitor and the terminal block.										
	Solder the green and black wires from cable 51404927-002 to the installed capacitor.										
	• On models 10261,62,64,66,67,68 solder black leads on cable 51404927-002 to 30 Ω resistor as shown in Figure 8.										
	Mount resistor to transformer plate assembly using Items 166 (6-32 Hex Nut) and 167 (#6 internal tooth lockwasher).										
	On models 10263,65 strip and wire nut 2 black wires together.										
	Reattach terminal plate with the 2-original mounting screws.										
	Connect ring lugs on 51404927-002 as indicated in Figure 8.										
	Connect the ring lugs on 51404922-001 to two unused terminals for the 4-20mA Input (brown (-) and red (+).										
	Connect ring lugs on 51404923-002 black to the "Hot" terminal and gray to the "Neutral" terminal.										
10	Attach output card to frame:										
	See Figure 7. Attach output card (item 214) to frame (216) using 4 screws and washers supplied with kit (214).										

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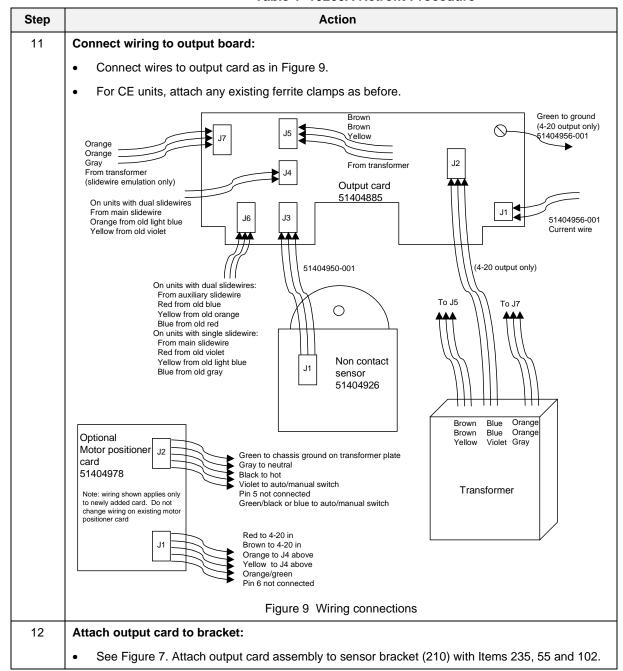
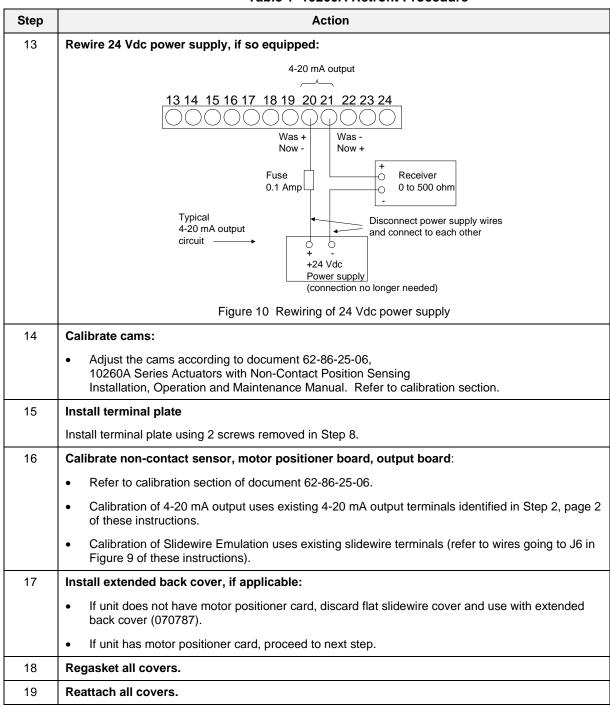


Table 1 10260A Retrofit Procedure



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Table 2 Kit contents (quantities not shown)

	51404974-												
Part # Description	Item #	501	502	503	504	505	506	507	508	509	510	511	512
51404926-501 Non contact sensor kit	219	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
51404885-502 4-20 Output card kit				✓	✓	✓	✓	✓	✓	✓	✓		
51404978-501 Motor positioner 120 V Card	214							✓	✓				
51404978-502 Motor positioner 240 V Card										✓	✓		
51404923-002 Cable assembly								✓	✓	✓	✓		
51404885-503 Slidewire Output card kit		✓	✓									✓	✓
51205553-501 Cam kit			✓		✓		✓		✓		✓		✓
51205550-501 Limit switch kit			✓		✓		✓		✓		✓		✓
070787 Back cover		✓	✓			✓	✓	✓	✓	✓	✓		
51404947-001 Transformer assembly		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
51404956-001 Cable assembly 4-20 output				✓									
51404927-002 Capacitor/resistor wire set								✓	✓	✓	✓		
233392 30 ohm resistor								✓	✓	✓	✓		
51204920-002 Locking nut		✓		✓		✓		✓		√		✓	
51205699-001 Adapter		✓		✓		✓		✓		✓		✓	
51404922-001 Motor positioner card cable assembly		✓	✓	✓	✓			✓	✓	✓	✓	√	✓
51205704-001 Slidewire emulation cable assembly		✓	√									✓	✓
51204924-001 Non contact sensor bracket	210	✓	✓	✓	✓	✓	✓	✓	✓	√	✓	✓	✓
51404916-001 Non contact sensor frame	216	✓	√	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
055590 12 pt. Terminal plate		✓	√	✓	✓	✓	√	√	✓	✓	√	✓	✓
070756 250 ohm shunt resistors				✓	✓	✓	√	✓	✓	✓	√		
316086 Wire nut, crimp (large)		✓	✓	✓	✓	✓	√	✓	✓	✓	√	✓	✓

		51404974-												
Part # Description	Item #	501	502	503	504	505	506	507	508	509	510	511	512	
51204917-001 Wire nut, crimp (small)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
18200 10-32 x .75" pan head slotted screw	236	✓	✓	√	✓	√	√	✓	√	✓	✓	✓	✓	
09533 10-32 x .50" pan head slotted screw		✓	✓	✓	✓	~	✓	✓	~	✓	✓	✓	✓	
301454 #10 flat washer	237	✓	✓		✓		✓		✓		✓	✓	✓	
301477 #10 split SS lock washer		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
004489 5/16 x 8-32 round head slotted screw		✓	✓		✓	✓	✓					✓	✓	
004648 3/8 x 8-32 round head slotted screw			✓		✓	✓	✓		✓		✓		✓	
09524 6-32 x .38" pan head slotted screw		✓										✓		
001573 #8 internal tooth lockwasher	55	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
301508 #6 internal tooth lockwasher	167	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
034861 Thermofit 3/16" ID Insulator				✓	✓			✓	✓	✓	✓			
003218 #6-32 hex nut	166	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
304467 3/8 x 10-32 filister slotted screw		✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	
51404950-001 Non contact sensor cable assembly		✓	✓	✓	√	✓	√	√	✓	✓	✓	✓	✓	
001574 #6 split lock washer	18	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
09527 8-32 x .50 pan head slotted screw	235	✓	✓	√	✓	√	√	✓	√	✓	✓	✓	✓	
12026 #8 flat washer	102	✓	✓	✓		✓	✓	✓		✓		√	✓	
004720 3/8 x 10-32 round head slotted screw	155	✓	✓	✓		√	✓	✓		✓		√	√	
304893 3/16 x 6-32 socket set screw		✓		✓		✓		✓		✓		✓		

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		51404974-											
Part # Item # Description		501	502	503	504	505	506	507	508	509	510	511	512
004454 3/4 x 6-32 round head slotted screw		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	√	✓
62-86-25-06 10260A Inst/Oper/Maint Manual		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Sensing and Control

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