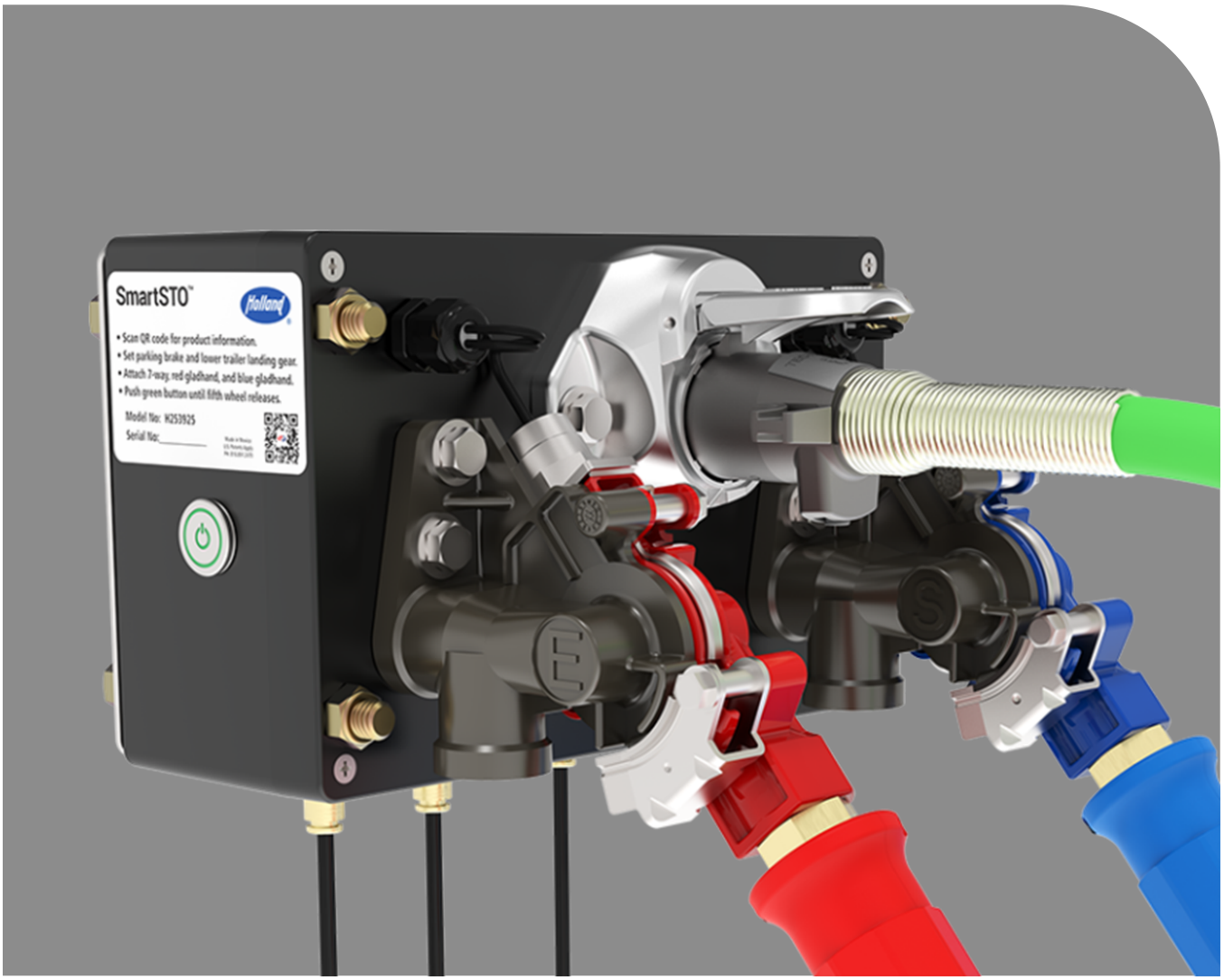
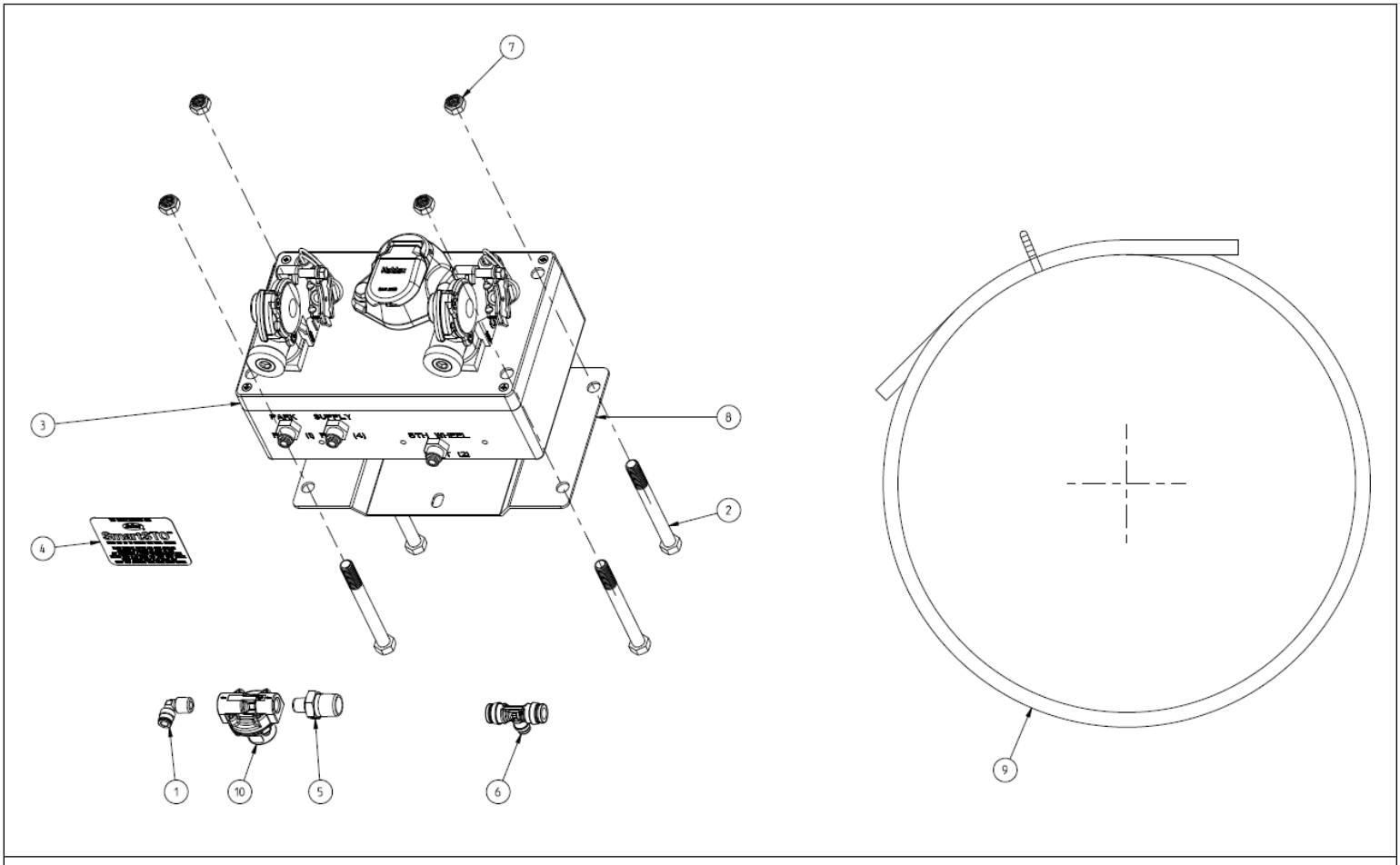
Installation, Operation and Maintenance Manual

SmartSTO™ Kit

Scan QR Code for Installation Video Or Visit: www.hollandfifthwheels.com/#smartsto



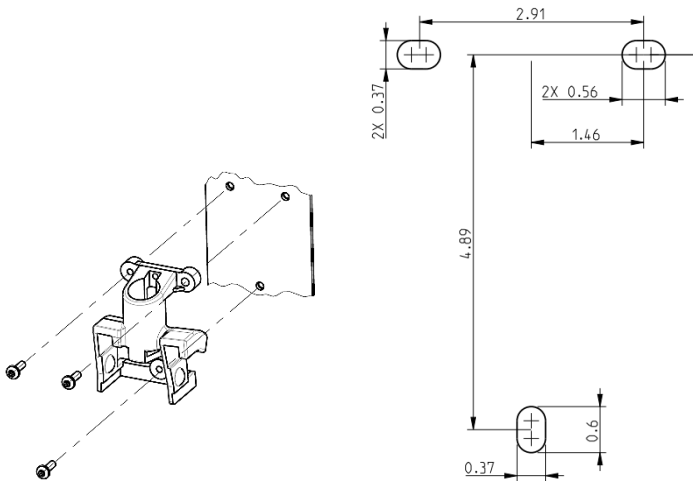
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		H253925	H307850	H305625
10	PRESSURE PROTECTION VALVE	1	1	
9	1/4 OD NYLON TUBING	1		
8	MOUNTING PLATE	1	1	
7	7/16-14 UNC LOCKNUT	4	4	4
6	3/8 X 3/8 X 1/4 PTC UNION TEE	1	1	
5	FITTING PIPE NIPPLE 1/2X1/4	1		
4	DASHBOARD DECAL	1	1	
3	CONTROLLER, 5TH WHEEL	1	1	1
2	7/16-14 UNC x 4-1/4" HEX BOLT	4	4	4
1	1/4 NPTF X 1/4 PTC ELBOW	1	1	
ITEM	**DESCRIPTION**	**QTY**		

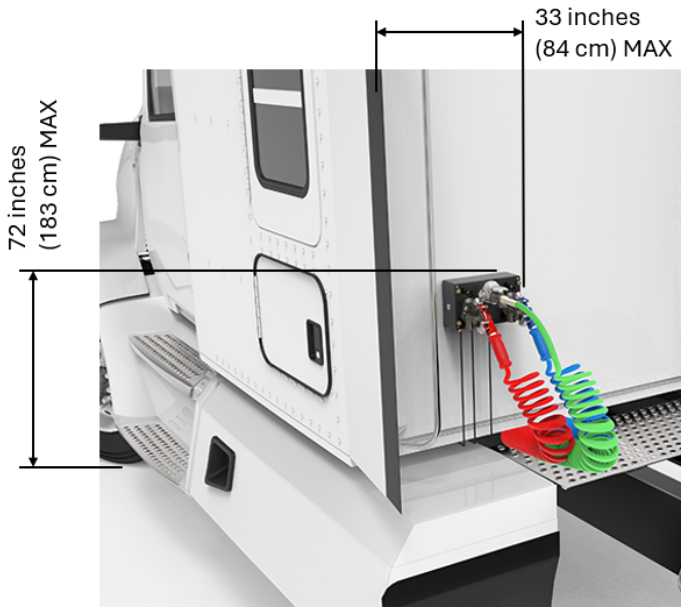
- Turn vehicle off.
- Chock wheels.
- Fully drain all air tanks.
- Remove gladhand hanger.
- Save hardware used to mount gladhand holder.
- These are typically known hardware threads:
  Volvo: M8 x 1.25 (6.8 mm drill)
  Navistar: M8 x 1.25
  DTNA: M6 x 1.0 (5 mm drill)
- Gladhand holder brackets have a wide variety of designs. Your bracket may look different than shown or ideally be mounted to the back of the cab.

Figure #1



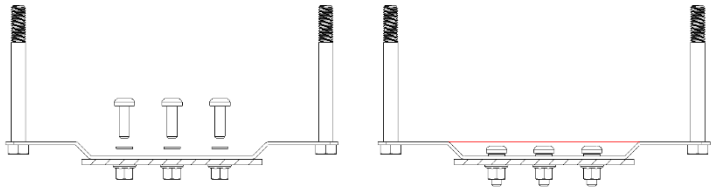
- Mounting surface shall be flat, free of burrs, and stable.
- Do not install on distorted, uneven, or yielding surfaces that deflect under manual force.
- If a suitable mounting hole pattern is unavailable, use the mounting plate as a template to mark, drill holes, and install rivet nuts.
- Consult SAE J702 (brake and electrical connection locations) for additional mounting specifications.

Figure #2



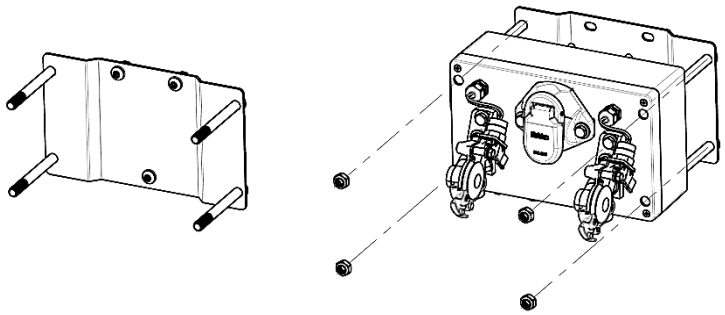
- Fit the 4 bolts (Item 2) through the mounting plate.
- Fix mounting plate (Item 8) to the 3 hole pattern using the 3 bolts saved from above by hand tightening.
- Bolts should not bottom out before securely mounting the control box (Item 3).
- Add washers if needed.
- Bolt heads must be below Control Box mounting surface for proper mounting of Control Box to mounting plate.
- Shorter bolts may be necessary.

Figure #3 Mounting to Existing Holes



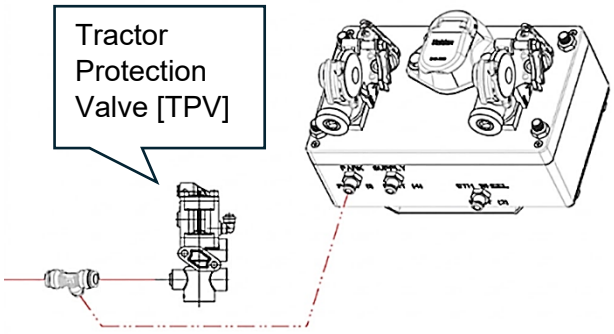
- Apply Loctite #242 thread locker or similar to the 3 bolts saved from above.
- 3x Identify bolt size and torque:
- M8 x 1.25 bolts to 15–20 lb-ft (20–27 Nm)
- M6 x 1.0 bolts to 7–9 lb-ft (8.5–11 Nm)
- Control Box Mounting Bolts [4x] Torque 7/16-14 bolts (Item 2) and nylon insert lock nuts (Item 7) to 35-50 lb-ft (47.5–67.8 Nm).

Figure #4



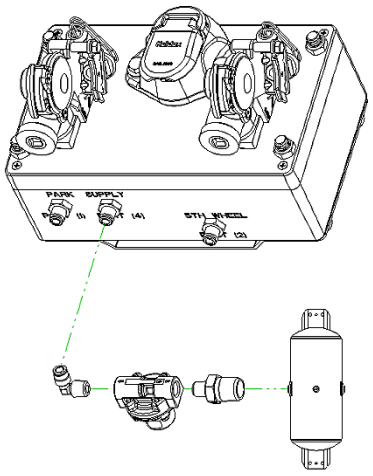
- Install ptc union tee (Item 6) into the emergency supply line between the red gladhand and the tractor protection valve.
- Optionally you can tee into the red gladhand supply line if available (front side of TPV instead of back).
- Cut tubing (Item 9) to length to connect ptc union tee to **PARK** port (1). Make sure the cut is clean and square using a dedicated air line cutting tool.

Figure #5



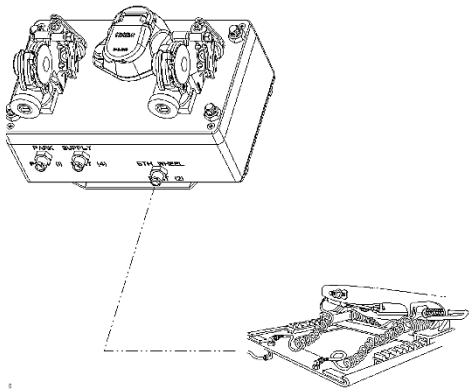
- Install the PPV with its air flow direction arrow pointing towards the Control Box. Do not use Teflon tape.
- Apply thread sealant to the hex nipple (Item 5) and install into the inlet side of PPV (Item 10).
- Apply thread sealant to the ptc elbow (Item 1) and install into the outlet side PPV.
- Locate unused port on air tank.
- Place PPV in the highest port available on the tank to avoid road debris. Do not use a drain port.
- Install PPV with drain pointed down as shown.
- Cut tubing to length to connect ptc elbow to **SUPPLY** port (4).

Figure #6 Pressure Protection Valve [PPV] Installation



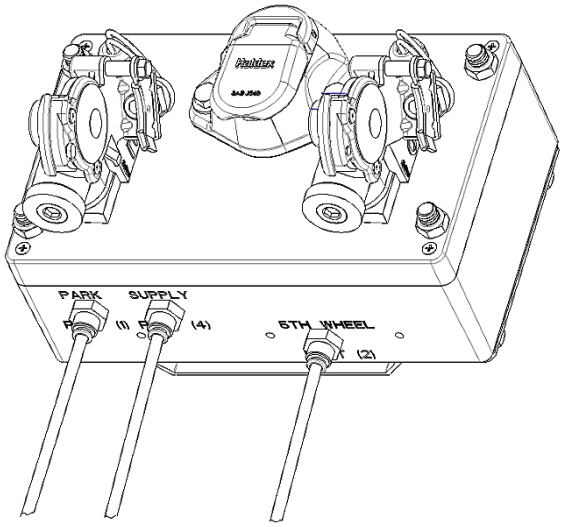
- Cut tubing to length to connect port (2) to 5th wheel air cylinder.
- Routing of all tubing to avoid chaffing, rubbing, etc., but also needs to account for movement of the cabin suspension.
- If 5th wheel air cylinder uses 3/8 ptc, then you may need to obtain a 3/8 to 1/4 union reducer such as:
  Parker 32ptc-6-4 (composite)
  Parker 62ptc-6-4 (brass)
- If your vehicle was already equipped with air release then plug and secure the line which was connected to the in dash control system.
- Connect to the **5TH WHEEL** port.

Figure #7 5th Wheel Air Cylinder Connection



- Close all tank drains.
- Turn on engine and build up to system pressure.
- Test all connections for leaks.

Figure #8 Leak Test



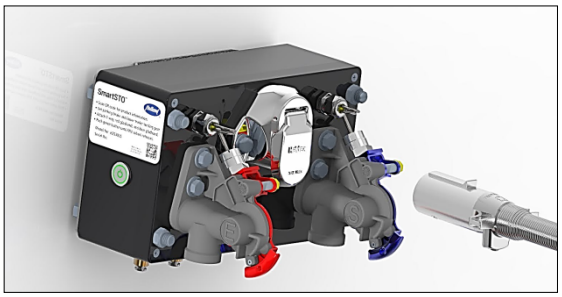
- Operational check:
- Make sure the decal on the side of the SmartSTO™ box is readable and unbroken.
- Note for your records the date code and serial production number.

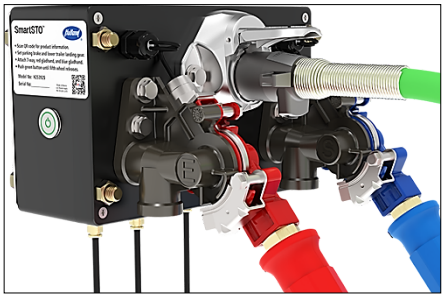
Figure #9



- Set park brake & lower trailer landing gear.
- Attach 7 way, red gladhand & blue gladhand.
- Push green button until 5th wheel releases.

Figure #10





- Clean the dash surface and apply the driver dashboard SmartSTO™ decal (Item 4) if provided.

Figure #11



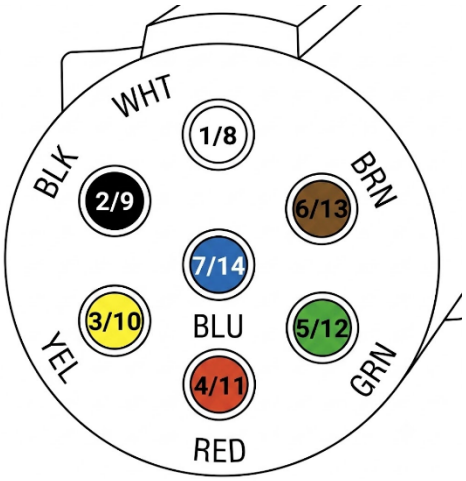
Troubleshooting Guide

- Light won't illuminate.
  - ❑ Check that key is on.
  - ❑ Check SAE J560 7-Way provides 12 volts with multimeter pins 7 and 1 (Blue and White wires). Refer to Figure 12 for Pin Out.
    - If damaged, then replace with BE23784 Plug Assembly.
  - ❑ Check for worn out gladhand seals.
    - Worn gladhand seals may prevent the Control Box gladhand switch from activating.
    - Order 10028 Gladhand Seal.
  - ❑ Check for damaged gladhand brackets on the tractor.
    - If gladhands are damaged, then replace them with 11452 Gladhand Service or 11461 Gladhand Emergency.
- Light will illuminate but when pushing button then 5th wheel will not unlock.
  - ❑ Check that parking brake has been applied. There should be no air in the emergency line.
  - ❑ Check that all pneumatic lines are routed correctly as stated on Page 5.
  - ❑ Check that the pressure protection valve is still providing supply air. If not, then replace it with 90555397. Make sure that the arrow on the top of the valve is pointing towards the Control Box.
  - ❑ Disconnect outlet line to 5th wheel air cylinder and check for air flow when pressing the button. That will show the SmartSTO™ is working and the issue is further upstream.

If you have completed this section of the check list, then the handle must be used to release the 5th wheel until repaired.

1: Ground return to towing vehicle
2: Clearance, side marker and ID lamps
3: Left turn signal and hazard lamps
4: Stop lamps and ABS (secondary power)
5: Right turn signal and hazard lamp
6: Tail and license plate lamps
7: Continuous ABS primary power
8: Ground
9: Cab switched auxiliary power
10: ABS malfunction to cab
11: Constant or ignition auxiliary power
12: Unassigned
13: Unassigned
14: Unassigned

Figure #12



Troubleshooting Guide

- Parking brakes cannot be released on the tractor.
  - ❑ Check that all pneumatic lines are routed correctly by H253855 Installation Literature:
  - ❑ Park (Port 1) replace any damaged line with ¼" Outside Diameter Nylon Tubing D1040403 (Red).
- To remove SmartSTO™:
  - ❑ Plug or cap the air lines connected to the SmartSTO™.
  - ❑ Secure airlines to avoid damage.
  - ❑ Install a gladhand holder. Haldex 11514 or similar.

SAF-HOLLAND also carries a full line of Airline and Electrical repair items.

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SAF-HOLLAND Original Parts are tested and designed to provide maximum performance and durability. Will-fits, look-alikes or, worse yet, counterfeit parts will only limit the performance potential and could possibly void SAF-HOLLAND's warranty. Always be sure to spec SAF-HOLLAND Original Parts when servicing your SAF-HOLLAND product.

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