

HP 2/E
Pallet Lift for TS 2 Conveyors

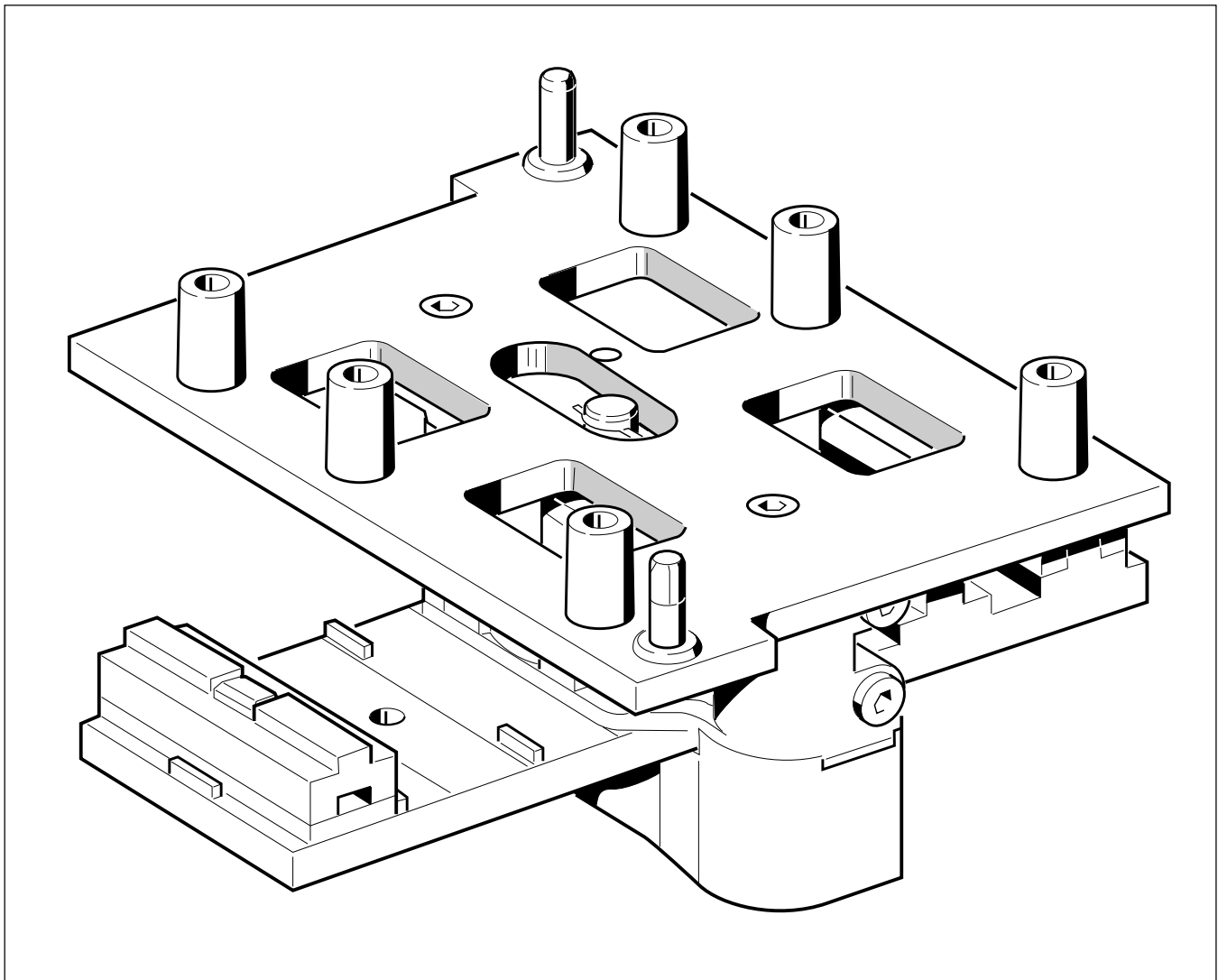
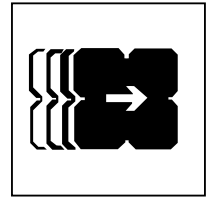



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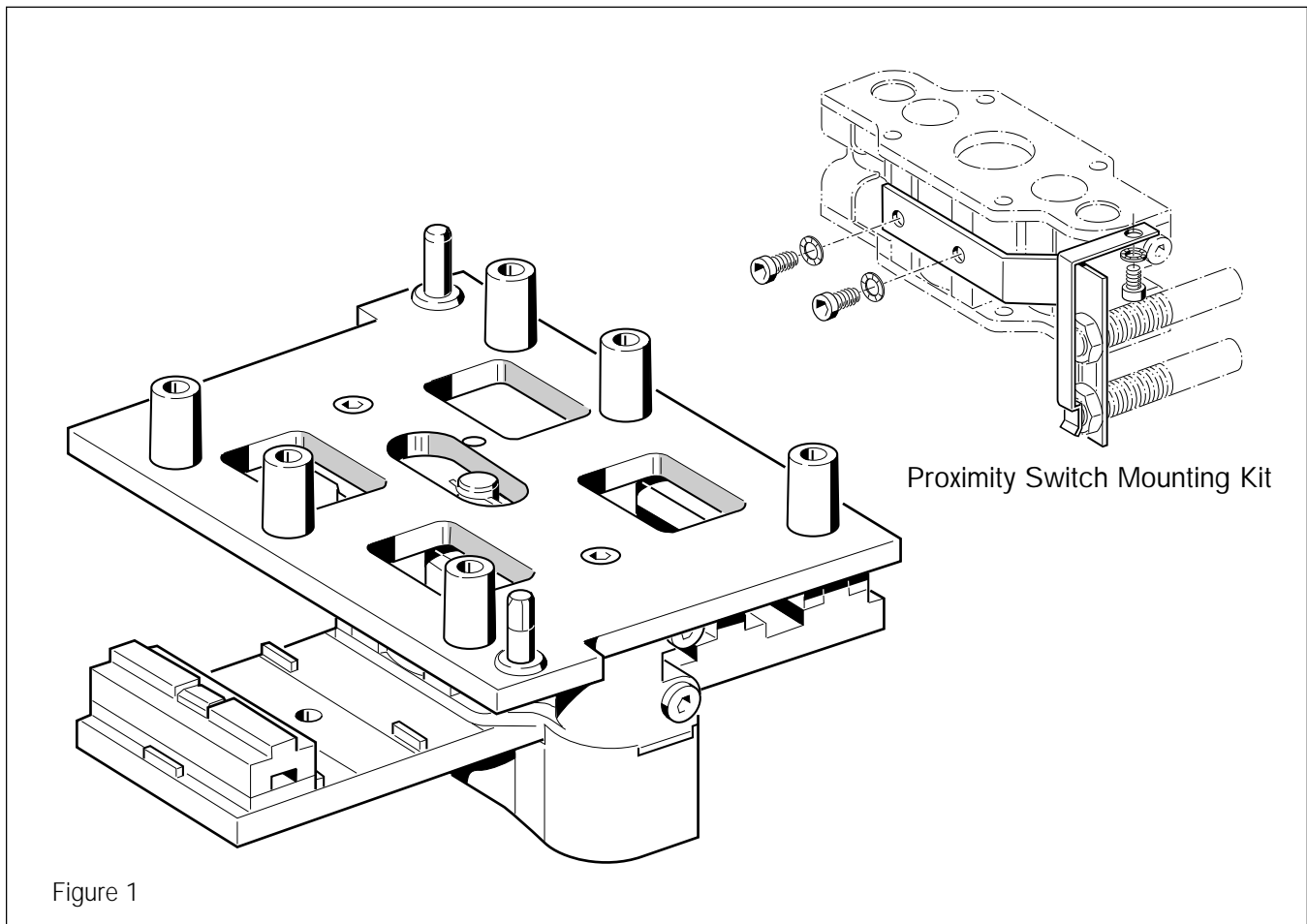
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Introduction

The HP 2E is used primarily to lift a workpiece pallet during automated operations. When a workpiece pallet is present at a workstation with an HP 2E and a *lift start cycle* is initiated, positioning pins on the HP 2E first engage positioning bushings on the pallet assembly as the pallet is then lifted off the conveyor's dual belts. In the raised position, the bottom of the pallet is elevated approximately 1.0 mm above the belt with a positioning accuracy of ± 0.2 mm. The HP 2E mounts to the longitudinal T-slots in the conveyor sections and can absorb vertical forces up to 49.5 lbs. at 58 p.s.i. (220 N at 4 bar).

You will also need a double-acting detented pneumatic valve to control the lift/lower cylinder, a proximity switch mounting kit (shown in Fig. 1) and proximity switches for lift-raised and lift-lowered position sensing. Proximity switches and mounting kits--including the holder for the plug-in proximity switches and all required mounting hardware--are available separately from Bosch. Complete workpiece pallet traffic control kits are also available and contain all modules and mounting hardware necessary for a station pre-stop and pallet stop, as well as proximity switches for workpiece pallet sensing.

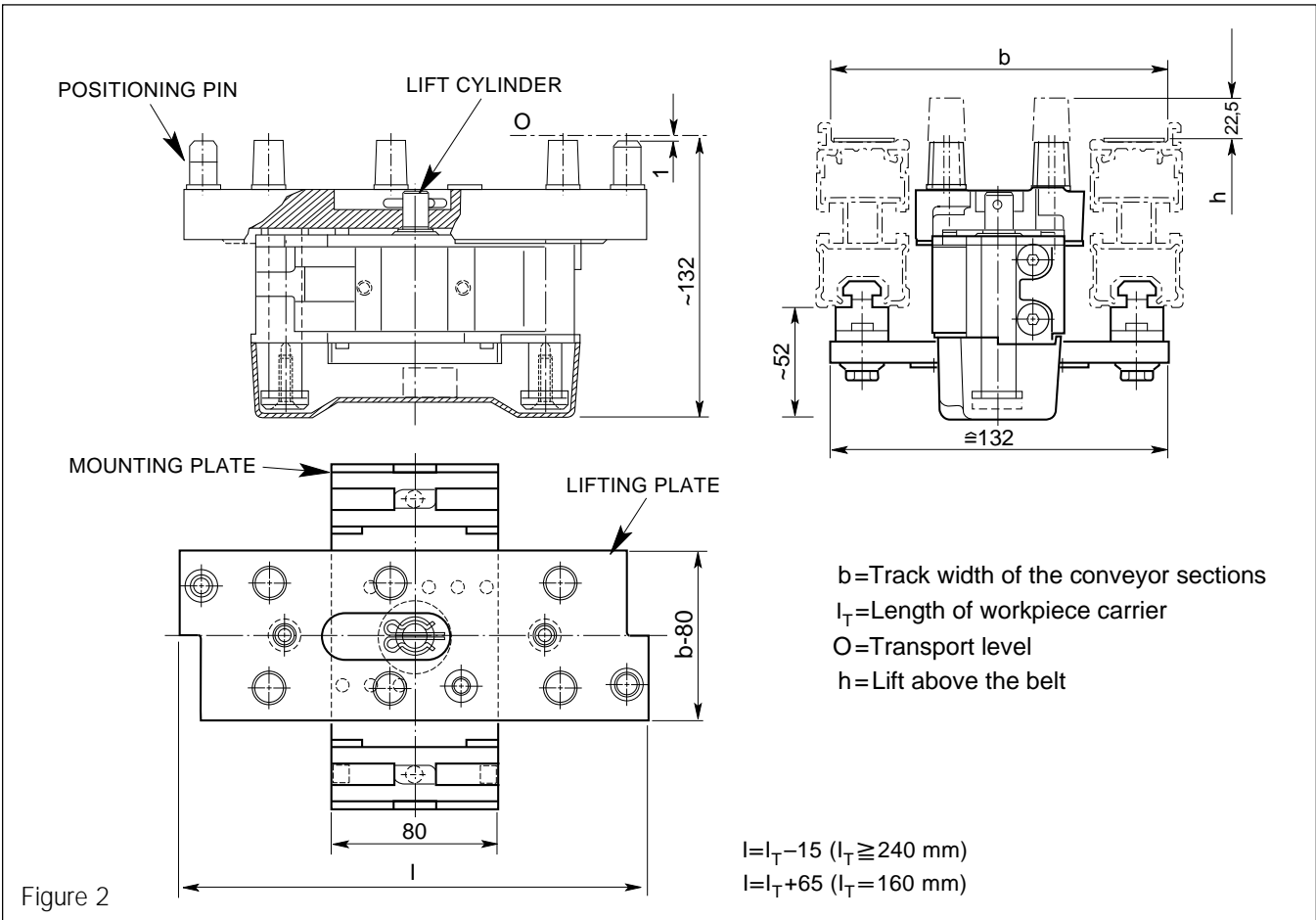


Technical Data

Technical data for the HP 2E Pallet Lift are shown in Table 1. Figure 2 provides important dimensional information.

Cylinder diameter:	50 mm
Cylinder stroke:	23.5 mm
WT- Stroke above belt:	1.0 mm
Positioning accuracy:	±0.2 mm
Permissible load (centered including all downward forces):	vertical 220 N @ 4 bar 49.5 lbs. @ 58 psi.
Mounting location:	Below transport section

Table 1



Design and Detailed Description

The pallet lift consists of the following main components (Fig. 2):

- 1 Lift cylinder
- 2 Lifting plate with positioning pins and pallet support posts
- 3 Mounting plate

In the HP 2E Pallet Lift, a pneumatic cylinder raises and lowers the lifting plate as determined by your sequence of operation. Exciter targets on the pallet enable proximity switches to sense whether the pallet lift is in the raised or lowered position.

When a pallet arrives at the pallet lift it is stopped by a stop gate. Positioning pins in the lifting plate engage the positioning bushings in the workpiece pallet support plate and the pallet is lifted 1.0 mm off the conveyor section. When work is complete, the unit returns to its lowered position and the pallet is returned to the conveyor line.

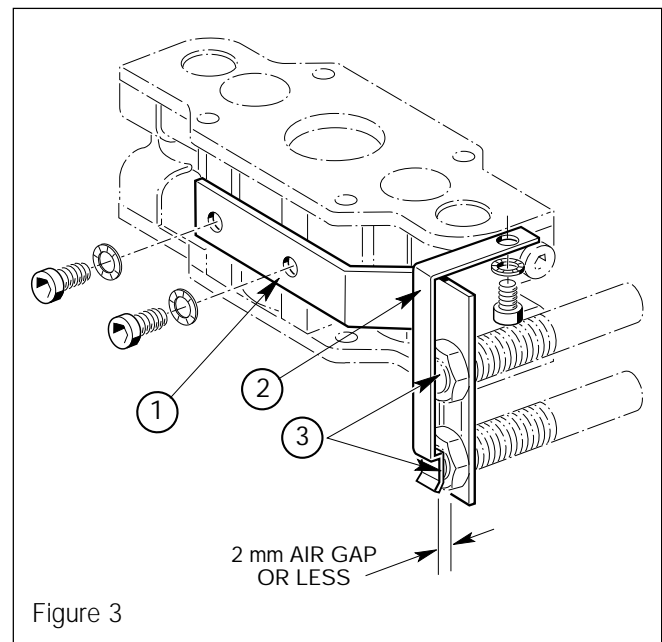
For workpiece pallet traffic control into and out of the pallet lift, Bosch recommends the use of two stop gates, three switch holders and three proximity switches for station pre-stop, pallet stop and pallet sensing. These are in addition to the proximity switches needed for raised/lowered position sensing.

Installation

Proximity switches

If using the Bosch proximity switch mounting kit, install the proximity switch mount and target onto the pallet lift as shown in Fig. 3.

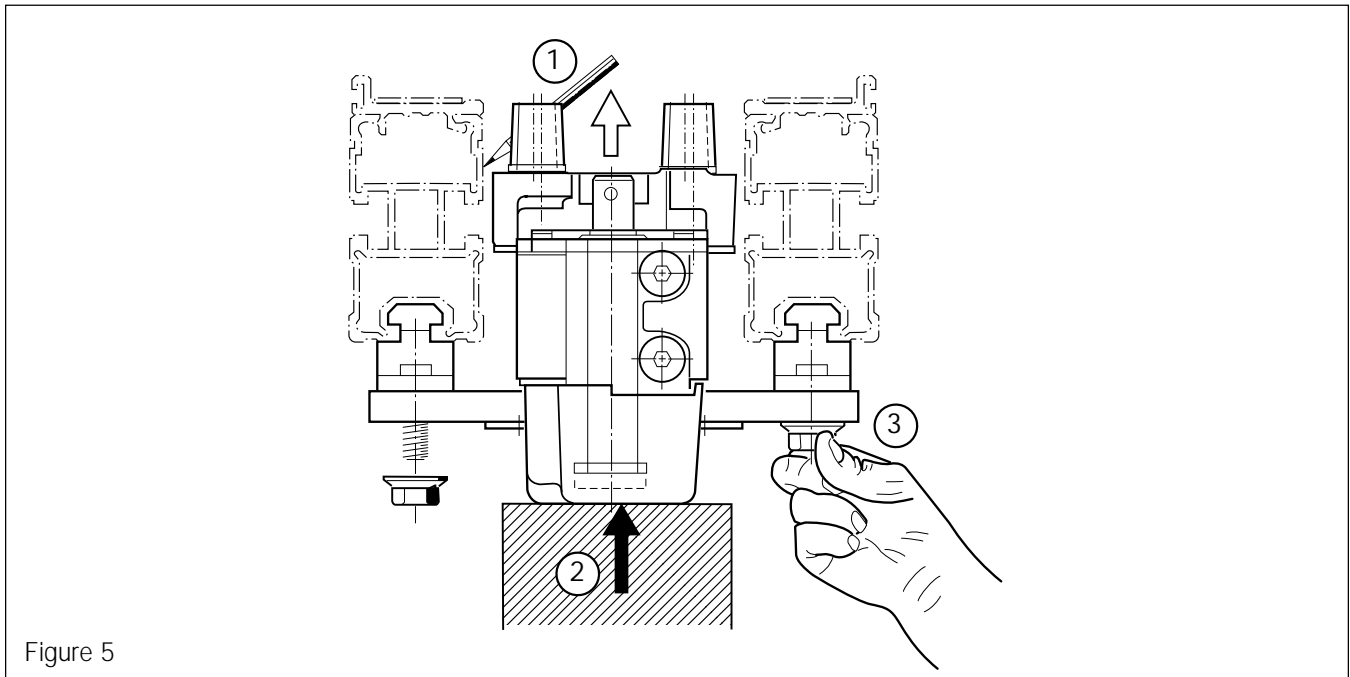
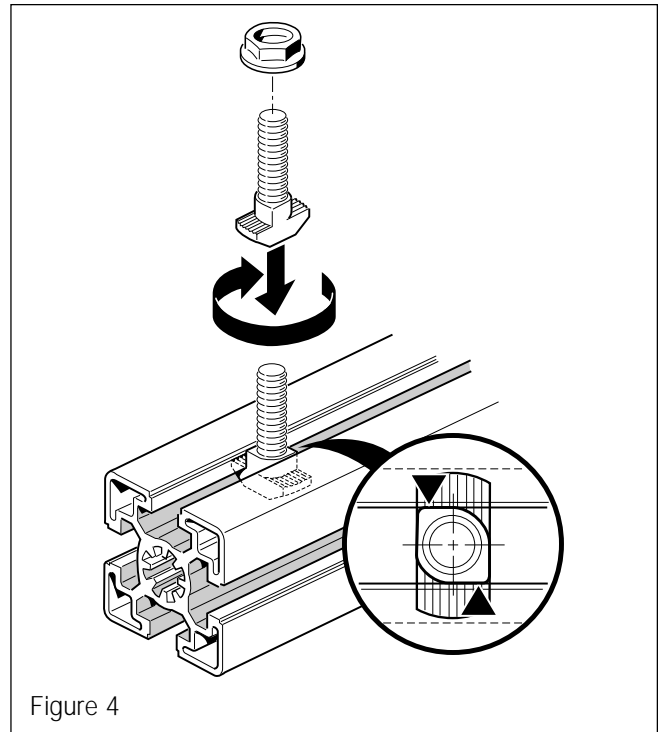
- 1 Attach the proximity switch mounting bracket to the side of the lift cylinder. Use the tapped holes provided in the side of the cylinder.
- 2 Attach the exciter bracket to the underside of the lift plate assembly.
- 3 Insert proximity switches into the mounting bracket and turn the adjusting nut until there is a 2 mm air gap or less between the exciter target and the end of the proximity switches.



Mounting to the conveyor (Fig. 4, 5)

To install a T-bolt, first insert the end into the slot in the conveyor profile; then turn the bolt clockwise. The T-bolt is now in the holding position. Tighten the nut to 18 lb. ft. (25 Nm), to ensure that the T-bolt completes the rotation into the final clamped position (see inset drawing (Fig. 4). Take care not to damage the aluminum profiles by overtightening the nut.

- 1 With a pencil, mark the location on both conveyor profiles where you will install the pallet lift (Fig. 5).
- 2 Raise and support the pallet lift from the bottom as shown, locating it between the two pencil lines.
- 3 Make sure that the T-bolts are properly located in the T-slots on the underside of the conveyor section as shown, and rotate them into the holding position. When the HP 2E is properly positioned, tighten the T-bolts to 18 lb. ft. (25 Nm), using a torque wrench.





Pneumatic connections (Fig. 6)

The pneumatic cylinder must be connected to a clean lubricated air supply. All compressed air connectors are included with the pallet lift, and are pushlock-type air connectors. Cut the 5/16" (8 mm) plastic tubing to the proper length and insert into the appropriate connector on the air cylinder as shown in Fig. 6.

- 1 Connect an air supply line from your control valve to the *lift raised* port of the air cylinder.
- 2 Connect an air supply line from your control valve to the *lift lowered* port on the air cylinder.

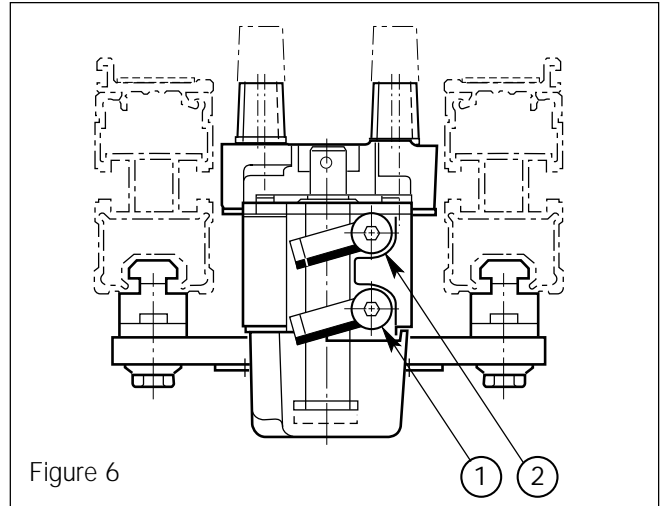


Figure 6

Traffic control (Fig. 7)

Install stop gates & proximity switches to control pallet pre-stop, pallet stop and pallet sensing using the dimensional information in Fig. 7.

Maintenance

- 1 The pallet lift should be inspected every 500 hours of operation for loose fasteners, or any other signs of wear or damage.
- 2 Wipe the guide shafts with mineral spirits to remove any dirt buildup. Apply a very thin coating of EP-0 grease to the guide shafts after cleaning.

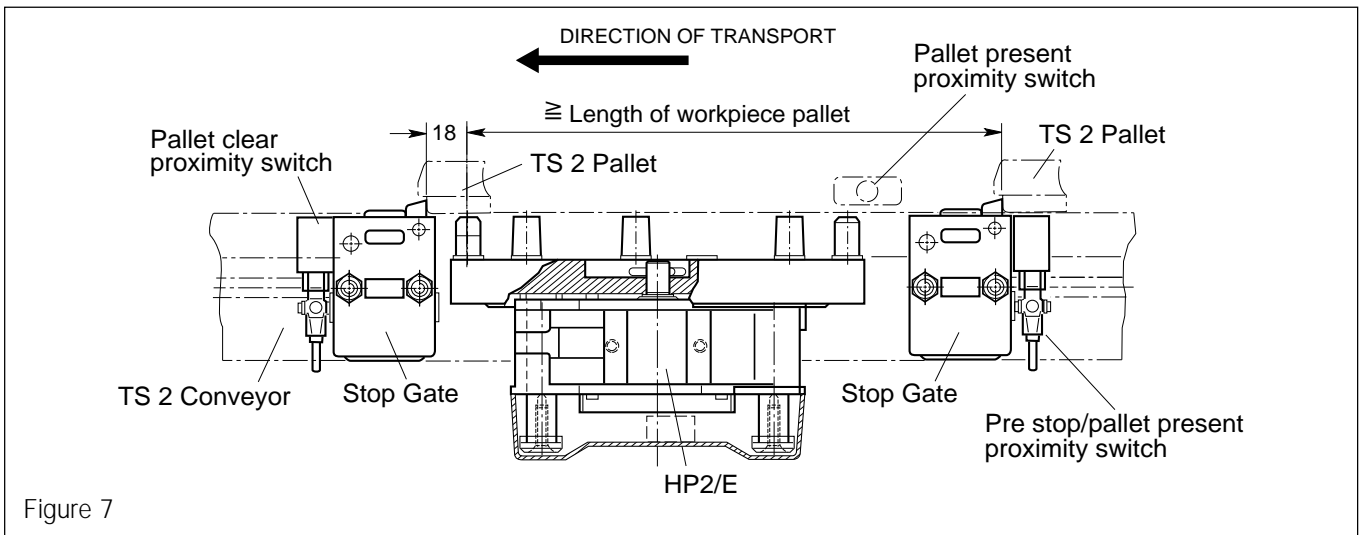


Figure 7



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