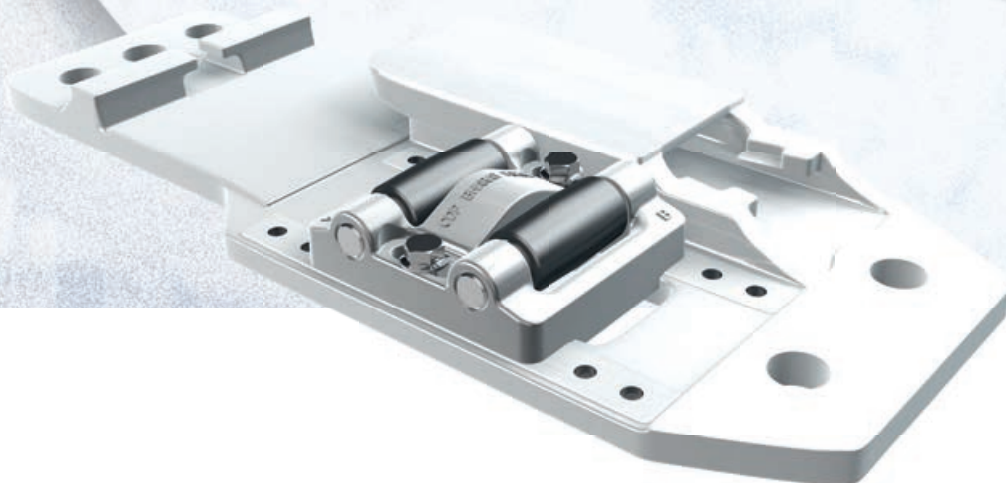


CDP BHARAT FORGE

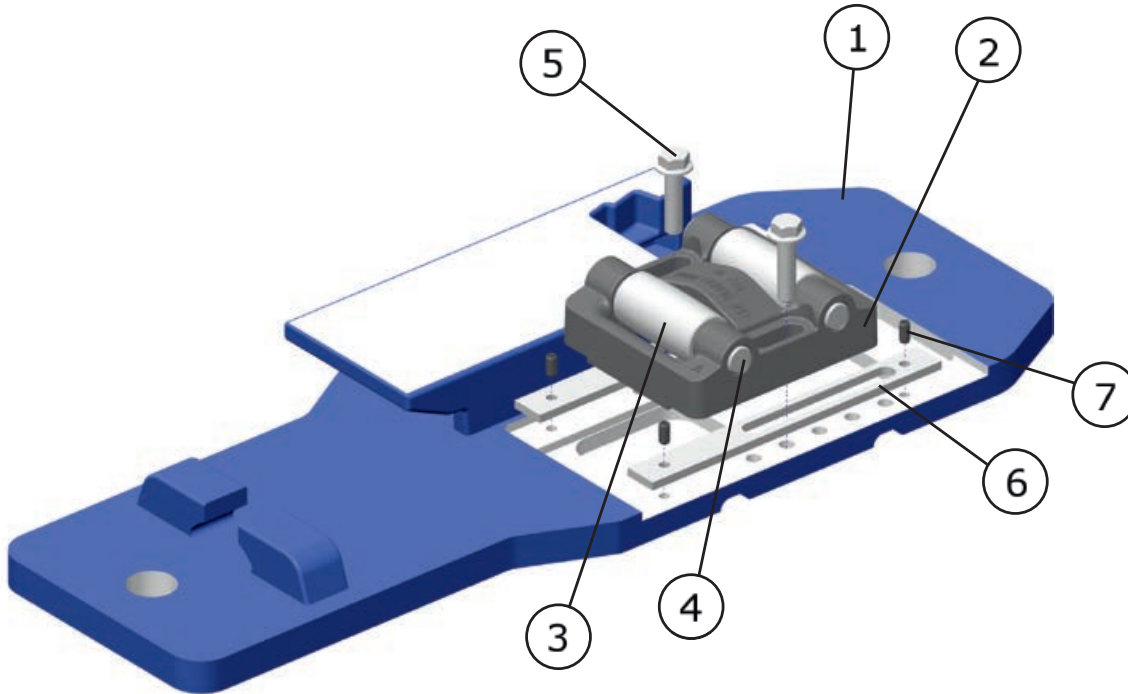
DRIVING INNOVATION

Installation and maintenance manual
for integrated Switch Roller Device „IRV“ – System CDP Bharat Forge



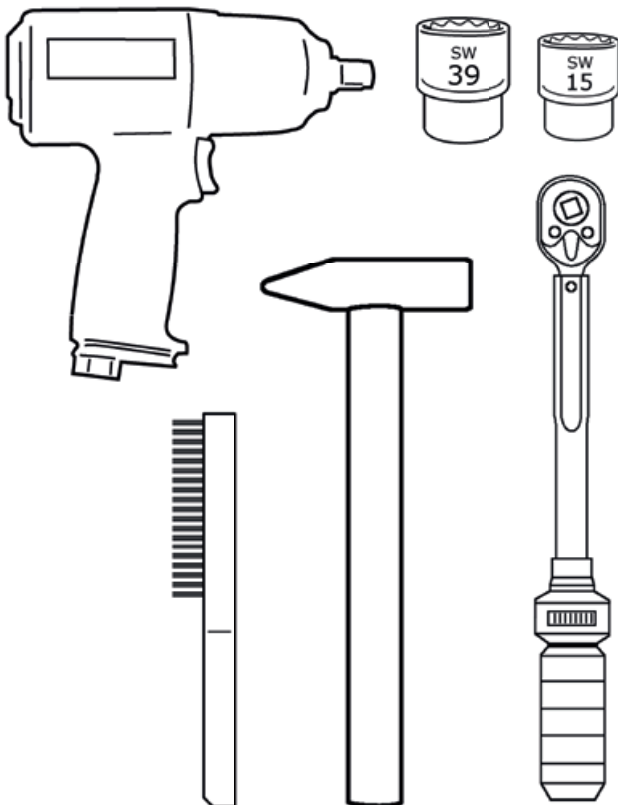
Installation and maintenance manual

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Components

Pos.	Count	Designation
1	1	Slide chair base plate
2	1	Roller Frame
3	2	Roller
4	2	Bolt
5	2	Self-locking screw
6	2	Distance shim
7	4	Locking pin



Required tools

Tool	Specification
Hammer	
Torque wrench	
Wrench socket	SW 15 mm
Wrench socket	suitable for rail fastening SKL
Impact wrench	
Montagehebel	suitable for rail fastening „IBaV“

Product description

By using the CDP - integrated switch roller system (IRV), the lubrication of slide chair plates, for reducing friction, can be avoided. Therefore, a lubrication free movement of the switch blade is possible. Maintenance efforts as well as labor costs and costs for material can be reduced significantly.

CDP switch roller systems are designed for different applications. The IRV system is designed for an installation directly on the sleeper, replacing a standard slide chair plate. Therefore, the IRV can be installed directly into the new switch by the turnout manufacturer.

CDP switch roller system IRV is available in two alternatives: The first alternative is mounted with two rollers (IRV 2), which is needed in the front area of the switch with the highest tongue opening > 80 mm. The second alternative is mounted with one roller (IRV 1), which is suitable for the rear area of the switch with lower tongue openings of 20 - 80 mm.

Due to the simple but sturdy design, the ARV is also suitable for highly polluted track areas and areas with severe environmental conditions.

By using CDP switch rollers, the bottom side of the switch rail foot will not slide over the lubricated slide chairs anymore, but will move tangentially over the convex rollers, which leads to a smooth-running movement of the switches, also under extreme conditions.

The rollers are made of high-strength stainless steel and are therefore optimally protected against climatic influences as well as wear and tear.

Functionality

The CDP roller system is designed, that the closed switch blade rests firmly on the slide chair plate to avoid any vertical movement of the rail. The opened switch blade is lifted by the rollers. The roller system consists of a roller frame, with one or two integrated rollers for bearing the switch blade, which is fixed with two self-locking screws crosswise to the driving direction.

To reduce the throw forces and to enable a lubrication free operation of the switch, the rollers lift the switch blade to achieve a rolling movement.

At the start of the switch movement, the switch blade rolls up on the first roller, will be lifted from the slide chair and will be pulled to its final position on the second roller.

In opposite direction, the opened switch blade will be pulled to the stock rail also by a rolling movement until the rail foot lies firmly on the slide chair and the rail head of the switch blade touches the side of the stock rail head.

The rollers are designed for a double-stage movement. That means the first roller lifts the switch rail by 2 mm, the second roller by 3.5 mm.

A marginal sliding of the switch blade at the tip of the rail does not affect the functionality of the roller system and does not require any lubrication of the according slide chair

The installation location of the single ARV rollers is mentioned on the attached installation drawing. The mentioned locations have to be considered as a proposal and can be adapted according to existing, individual conditions.

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Installation and adjustment

Start in case of exchange of standard slide chair plate in existing turnouts:

- 1) Ballast has to be removed from sleeper bay. [Ballast fork]
- 2) Sleeper screws of the slide chair plate have to be loosened. [Impact screw driver or screw plough]
- 3) Rail fastening has to be loosened. [Impact screw driver or screw plough, according assembly tool*1]
- 4) Stock and switch rail have to be lifted. [lifting jack]
- 5) Existing standard slide chair plate has to be removed. (In case of wooden sleepers it is recommended to fill the existing holes with wooden dowels.) [Hammer]

Start in case of assembly of new switches:

- 6) New IRV integrated roller plate has to be positioned and aligned on the sleeper. [where needed, hammer] (Fig. 2)

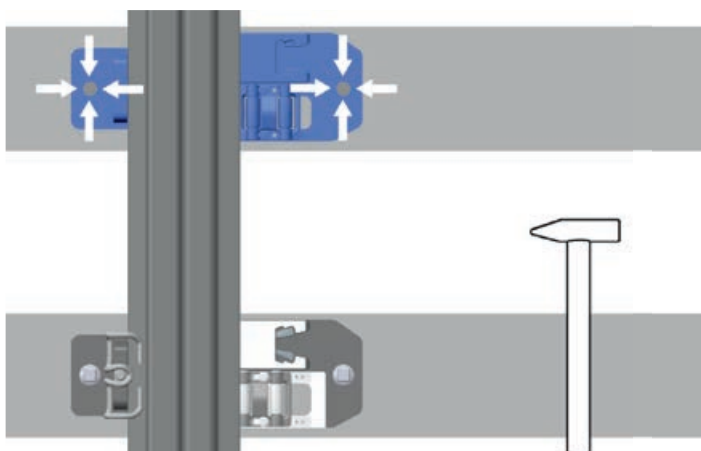


Fig. 2: Positioning of IRV

- 7) At the side where the IRV will be installed, the switch point has to be placed in the position that the switch rail is closed. This avoids, that the switch blade rests on the rollers during installation (Fig. 3).
- 8) New IRV integrated roller plate has to be fastened on the sleeper with sleeper screws. [Impact screw driver or screw plough] (Fig. 4)

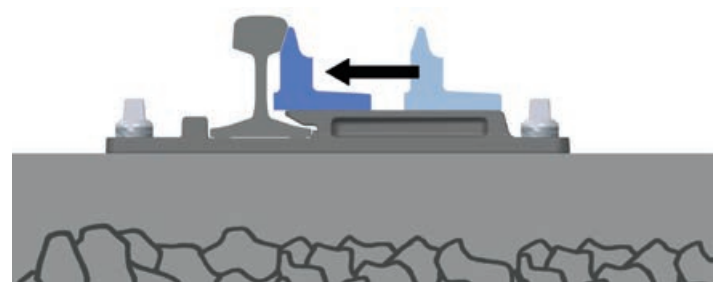
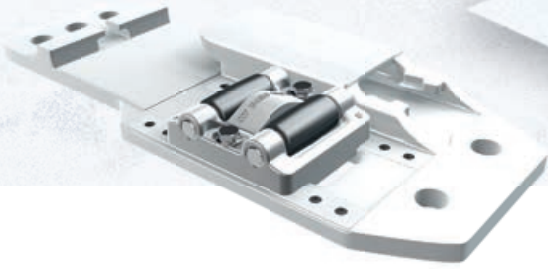


Fig. 3: Closing of switch rail



Fig. 4: Fastening of IRV on the sleeper



9) Rails have to be fastened on the new IRV integrated roller plate. [Impact screw driver or screw plough, according assembly tool*1] (Fig. 5-8)

Example: Inner stock rail bracing type „IBaV“

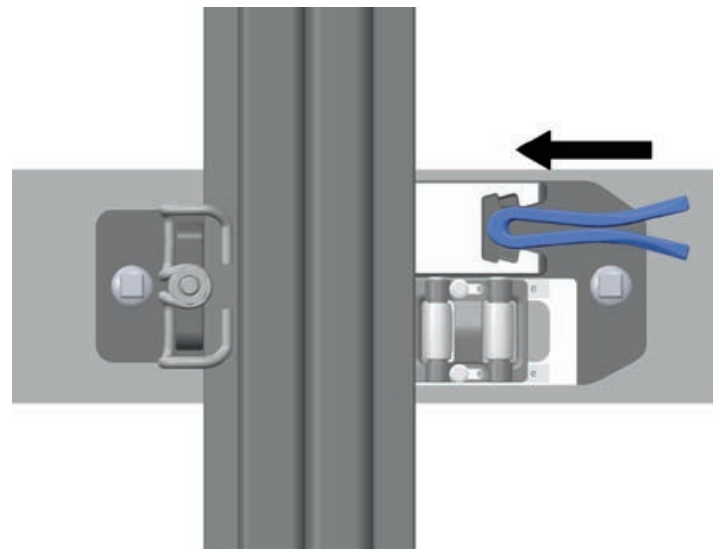
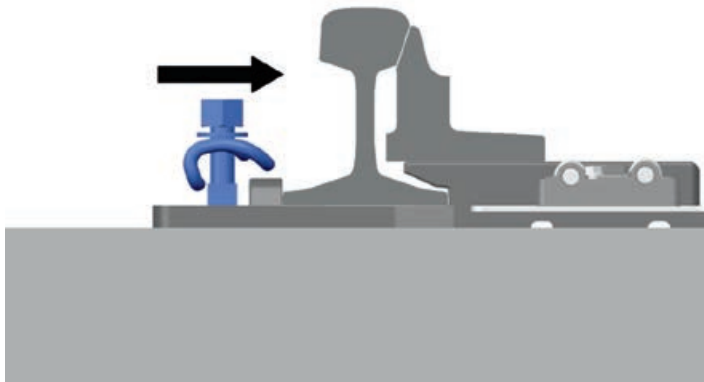


Fig. 5: Preparation of rail fastening

Fig. 7: Preparation of IBaV clip

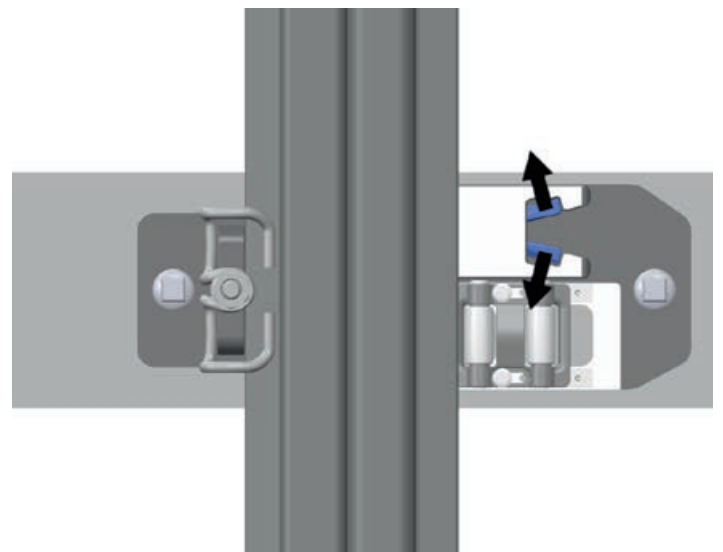
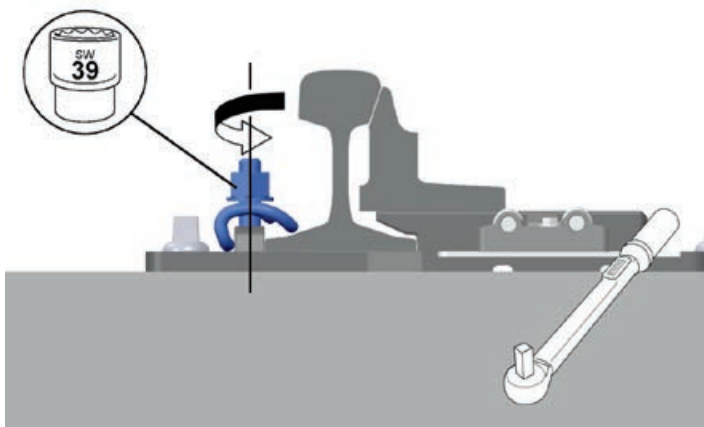


Fig. 6: Fastening of rail

Fig. 8: Mounting of IBaV clip

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Einbau- und Einstellanweisung

10) The roller frame will be mounted, that the „A“-marked side is in direction to the rail foot and that the first roller is positioned approx. 1 mm from the edge of the switch rail foot. This can be checked with a 1 mm slip gauge. Then, the self-locking screws can be fixed at 80Nm (SW 15mm). [Torque wrench, wrench socket SW 15 mm, Slip gauge] (Fig. 9 and 10)

Attention!
The „A“-marked side of the roller frame has to be positioned in direction to the rail foot

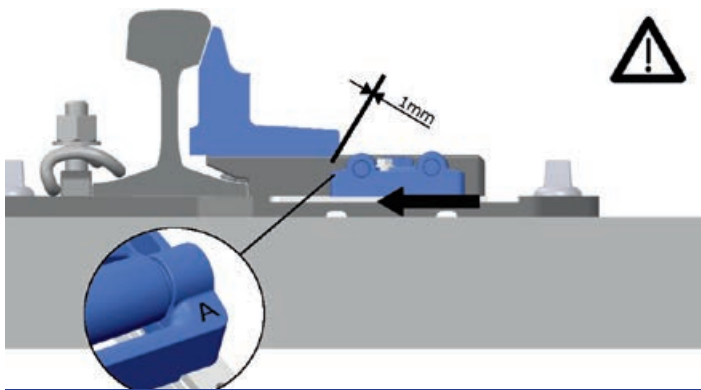


Fig. 9: Aligment of roller frame

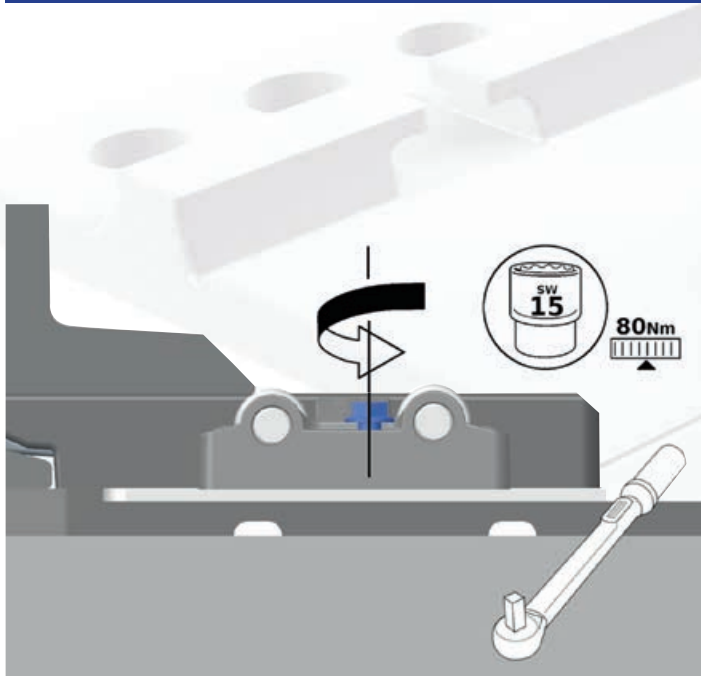


Fig. 10: Fastening of roller frame



Maintenance:

Maintenance is not necessary as CDP switch roller systems are extensively maintenance free and do not have to be lubricated.

Inspection:

To inspect the roller systems, following points have to be executed:

- Control of the height level of the opened and lifted switch rail
- Control of the distance of the first roller to the edge of the switch rail foot
- Control of the fastening screws
- Rotatability of the rollers
- Visual inspection, if any stress marks are visible on the slide chairs

Therefore, the two self-locking screws of the roller frame have to be loosened (Fig. 10), the roller frame has to be removed and the shim to be placed under the roller frame. Afterwards the roller frame can be positioned, adjusted and fixed (Steps from Fig. 9 and 10).

Remark:

Stucked or damaged rollers, which impair the functionality, have to be exchanged.

Should any divergences appear during inspection, the IRV has to be re-adjusted in accordance with the aforementioned installation method. Optionally, the height level can be adjusted with a height adjustment shim (Fig. 11).

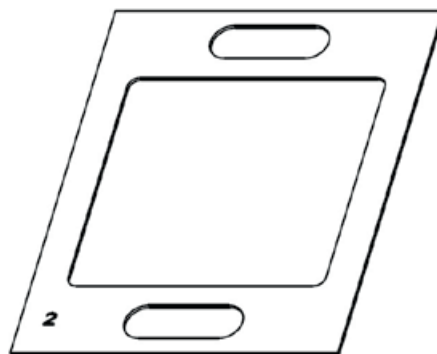


Fig. 11: Height adjustment shim



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