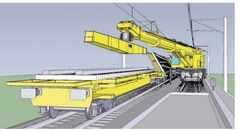
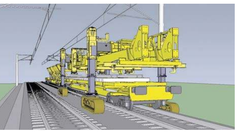
7 METHODS OF SWITCHES AND CROSSING RENEWAL

POWERED BY KIROW AND DESEC





1. MULTI TASKER WITH PANELS

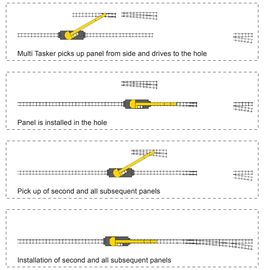
Pre-fabricated switch panels are transported by rail or road to site and unloaded the day before adjacent to the track. Alternatively the switch is built up in panels on an assembly place near the track, where the crane picks up the panels.

Depending on access and site restrictions the unloading place can be at some distance from the old switch because the Multi Tasker travels easily with the panel over one km or more.

After removing the old switch parts the crane has time to pick up the new switch parts from any distant unloading place while the ballast is exchanged, levelled and compacted.

After the ballast is prepared the Multi Tasker inserts the switch panels within less than 30 minutes per panel including travelling.

Old switch parts are slung with chains to speed up the process. New parts are slung with soft nylon straps that treat the switches very gently avoiting notches.



The crane can work either on an adjacent track or on the line the switch is built in.

Multi Tasker carries panel through station

Multi Tasker works between obstacles

Multi Tasker installs panel perfectly level

+ Panels can be stored or built up at whatever convenient distance along the track (up to 1 km no problem)
- Panels need to be stored or built up at a reachable distance to the side from the track (5 to 15 m)
+ Crane can work on single line or on adjacent line. If panels are stored alongside the track only one track needed.

2. MULTI TASKER WITH PANELS AND CENTRE OF GRAVITY ADJUSTMENT BEAM

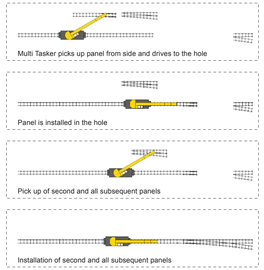
Main steps are the same as method 1.

But with the special lifting beam that can adjust the centre of gravity valuable time is saved at the slinging process.

Usually normal lifting beams with chains or nylon straps are used to sling the switch panels and it can be difficult to find the centre of gravity.
As a result the panel can hang inclined. The slinging process then has to be repeated until the panel hangs level.

With the special lifting beam the panel can be levelled by moving the centre of gravity. This mechanism can be activated by remote control or from the cabin. The slinging process is done in the shortest time possible.

The switch laying is usually done within less than 20 minutes per panel.



Crane hook moves against lifting beam

Panel is taken by crane inclined…

… and levelled by lifting beam centre of gravity device

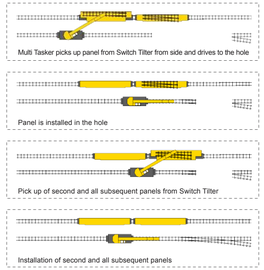
+ See 1. Multi Tasker with panels
+ Less people for slinging and much faster operation

3. MULTI TASKER WITH SWITCH TILTER

The most efficient method: Pre-fabricated panels are directly delivered to site on Switch Tilter wagons. No intermediate loading and unloading is necessary. The loading deck of the Switch Tilter can be tilted. Such also wide panels can be transported which otherwise would be out of gauge.

The prefabricated panels come with mounted drives and every installation prepared such that the switch is ready after laying by the crane. There is no intermediate loading and unloading, the panels come from the factory and are installed directly in the hole.

The installation process is very fast because the wagons can be parked near to the hole reducing travelling time for the crane. With a lifting beam with centre of gravity adjustment the switch laying is possible within 15 minutes per panel.



Switch Tilter in transport position

Switch Tilter tilted down for unloading by Multi Tasker

Multi Tasker picked up panel and drives to the hole

Installation of panel by Multi Tasker

+ Switch Tilter can be unloaded at whatever convenient distance along the track (up to 1 km no problem)
- Two tracks needed for unloading Switch Tilter

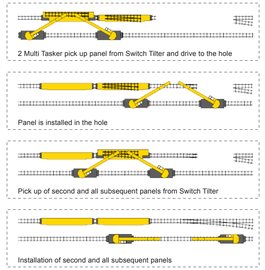
4. TWO SMALL MULTI TASKER

Same as 1. or 3. but working from adjacent track only.

The two cranes can be used separately for taking out the old switch in breathtaking time because each crane can work from one end.

The special Multi Tasker 250 have hydraulic attachments with rail clamping beams that can grab the old switch panels without any need for a slinger.

When working with two cranes there are no issues with centre of gravity of the panels during lifting. The two small Multi Tasker can use the same lifting beam that come with the tilting wagons.



Two Multi Tasker remove old switch panels

Two Multi Tasker KRC250UK work together in tandem unloading switch panels from Switch Tilter

Installation of panel by two Multi Tasker KRC250UK in tandem work

Track laying in tandem work with the Multi Tasker

+ As 1 or 3 unloading at whatever convenient distance along the track
- Two tracks needed because only working from the side possible

5. TRACKLAYER FROM SIDE

The Tracklayer can pick up the panel from any assembly place off the track. It can travel off road wherever required.

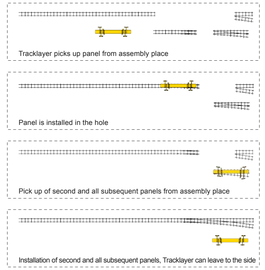
The Tracklayer requires only one blocked track. The adjacent line can be kept open for traffic.

After switch laying the Tracklayer can leave the track to the side in order to open the line for traffic.

One panel is laid in less than 30 minutes – depending on the travel distance.

Due to the combination of steered crawler movement and side walking with the support legs the Tracklayer can move in any direction independent of the track.

The load is gently lifted under the main frame and there is no issue about centre of gravity or load swing. The panel can be placed easy, fast and accurately on the ground by only one operator that moves the machine by remote control while standing right at the joint of the two panels with perfect visibility at safe distance at the same time.



Transport of panel from assembly place to the hole

Working with adjacent line open

Installation of panel by Tracklayer

+ Panels can be picked up independent from track and the Tracklayer is passing rough terrain
+ Only one track needed

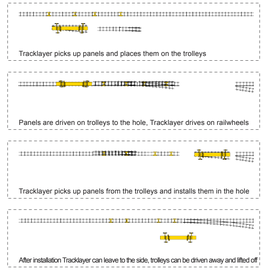
6. TRACKLAYER WITH TROLLEYS AND TRAVELLING ON RAIL

In case the switch is built up on an assembly place which is distant to the site or the pre-fabricated panels could not be unloaded near the hole the Tracklayer has to transport these panels over a longer distance.

Since the Tracklayer is travelling on its crawlers and has to be managed around obstacles by side stepping always a longer distance is better done with rail wheels.

For that the Tracklayer can be equipped with foldable rail drives that allow the empty machine to travel on rail.

The panel is placed on a trolley and transported to site.
The Tracklayer can be equipped with a small loading crane and winches in order to manage the trolleys.



Trolley for switch transport

Foldable railwheels on the Tracklayer for driving on the track

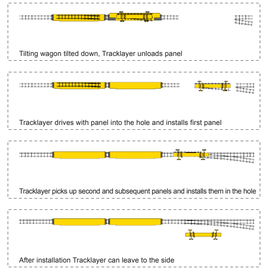
+ Possibility to cope with long distances
- Many lifting activities add up time
- Additional shunting machine necessary because TL cannot pull and brake panel on trolleys
- Also on rail wheels TL can travel only walking speed
+ Only one track needed

7. TRACKLAYER WITH VR WAGON

The most efficient method for working with the Tracklayer is the supply of the panels with tilting wagons right to the construction site and the unloading and laying of the switch panels with the Tracklayer in the following steps:
- the sections are lifted off the wagons by the Tracklayer.
- the wagon is pulled from underneath
- the load is lowered
- the Tracklayer moves with load to the installation point
- puts the panel right in place and
- moves back to the wagons to unload the next panel.

This operation requires only one track. The travelling time is minimized.

No unloading and storing process in between is necessary – the switch is transported right from the switch manufacturer to site.



Panel Transport Wagon in train position

Panel Transport Wagon tilted down for unloading by Tracklayer

Tracklayer picked up panel and drives to the hole

Installation of panel by Tracklayer

+ Unloading directly from tilting wagon on the same track
+ Only one track needed

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