

TIE EQUIPMENT

Model TR-10, Model TKO®, Model 925SS



Model TR10



Model TKO®



925SS

Tie Exchanger

Model TR-10



The TR-10 Tie Exchanger features a workhead on both sides of the machine for tie removal / insertion from either side of the track without the need to turn the unit. The tie exchanger is equipped with a large cab that gives the operator an unrestricted panoramic view of the work area. The operator's rail-mounted seat can be traversed easily from one side of cab to the other, as conditions dictate. Also featured are extractor mechanism hose reels which prevent entanglement and maximize hose life.

Features and Benefits

- Removes or inserts ties from either side of the track
- Maintains track alignment while changing ties
- Swivel head provides adjustment of the tie position allowing easy insertion or extraction
- Comfortable operator's cab provides excellent view of the work area
- Rail-mounted operator's seat can be easily traversed from one side of the cab to the other as work conditions require
- Handles switch ties with ease
- Proportional control for precise tie handling

Tie Exchanger

Model TR-10 Specifications



Frame.....	Welded 508 mm (20 in.) steel "I" beam construction
Length.....	9.6 m (31.4 ft.)
Width.....	3086 mm (121.5 in.)
Height.....	2997 mm (118 in.)
Weight.....	16.782 kg (37,000 lbs.)
Wheelbase.....	7.62 m (25 ft.)
Axles / Wheels / Suspension.....	609.6 mm (24 in.) diameter cast steel wheels (A.R.E.A. design) with two rugged solid forged steel axles and heavy duty automotive type coil spring suspension
Drive Train.....	Hydrostatic driven four-wheel drive with variable speed and reversible hydraulic motor
Air System.....	Engine-driven air compressor with a displacement of 6.23 l/sec (13.2 cfm) @ 1250 RPM. Supplies air to an air dryer, then to a large capacity air reservoir for delivery to the air components. Air is used to control the horn, brakes, and safety locks
Electrical System.....	24 volt D.C.
Engine.....	Cummins 6BTA 5.90 Diesel developing 185 bhp @ 2400 RPM
Extracting Force.....	Up to 8654 kg (19,080 lbs.)
Inserting Force.....	Up to 6146 kg (13,550 lbs.)
Operator's Cab.....	A comfortable, completely enclosed cab which provides the operator with good visibility. Included are acrylic windows, windshield wipers, interior lighting, and a horn. Heater, defrost fans, air conditioning, and exterior running lights are available options
Brakes.....	Air operated, single shoe brakes on all four wheels. Brakes are automatically applied if system air pressure is lost
Tie Removal Stroke.....	1953 mm (76.875 in.) extracting head located on both sides to remove / insert ties from either side of the track
Rail Clamps.....	Ball of rail type rail clamps lock the rail in alignment. Provision is made to grip joint bars so there is no incidence of slippage
Rail Lifting.....	Truss type, controlled lift prevents lateral track displacement
Fuel Tank Capacity.....	454 liters (120 gal.)
Hydraulic Tank Capacity.....	757 liters (200 gal.)
Working Time To Refuel.....	17 hrs.
Travel Speed.....	48 km/h (30 mph)

TKO® Production Tie Exchanger

Model RCM305 Series B



Features and Benefits

- Precise control of rail lift enables the TKO® to remove and / or insert ties with minimum disturbance to the track structure
- Heavy-duty construction throughout meets the demands of high production tie removal and replacement
- Articulated gripper head pivots up to 40 degrees to assist in picking up ties from the shoulder and guiding them into position under the rails
- Optional tie kicker applies 10,000 lbs. of horizontal force for starting difficult ties
- Ergonomically designed operator station provided excellent visibility of the track and work area and enhances operator comfort and ease of operation

Precise control of a machine’s rail lift system is the key to fast, efficient old tie removal and proper insertion of the new ties with minimum disturbance of the track structure.

Harsco Rail’s TKO® Tie Remover / Inserter can provide you with this precise control. It removes or inserts ties in one piece with minimum disturbance to the track structure by precisely controlling rail-to-tie clearance with its distinctive rail lift system.

The rails over the tie to be removed are raised by two clamp / lift units which are located on four foot centers and symmetrically positioned one in front and one behind the workhead for maximum effectiveness. Four jack cylinders, controlled by an automated system precisely lift both rails the same amount for each tie. The “lift-distance” is easily set by the operator for the tie and track conditions and can be set to different dimensions for the leading and trailing rails.

If additional rail clearance is needed to remove a specific tie, the operator can override the preset lift of any one of the four lift cylinders with individual lift control buttons.

The massive frame of the TKO® transfers the load of the lifted rail to the machine’s wheels which distribute the load into the track structure over the 18-foot wheelbase length, effectively stabilizing the track during the process of removing or inserting a specific tie.

The Harsco Rail TKO® Tie Remover / Inserter is the fast, efficient way to remove or insert ties with minimum disturbance of the track structure.

TKO® Production Tie Exchanger

Model RCM305 Series B Specifications

GENERAL

- Frame-welded structural steel I-beam construction with reinforced center section and integral cross members; equipped with built-in derail skids, key-hole tie-down slots, tow hitches front and rear, and four frame-mounted lifting eyes
- Wheels: 610 mm (24 in.) tread diameter cast steel, demountable; AAR profile, insulated available
- Axles: Heavy-duty bolted carrier, enclosed no-slip differential, semi-floating axle shafts with integral wheel mounting flanges; GAWR 22,680 kg (50,000 lbs.)
- Suspension: Laminated rubber vee-spring at each wheel
- Brakes: Clasp-configuration, tread-type adjustable shoe brakes with actuator and two composition shoes at each wheel; service brakes air-applied; parking brakes spring-applied, air-released, with automatic brake actuation in case of air pressure loss

PROPULSION SYSTEM

- Type: Hydraulically-driven; operator selectable four-wheel drive for work and slow speed travel, two-wheel drive for high speed travel
- Traction Motors: Hydraulic motor directly coupled to each axle

POWER UNIT

- Engine: Cummins OSB6.7; liquid-cooled, turbocharged, and charge air cooled
- Displacement: 6.69 L (408 cubic in.)
- Rated Net HP: 129 kW (173 bhp) @ 2500 RPM
- Pump Drive: Single pump drive
- Air Cleaner: Donaldson - multi-element
- Starter: 12VDC electric

HYDRAULIC SYSTEM

- Type - Main Circuit: Closed-center system
- Type - Auxiliary Circuit: Open-center system
- Operating Pressure: 172 bar (2500 psi)
- Pump - Main Circuit: Variable displacement piston pump; powers all machine circuits
- Pump - Auxiliary Circuit: Fixed displacement vane pump; supplies hydraulic cooling system
- Reservoir: Closed system; hand-operated

fill pump with filter; temperature and fluid level gauges

- Oil Cooler: Remote mounted, air to oil; hydraulic driven fan motor
- Filtration: Suction strainers - return line filter; ISO 14/11 filtration available
- Control Valve: Manifold-mounted; 12VDC solenoid operated, four-way directional valves
- Other: 12VDC electric auxiliary pump

AIR SYSTEM

- Compressor: 15.2 cfm 0.2 psi, single stage, reciprocating piston, engine gear driven; lubricated and cooled by engine systems
- Operating Pressure: 6.9-8.6 bar (100-125 psi)
- Other: Air dryer, moisture ejection valve, reservoir

ELECTRICAL SYSTEMS

- System Voltage: 12 VDC - negative ground
- Battery: 12 VDC
- Alternator: 12 VDC, 160A
- Other: Lockable master disconnect switch

CAB

- Full-enclosed, noise-isolated cab has sliding entry doors on each side, large front windshield, sliding rear window, and multiple side windows for excellent work and travel visibility; adjustable operator seat is equipped with integral control consoles and folding armrests; a separate console to the left of the operator’s seat houses instruments and controls for the engine, lights, horn, and more.; foot pedals control travel and braking
- Other: Equipped with circulation fan, interior lighting, and windshield wiper with washer; various mirrors and lighting groups are available

CONTROLS

- Remover / Inserter boom functions are directly controlled from operator-actuated joystick control
- Rail clamp, lift, and release functions and the optional tie kicker are controlled by timing relays, pressure switches, and limit switches; cycles are initiated and terminated by operator actuated push button controls; manual override

switches allow operator to override preset lift heights for individual rail lift cylinders when conditions warrant

WORK HEADS

- Telescoping tie remover / inserter boom is equipped with a pivoting gripper head to remove or insert ties; boom extends up to 1676 mm (66 in.) on the right side of the machine; a removal force of up to 4536 kg (20,700 lbs.) is generated for removing hard to pull ties; boom end raises up to 18” above and lowers to 5 in. below horizontal to facilitate tie removal and insertion
- Gripper head jaws pivot up to 10 in. away from the machine and up to 32 in. toward machine to aid in picking up and positioning ties for insertion
- Two rail clamp and lift units are positioned one in front and one behind the boom to precisely control lifting of the rail; rail lift capacity is 11,521 kg (25,400 lbs.) per lift cylinder
- Optional tie kicker provides up to 4536 kg (10,000 lbs.) break-away push to the end of the tie being removed; provides 660 mm (26 in.) movement to facilitate removal of difficult tie

FLUID CAPACITIES

- Hydraulic Reservoir: 341 liters (90 gal.)
- Fuel (two tanks): 303 liters (80 gal.)

DIMENSIONS

- Length: 7 .62 m (25 ft.)
- Width: 2896 mm (9.5 ft.)
- Height (over exhaust): 3201 mm (10.5 ft.)
- Wheelbase: 5.48 m (18 ft.)
- Track Gauge: 1435 mm (56.5 in.) standard

WEIGHT

- Standard Operating Weight: Approximately 12,360 kg (27,250 lbs.) Actual weight of a specific machine may vary according to sales group applied

PERFORMANCE

- Travel Speed: 0-43 km/h (0-27 mph)
- Working Speed: 0-21-km/h (0-13-mph)
- Gradeability: 8.5%

Tie Inserter / Remover

Model 925SS



The 925SS, single stroke tie inserter / remover is a dependable, economical machine that can be used effectively on almost any tie renewal project.

This hydraulically powered unit not only costs thousands of dollars less than other tie machines, but its clean, simple design makes it easy and economical to maintain and repair.

The 925SS is valuable when a railroad is under pressure to remove slow orders from a stretch of track. It is also ideal for replacing switch

ties, which is done manually on many railroads.

The 925SS is sometimes used strictly as a tie remover. If environmental restrictions make a one-piece tie removal desirable or mandatory, it can be used advantageously in large, traditional tie gangs.



Tie Inserter / Remover

Model 925SS Specifications

Gradeability	5%
Travel Speed	40 km/h (25 mph)
Total Track Lifting Force	17,727 kg (39,000 lbs.)
Tie Extraction Force	Up to 8,636 kg (19,000 lbs.)
Length	5.03 m (16 ft., 6 in.)
Width (Travel Mode)	3.3 m (10 ft., 110 in.)
Height Over Rail	2.7 m (9 ft.)
Weight	5,455 kg (12,000 lbs.)
Wheels	406 mm (16 in.), cast steel
Axles	76 mm (3 in.) Diameter, solid with 73 mm (2-7/8 in.) journals
Wheels Base	2.61 m (8 ft., 7 in.)
Fuel Reservoir Capacity	130 liters (35 gal.)
Hydraulic Oil Capacity	150 liters (40 gal.)
Engine	Cummins 4B3.9 water cooled engine.
Hydraulic Pump	150 liters (40 gal.) per minutes, pressure compensated piston type
Hydraulic Cylinders	Extra-heavy duty welded design
Brakes	Four-wheel fail-safe air with mechanical break release capabilities. Emergency and parking break is spring applied
Set-Off	Center Turntable
Propulsion System	Chain drive, front axle, 3-speed transmission, hydraulic, motor driven

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