

**GENERAL MOTORS
SCOTLAND LIMITED**



PRODUCT INFORMATION

GMS S-7 August 1975
Scraper Product Manual
Features Section

INTRODUCING THE NEW **TS-24** MARK V

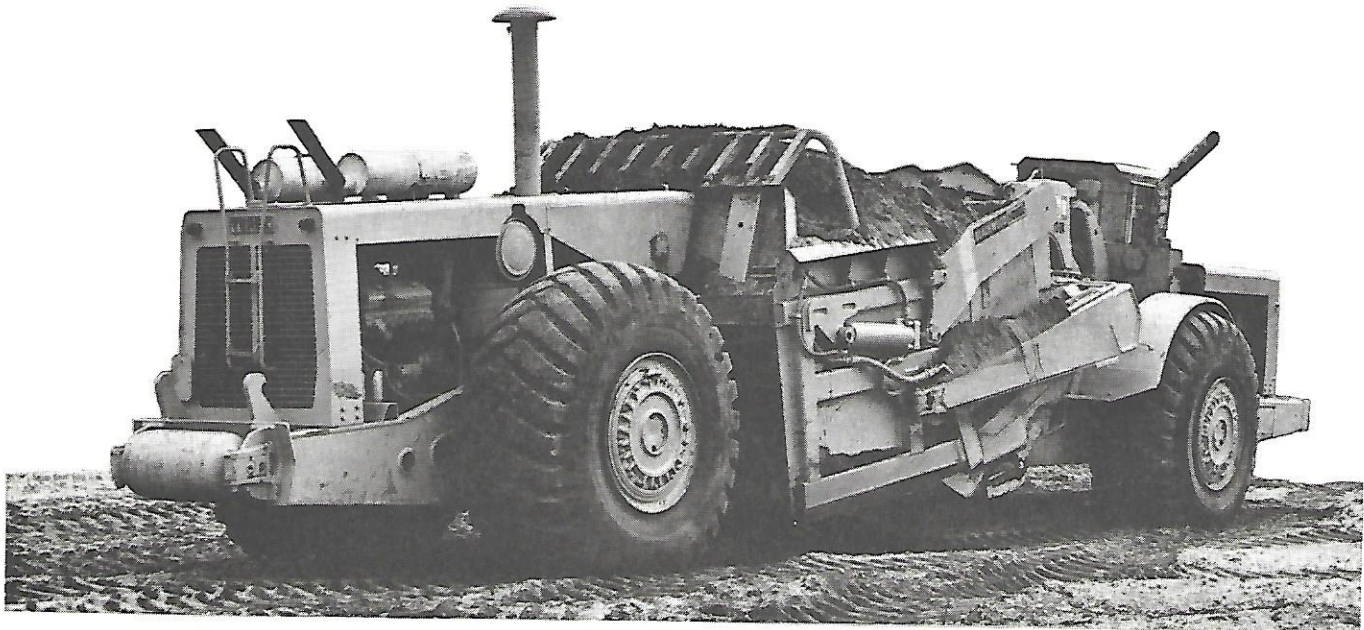


The TS-24 Mark V is a natural development of earlier TS-24 units built in Scotland. Many improvements and new features have been incorporated in this new-look scraper while retaining all the advantages which made it so popular as a high production, low cost earthmover.

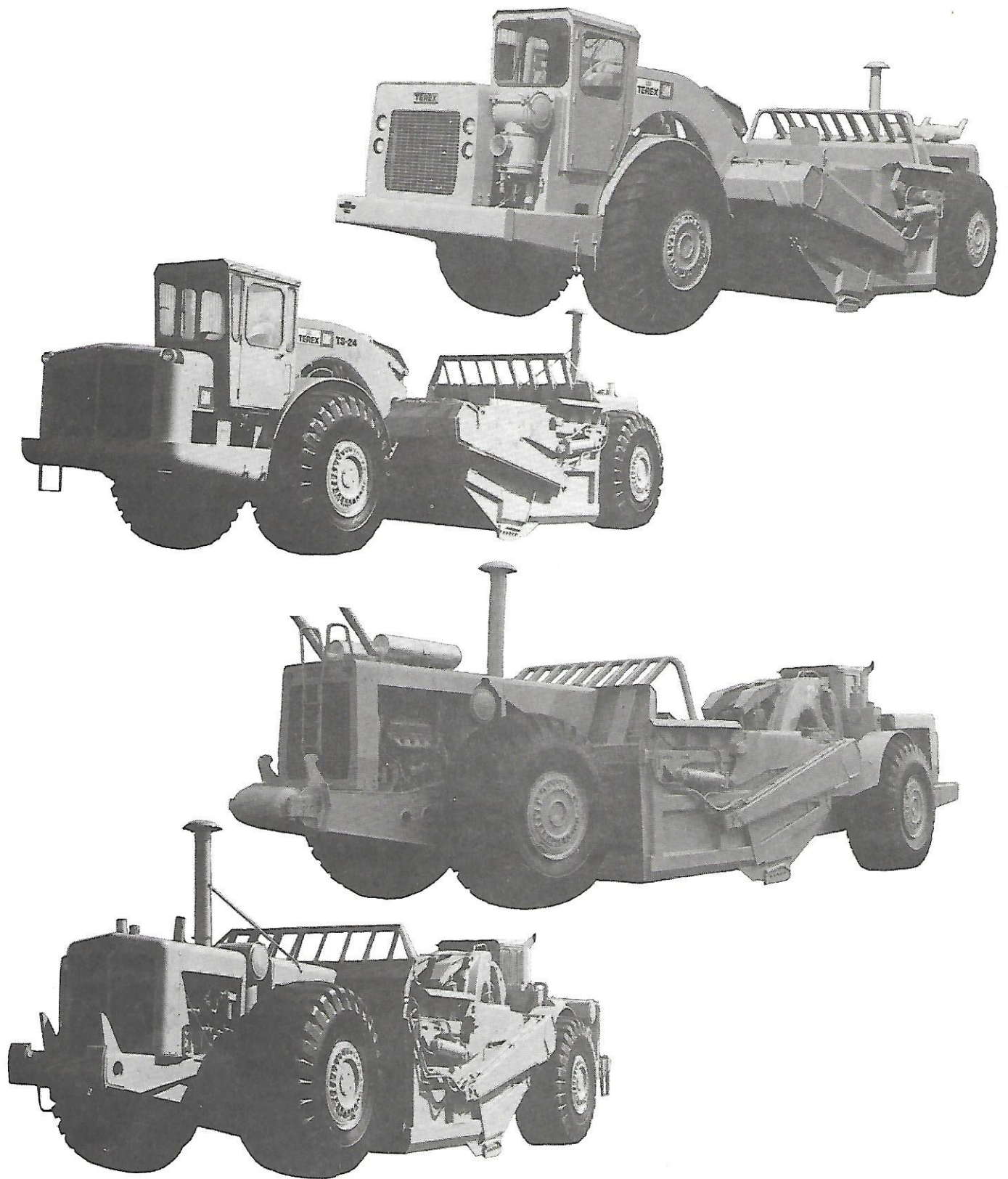
The following changes are highlighted and where appropriate comparative illustrations are used to show areas of improvement.

- * NEW STYLING
- * REDESIGNED FRAMES
- * 10% MORE POWER - NOW 600 FLYWHEEL HORSEPOWER (448 kW)
- * LARGER RADIATORS
- * INCREASED FUEL CAPACITY
- * SIX SPEED TRANSMISSIONS
- * FOUR GEAR FINAL DRIVE PLANETARIES
- * FULL FLOW HYDRAULIC FILTRATION
- * EMERGENCY AND PARKING BRAKE SYSTEM
- * IMPROVED INSTRUMENT PANEL
- * LOCK-UP WARNING LIGHT
- * BETTER SERVICE ACCESS
- * TUBULAR SPILL GUARD STANDARD
- * EXCLUSIVE TEREX ROLLER PUSH BLOCK STANDARD
- * IMPROVED OPTIONAL CAB
- * NOISE REDUCTION KIT OPTION
- * ROP CANOPY OPTION
- * POWER LOCKING DIFFERENTIAL OPTION FOR TRACTOR
- * TWIN HITCH OPTION

All this amounts to more than a facelift - the latest TS-24 is a better machine all round.



* NEW STYLING

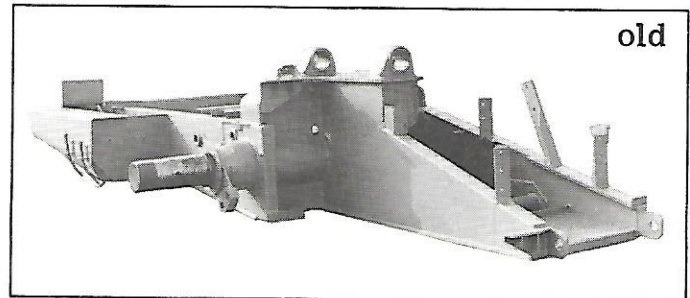
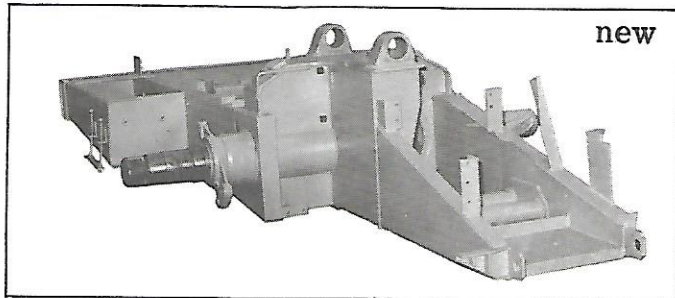


As can be seen in these comparative photographs the TS-24 now has the distinctive TEREX "keystone" look similar to the TS-14B, TS-18, S-23E and machines from other TEREX product lines. But there's more to styling than good looks - the TS-24 now offers even better service access and easier incorporation of noise suppression panels.

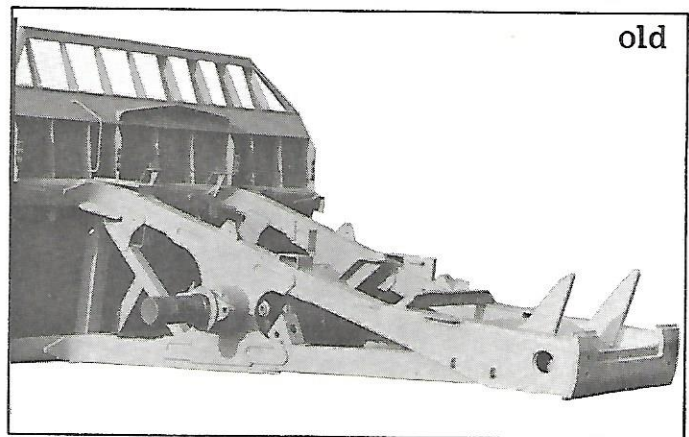
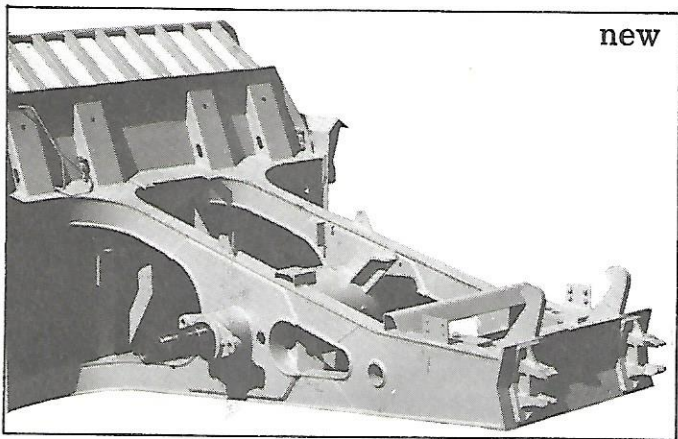
* REDESIGNED FRAMES

Redesigned frames will ensure even longer productive life from the TS-24 - the unit is 7% heavier than its forerunner.

Tractor and scraper frames have deeper, heavier members and are redesigned in the axle areas for greater strength.



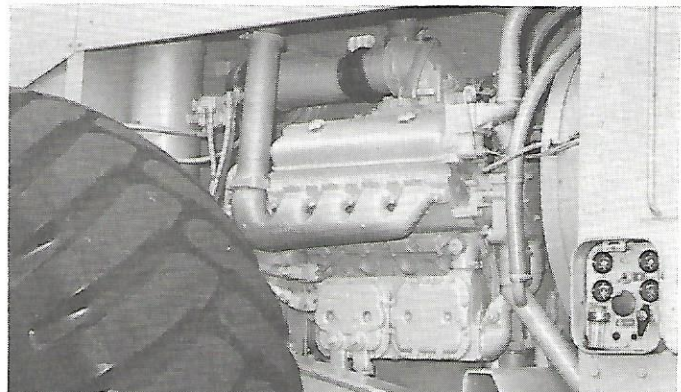
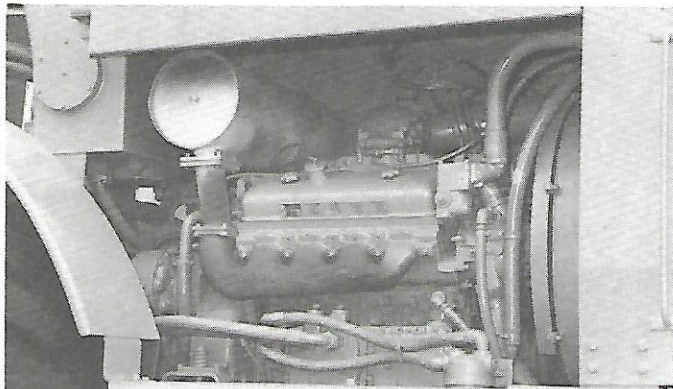
The tractor frame is designed to accept the Twin-Hitch option without structural modification and a heavy duty transmission guard is incorporated.



The scraper frame in particular is better engineered, with cleaner fabrication and considerably more strength than the previous version.

* MORE POWER

Now 600 flywheel hp (448 kW) from the twin Detroit Diesel 8V-71N engines. This 10% power increase from 544 fwhp is achieved by use of larger N65 injectors (previously N60). At maximum payload weight/flywheel power ratio is 284 lb/hp (172 kg/kW), a 6% improvement.



front engine

rear engine

* LARGER RADIATORS

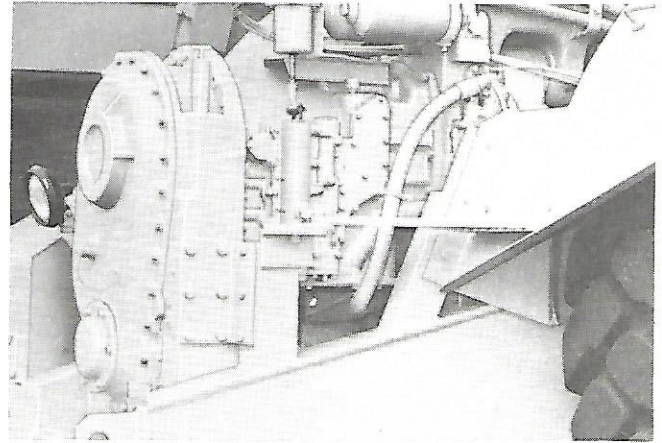
Front and rear radiator capacity is increased 17% to keep the more powerful engines cool under all conditions.

* INCREASED FUEL CAPACITY

The scraper fuel tank capacity is increased from 92 gal (418 l) to 119 gal (541 l) to keep the machine working for a full shift.

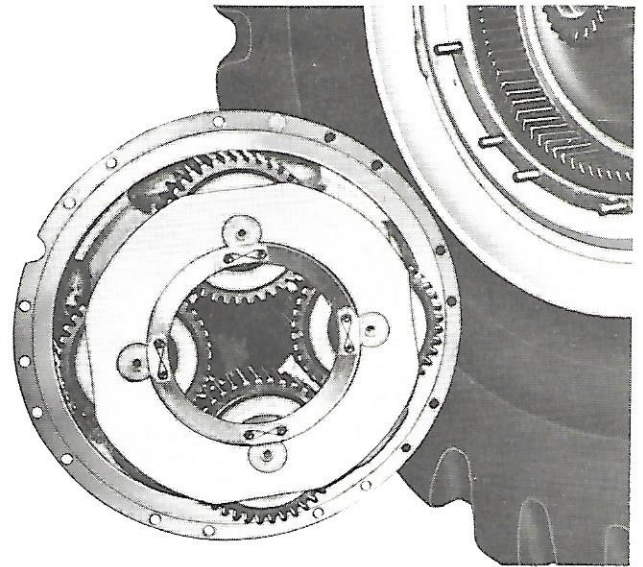
* SIX SPEED TRANSMISSIONS

Six speed transmissions provide two additional speeds allowing closer spacing of gear ratios for best possible performance - a gear for every situation. Transmission gearing is unchanged but a different control valve allows selection of six ratios instead of four. Lowest and highest ratios are unchanged, the additional ratios falling between 1st and 2nd, and 2nd and 3rd ratios.



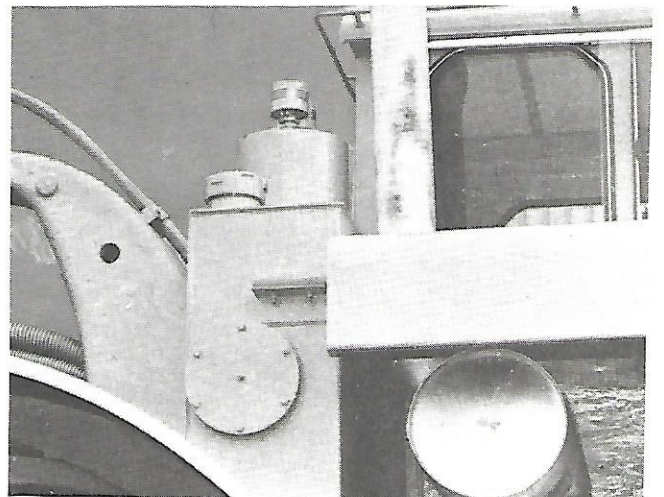
* FOUR GEAR FINAL DRIVE PLANETARIES

Four planet gear wheels are now used in the final drives, instead of three, to handle the increased torque with reliability.



* FULL FLOW HYDRAULIC FILTRATION

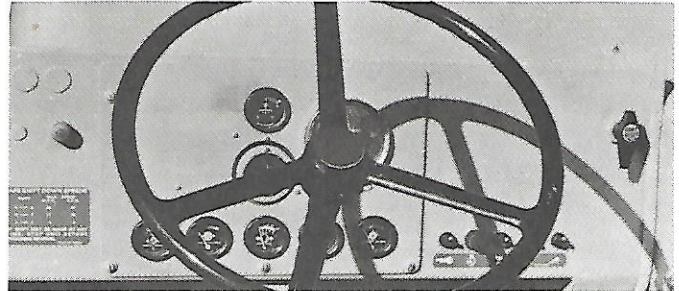
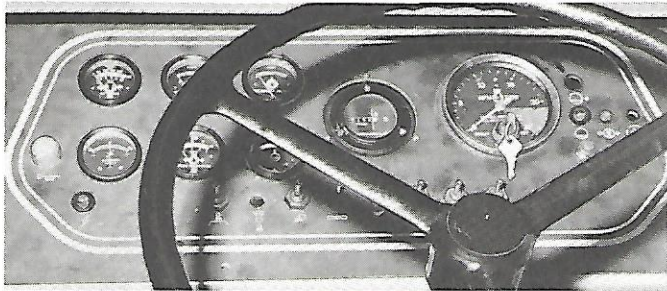
Pressurised, 100% oil filtration (previously a single suction screen only was used) minimises contamination for maximum hydraulic system reliability. The filter is accessibly located in the tank and can be removed without draining the tank.



* EMERGENCY AND PARKING BRAKE SYSTEM

The TS-24 is now a safer machine to operate with an emergency brake system incorporating mechanically locking air chambers for parking (again similar to the TS-14B system). If the system air pressure drops below 75 lb/in² (517 kPa) a horn signal alerts the operator and if no action is taken upon further loss of pressure to 45 lb/in² (310 kPa) the brakes apply automatically. Parking is by a dash mounted control.

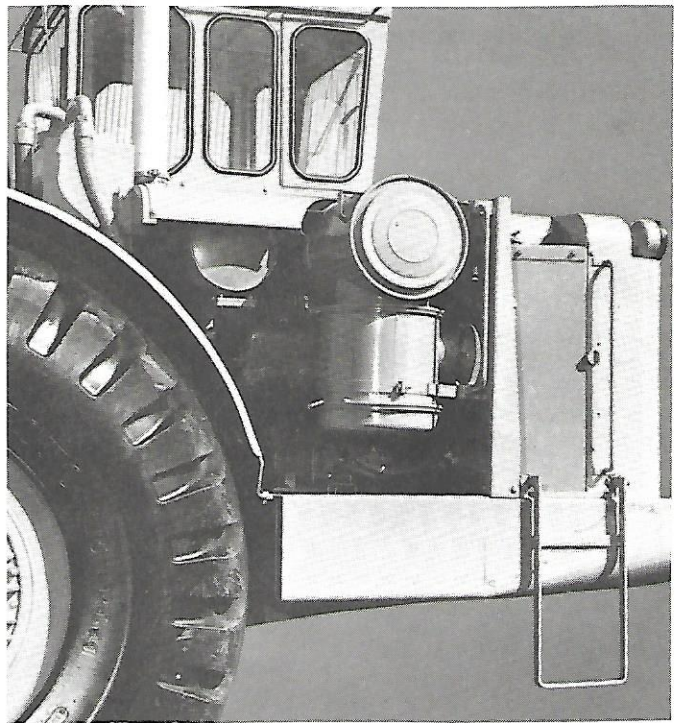
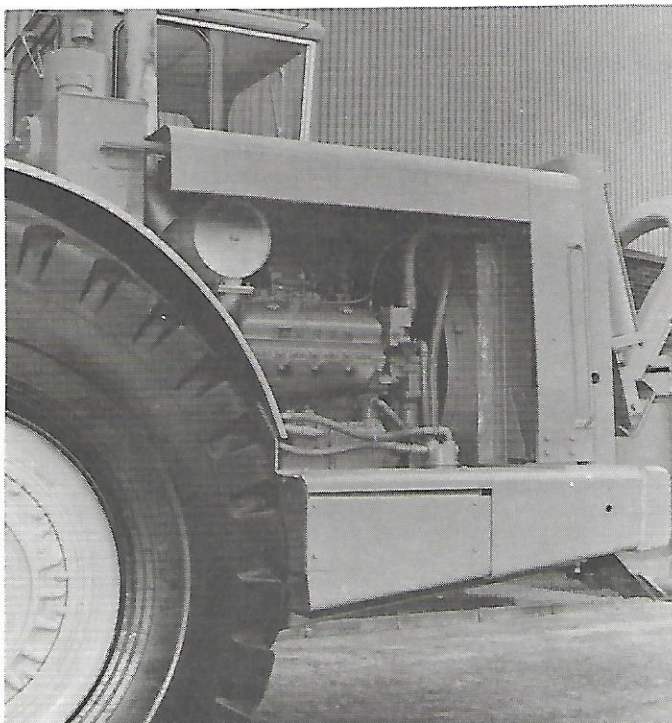
* IMPROVED INSTRUMENT PANEL

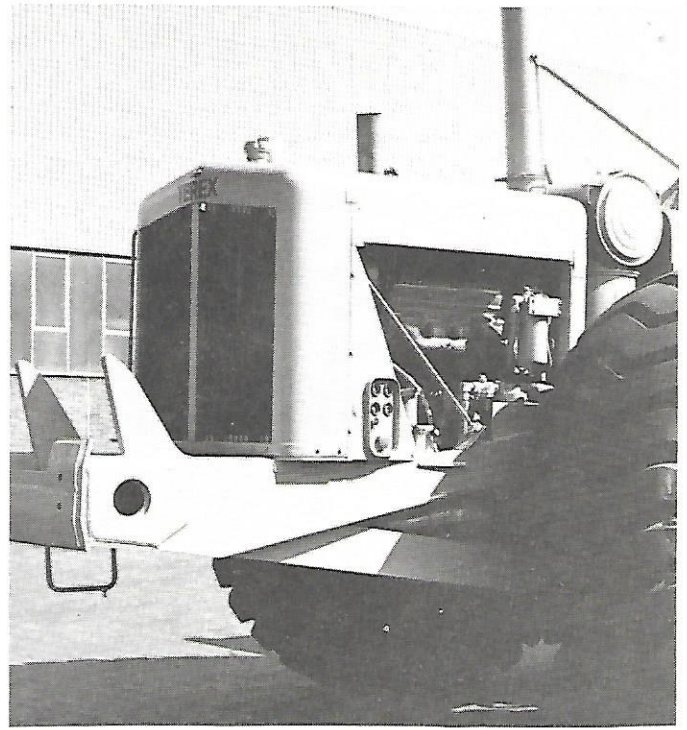
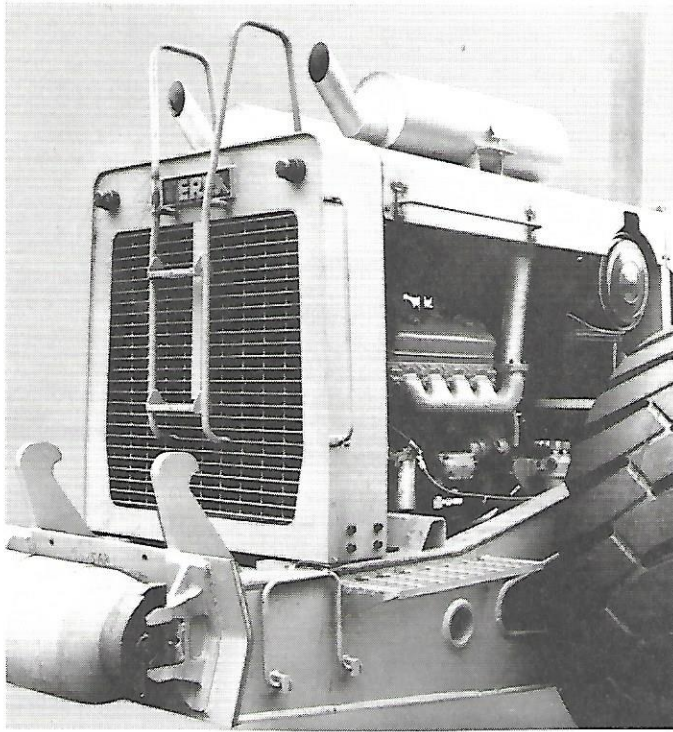


The instrument panel is similar to that fitted to the TS-14B with the same comprehensive selection of instruments as before, neatly arranged in a more horizontal plane for easier reading. In addition a converter lock-up indicator light is now fitted to show when the converter is in lock-up, eliminating guesswork and encouraging operation in lock-up, the most efficient converter condition. A downshift inhibitor remains a standard fitting to prevent the danger of engine overspeeding when changing down.

* BETTER SERVICE ACCESS

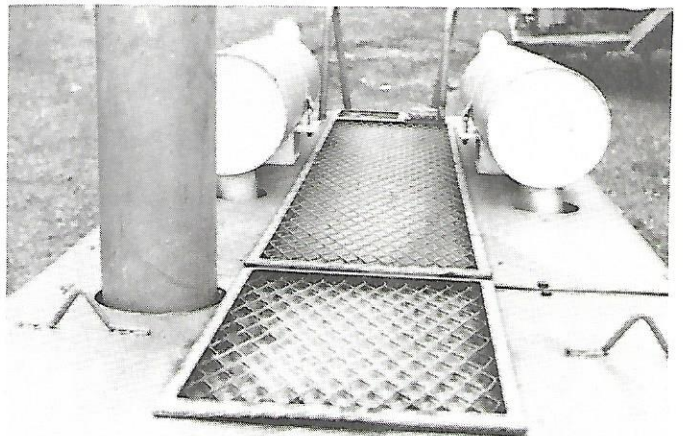
The new styling allows better access to regular engine service points and ancillary components as can easily be seen by comparing these pictures of the front engine compartments.





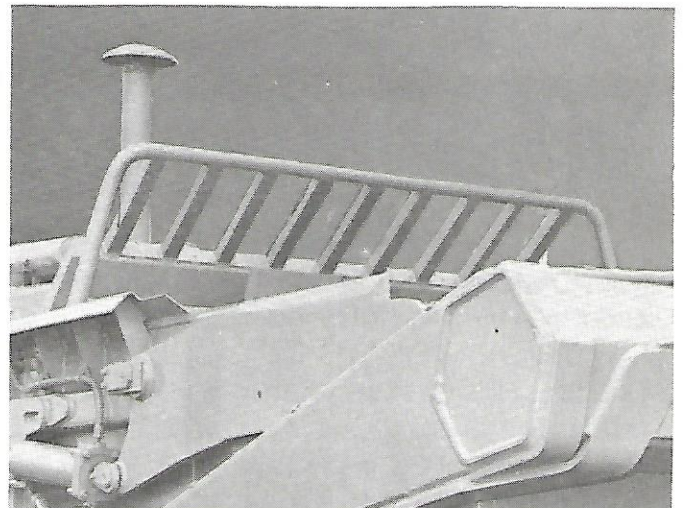
These pictures compare the rear engine area and again improved accessibility is immediately apparent. In addition, an access platform is now fitted to the rear right-hand side enabling more convenient routine servicing. A ladder is provided at the rear radiator grill for easy approach to the rear fuel tank. Provision is made for fitting fast fuelling adaptors to the fuel tanks.

A safety walkway has been provided along the rear hood.



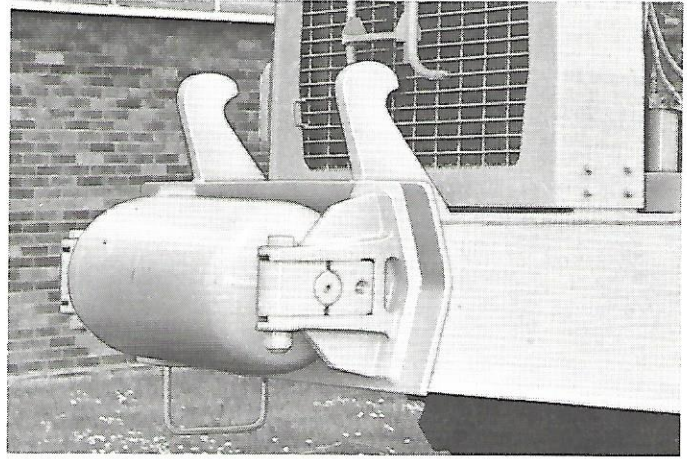
*** TUBULAR SPILL GUARD**

A tubular spill guard is fitted as standard to keep the big TS24 loads in the bowl.



* EXCLUSIVE TEREX ROLLER PUSH BLOCK

Rolling contact between push block and crawler tractor blade allows smooth changes of angle between machines, keeping the rear scraper tyres on the ground and so maintaining a steady cutting angle. Wheel spin is minimised for reduced tyre wear and maximum utilisation of power from the rear power train for faster loading.



* IMPROVED OPTIONAL CAB

The optional cab offers much improved ventilation and demisting. Sliding windows in the door and in the cab right hand side replace the fixed door window and the hinged right hand side window. Built in demister ducts for front and rear screens replace the fish-tail type vents.



* NOISE REDUCTION KIT OPTION

The optional noise reduction kit comprises cab insulation, engine hood sides and cooling air noise cowls to make the unit acceptable in a noise conscious environment.

Cab insulation - the roof, back wall, doors and floor are all insulated. Material is one inch thick foam with a perforated black vinyl skin for protection and smart appearance (except floor which has a heavy, sound absorbent mat).

Hoodsides - tractor and scraper engines are completely enclosed (except undersides) with insulated hoodsides to contain mechanical noise within the engine compartment and reduce spectator noise level.

Cooling air cowls - cowls fitted outside the front and rear radiator grills to minimise cooling air intake noise at ground level.

No noise level figures available at time of printing.

* ROP CANOPY OPTION

An optional ROP Canopy is available to meet the ever increasing demand for operator protection. The canopy fits over the optional cab.

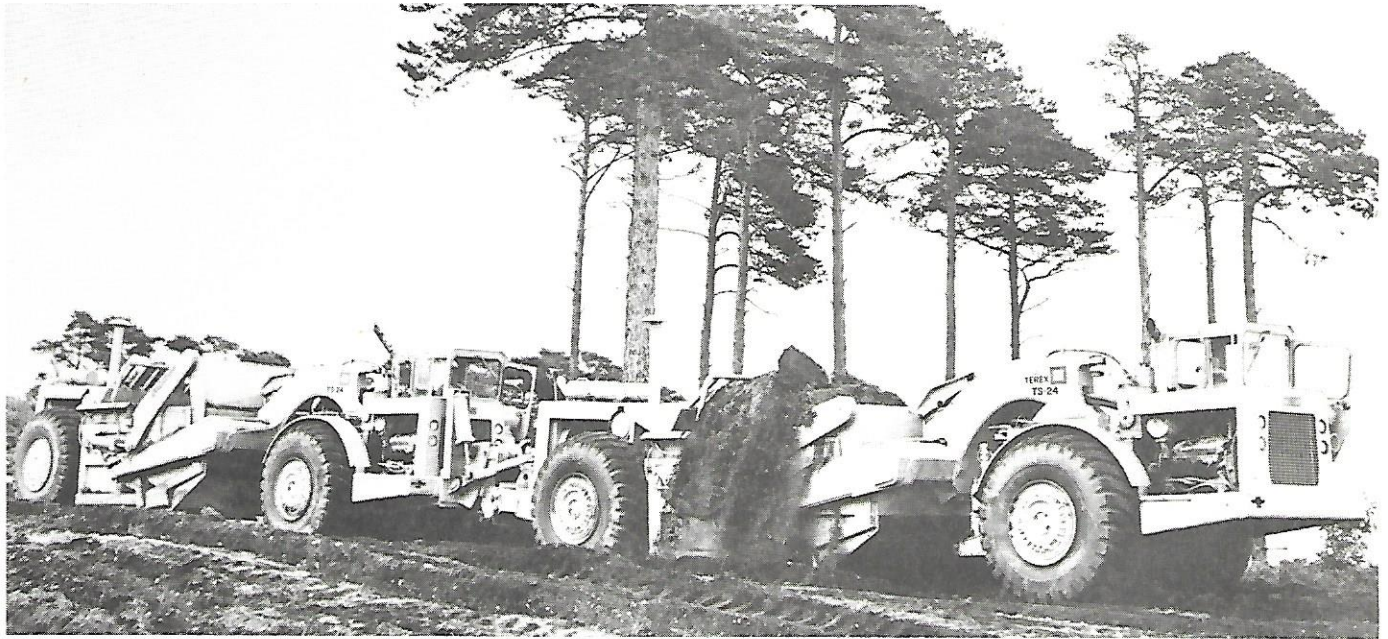
* POWER LOCKING DIFFERENTIAL OPTION FOR TRACTOR

An optional power locking differential for the tractor gives the operator greater control in difficult conditions. With a standard differential when one wheel spins on soft or slippery ground there is no torque delivery to the other wheel and all drive is lost. With the power locking differential the operator can engage a hydraulically actuated clutch within the differential, locking the normal differential action and ensuring drive to both wheels. The action is controlled by a foot pedal.

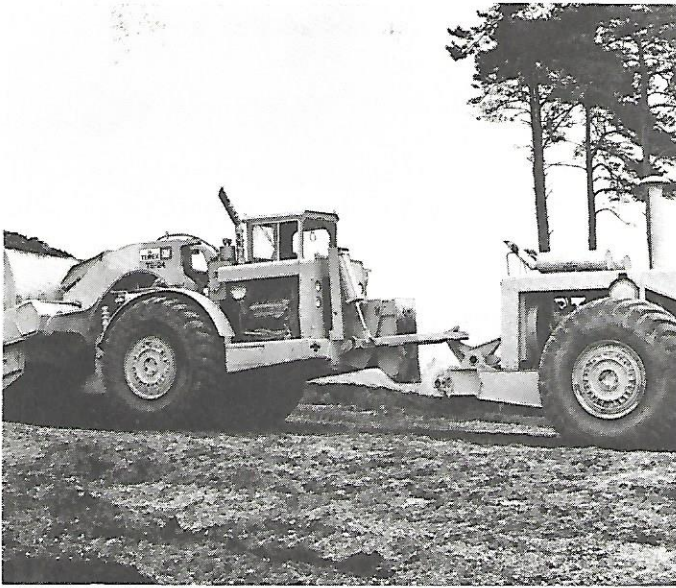
Note that the No Spin differential is rarely fitted to scraper tractors because when turning the high torque delivery to the inside wheel makes steering difficult.

* TWIN HITCH OPTION

Optional TEREX Twin Hitch enables two TS-24 to join or hitch together at loading, each helping the other to load and so eliminating the need for a crawler pusher. Twin Hitch comprises a cushioned push-plate and air operated bail at the front of the unit and the TEREX exclusive cushioned hook at the rear.

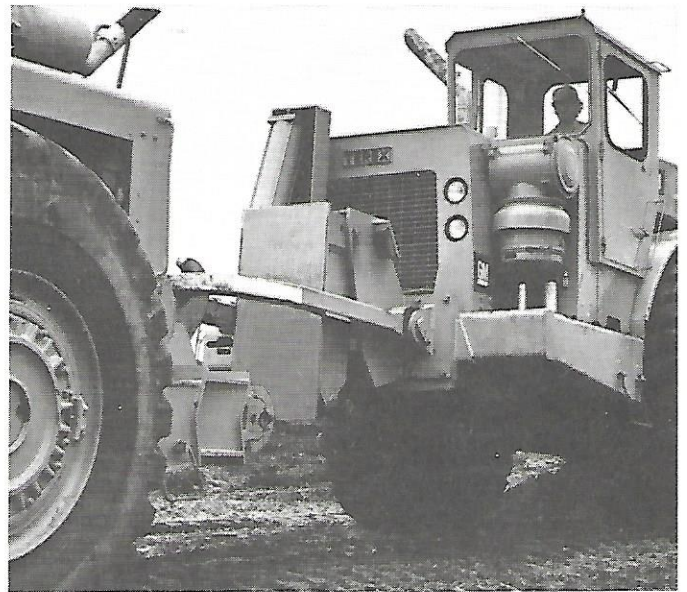


In operation, units hitch together at the start of the cut and the lead scraper loads first with the rear machine pushing, then the rear machine loads with the lead machine pulling - four engines driving eight wheels deliver big loads. After loading the units separate and travel independently to the fill. The cushioned push-plate and hook ensure smooth engagement with a speed differential of up to 5 mile/h (8 km/h) possible at engagement allowing the operator to make fast, positive engagement in confidence knowing that both he and his machine are protected from dangerous and damaging impact shock.



Maximum equipment utilisation and versatility are ensured as units equipped with Twin Hitch can be push loaded in the conventional fashion, and production cost compares favourably with push or self loading on most jobs. Twin Hitch represents an additional investment of only about 6% over the cost of the basic machine and even if used only part time this small additional investment will pay for itself.

Twin Hitch can be fitted as a factory option or field modification.



Remember also the features inherited from the previous model:-

- * ALL WHEEL DRIVE for maximum tractive effort
- * WIDE, LOW BOWL for shallow cuts, minimum resistance to loading, fast dumping and good stability
- * POWER DOWN, RADIAL DESIGN APRON for fast, smooth operation
- * ROLL OUT EJECTION for fast easily controlled dumping
- * CO-ORDINATED APRON CLOSE / BOWL RAISE arrangement automatically raises bowl on closure of apron

- * SECTIONAL CUTTING EDGE permits straight or drop centre arrangements. Sections reversible and interchangeable to allow best utilisation.
- * IDENTICAL DETROIT DIESEL ENGINES AND ALLISON TRANSMISSIONS front and rear for maximum parts standardisation
- * GEAR PUMPS are better suited to adverse operating conditions than vane pumps
- * FULLY FLOATING AXLES isolate axle shafts from bending loads
- * PLANETARY FINAL DRIVES give final torque multiplication at the wheels

STANDARD EQUIPMENT

Tractor and Scraper

Instruments - Engine oil pressure gauges; Engine water temperature gauges; Air cleaner restriction indicators; Converter oil temperature gauges; Clutch oil pressure gauges.

General - Cold start aids; Silencers; Parking and emergency brakes; Maintenance and Parts manuals.

Tractor Only

Instruments - Tachometer; Ammeter; Hourmeter; Converter lock-up indicator light; Air pressure gauge.

General - Downshift inhibitor; Air suspension seat; Seat belts; Air horn; Cutting edge floodlight.

Scraper Only

General - Power train warning alarm; NoSpin differential; Heavy duty side cutters; Roller push block.

OPTIONAL EQUIPMENT

Tractor - Bostrom Norseman seat; Windshield with wiper; Cab (with front and rear wipers); Heater and demister; Noise reduction kit; ROPS (fits over cab); Hydraulic retarder; Power locking differential; NoSpin differential.

Scraper - Severe application kit (bowl side wear plates, ejector rock guard, ejector hoist guard); Six yard top extension (coal only); Hydraulic retarder; Reversing lights or Reverse warning lights.

General - Twin Hitch; Tyre inflation kit.



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