

## ROV DURRANT ENG (PTY) LTD

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# MODEL : DURRANT 590-95 350 TPH





The modern Salt Harvester built by RovD is quite different from its beginnings. The diesel engines can cope with high altitude and high ambient temperatures

Over the years RovD has refined certain processes through end user feedback to improve longevity and performance of the machines in daily production, including metal spraying techniques and carbide tipped cutters.

### **THE HARVESTING MACHINE**

The major areas of interest on the harvesting machine are as follows :

- cutter drum (pick roll)
- elevator
- chassis
- cab
- control system

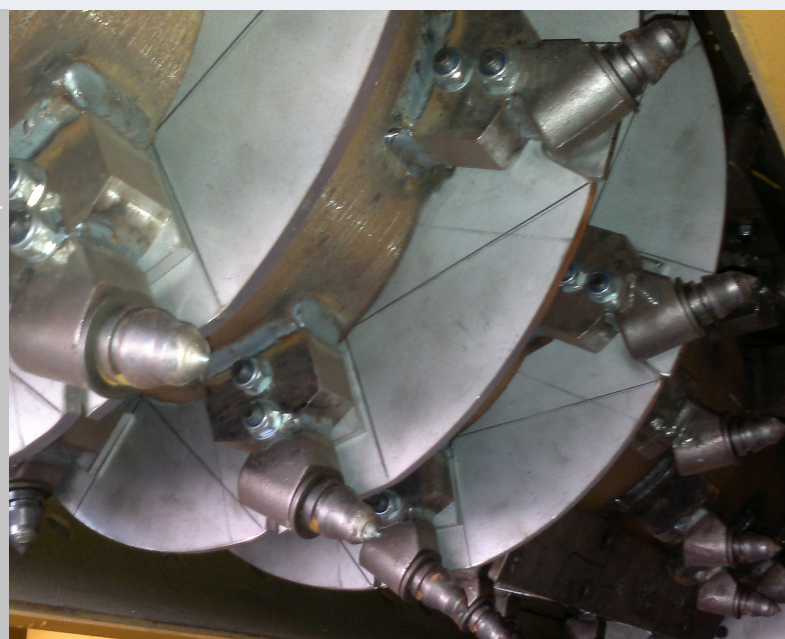
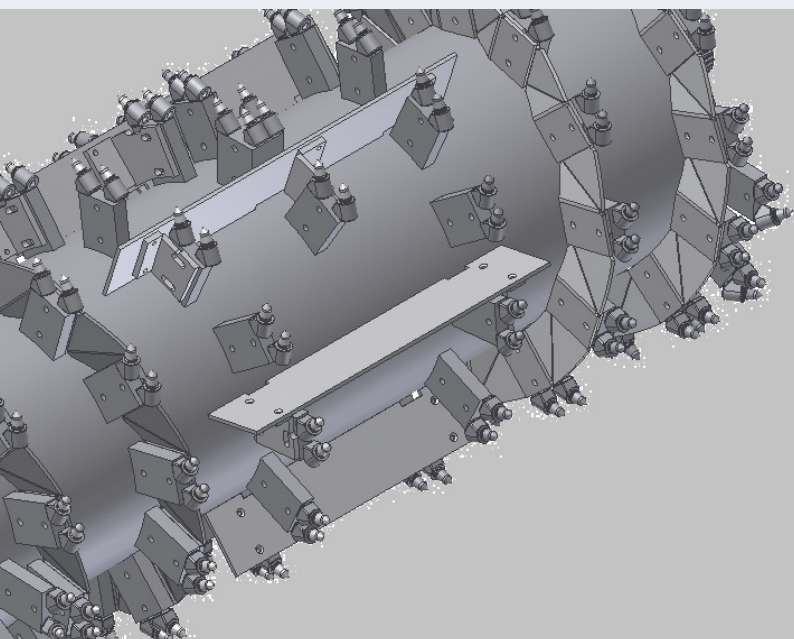


#### **Cutter drum**

The cutter drum also referred to as the pick roll is the business end of the machine. Here the mass, stability and power of the machine are brought to bare on the crystal structure. The construction of this drum is a series of pick holders welded in place in a very particular pattern for the design parameters given, these pick holders are fitted with the carbide tipped cutters just prior to commissioning. The cutters are easily replaceable since they are held in place with retainer clips.

The other function of the pick roll is to convey the salt to the centre of the drum with the use of scroll plates. These plates are bolted to the pick holders, and act as a large diameter screw conveyor. When the salt gets to the middle of the drum a series of horizontal plates fling the salt into an the elevator section mounted behind the pick roll drum. The pick roll drum is conventionally driven by two hydraulic motors via variable speed closed loop pumps.

The hydraulic motor has a grease barrier seal as well as a mechanical seal. The motor is a shaft mounted rotating case motor. The mechanical seal requires to be greased at the start of each shift.



## **Elevator**

The purpose of the elevator is to convey the cut salt to a position where it can fall into a trailer or truck to be transported to the stock pile. The elevator concept is the 'chain and bucket' type. A standard chain is modified by installing a series of bucket attachment bolts. Buckets are bolted to the chain. The chain slides between hardened wear bars bolted to the elevator frame. The elevator is hydraulically driven with variable speed in two directions, allowing discharge of cut salt on either side of the machine. This allows the truck /trailer to remain on the firmer uncut layer for easier transportation to the stock pile.

The elevator chain speed is set to be as slow as possible with the maximum capacity of the machine achieved. This gives the longest chain life. In most cases an elevator chain will last for approximately 500 000 tons of salt loaded after which chain breakages become frequent, the old chain is pulled out and the old buckets are transferred to a new chain. The buckets usually last 2 to 3 chain replacements before they require replacement.

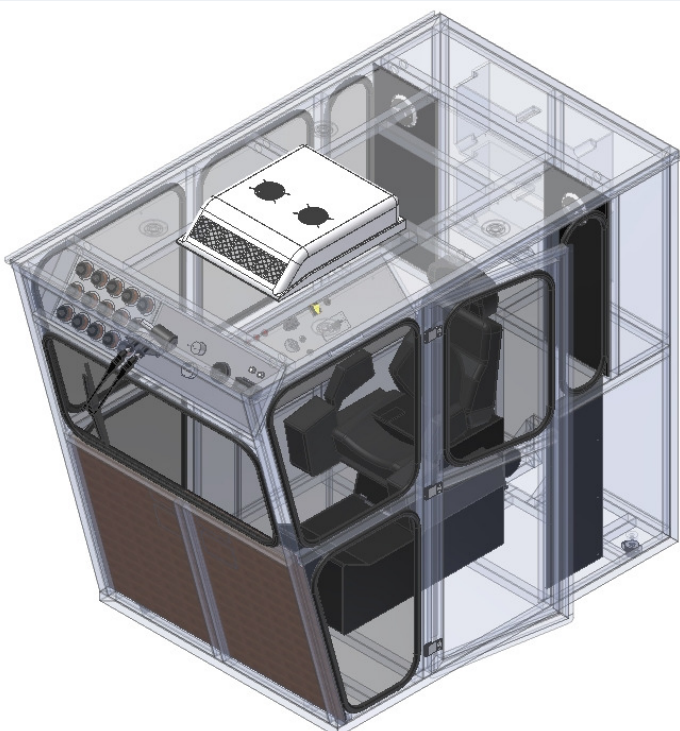
The elevator frame is manufactured of a corrosion resistant stainless steel called 3CR12. This material has very good corrosion resistance as well as abrasion resistance properties and usually only has to be replaced once in the life of the harvester machine.



## **Chassis**

The chassis provides a platform for the mounting of all the machine components required as well as being the fluid tanks for the operation of the machine, that is diesel fuel and hydraulic oil. The chassis is a compromise between corrosion resistance and strength. The chassis is manufactured using mild steel and a tried and tested process. This method of corrosion protection and regular maintenance has seen a chassis doubling its life expectancy.

It is recommended within the machine's documentation that at major service intervals the chassis is thoroughly cleaned and a fresh coat of paint be applied. The thinner sections on the Harvester, that is the cab and bonnet covers et cetera are manufactured from stainless steel and 3CR12 sheets.



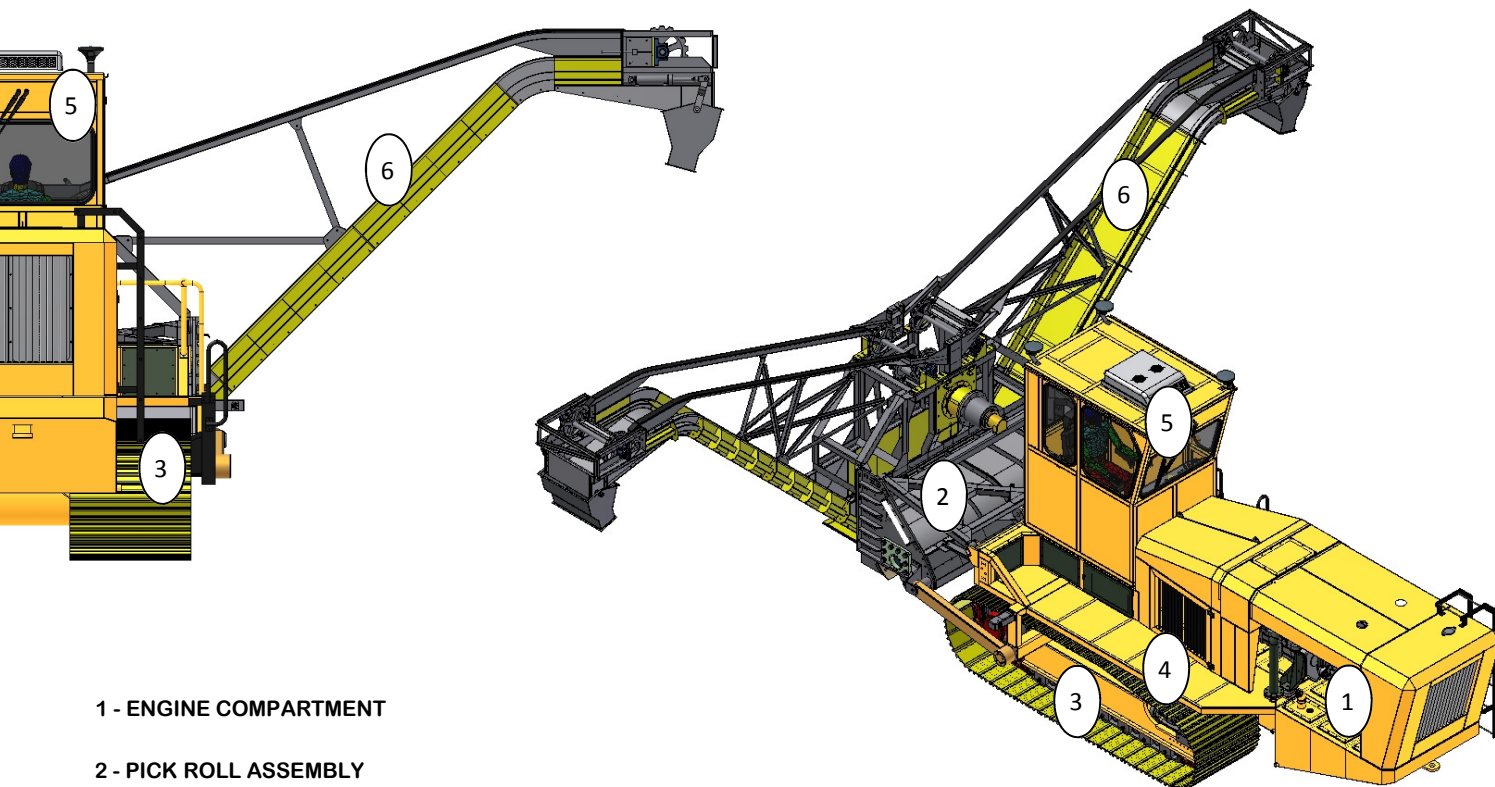
## **Cab**

The operators cab, is totally enclosed with tinted safety glass, air conditioned, forward facing work lights, as well as side facing working lights to give good visibility during evening/night shifts.

The sound level within the cab when the door is closed is normally within 85 db which is acceptable without additional hearing protection. The cab is equipped with a series of pressure gauges to monitor hydraulic filter condition, pump boost pressures as well as service pressures. With the use of an electronic engine we have a digital display giving engine operating parameters, engine load, pressures, temperatures et cetera as well as keeping a record of any faults. The cab with radio/ CD player. The harvester machines are equipped with fire extinguishers in the cab.



Overall Width 11 350mm



1 - ENGINE COMPARTMENT

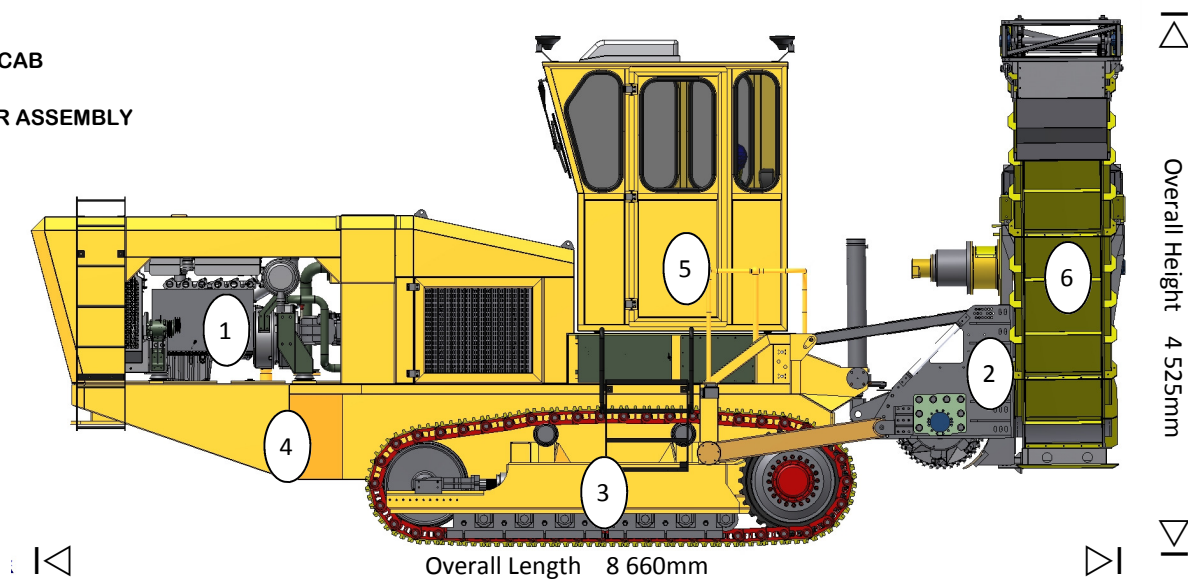
2 - PICK ROLL ASSEMBLY

3 - TRACK ASSEMBLY

4 - CHASSIS

5 - DRIVERS CAB

6 - ELEVATOR ASSEMBLY



Overall Length 8 660mm

Overall Height 4 525mm

Engine: Caterpillar C9 : 224 kW @ 2200RPM

Pump drive gearbox: Twin pad SAE C & SAE D

Track contact with ground 2 x 2,25 sq meter

Track speed: Variable

Pick roll: Width 2,500m with carbide cutters

Elevator capacity : Est.sg of 1.2, 390 ton/hr Max

Fluid Volume : Oil 1000 l - Diesel 600 l

Fuel consumption: 55 L/hr

Tracks: 900mm wide grouser plates

Harvester: Total ground pressure +/- 4.88 tons/sq meter

Speed : 30 to 90 meters/min (1,8 to 5,4 km/hr)

Cutting depth: 300mm

Overall mass : 22 000 kg (Dry)



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