Unlike conventional rotary combines that have a concentric cage throughout the full length of the rotor, the STS module features a stair-step design. This gives the crop room to expand as it travels through the separator module. This reduces the chances for roping and lowering power requirements. The pull and release action frees trapped grain in the crop mat, boosting grain savings significantly.

This step up action gives more expanded room to thresh and therefore takes less horsepower.

Feed flights are tilted forward at the front to grab material and spiral back to release material to the threshing rotor.

The threshing section of the STS combine is comprised of the threshing elements that are attached to the rotor and the concaves on the cage below. The concaves can be adjusted from inside the cab. There are three sections to the concave. The front concave has an extra lip from the feed flights. The mid and rear sections are the same part number.

There are transport vanes in the top of the second level to help move the crop.

Unlike the cylinder-concave design of conventional combines, the crop is exposed to more than one pass between the rotor and concave. Therefore, the clearance between the rotor and concave is usually somewhat wider than in the conventional cylinder-to-concave spacing in the same crop and conditions. This wider spacing may result in less grain damage than is caused by a conventional cylinder, particularly in high moisture crops.

**Smooth threshing elements**

The threshing elements keep material flowing through the rotor. With the STS rotor threshing is accomplished using threshing elements two styles are available; the **smooth threshing element** came standard with STS Combines through model year 2005 and the **rifled threshing element** introduced in 2006 with the Bullet Rotor™.

Optional Extended-Wear threshing elements for both standard and rice versions are available. In some conditions these will wear up to twice as long as the standard-wear elements.

The rifled elements feature deep grooves, which spiral around the rotor to index and control the material. The grooves are deep and wide to avoid pinching the seed and have a smooth, rounded cross-section to prevent damage to the seed from sharp edges.

**Rifled Threshing Elements**

<table>
<thead>
<tr>
<th>Standard – Smooth Bar</th>
<th>Rice – Serrated Bar</th>
</tr>
</thead>
</table>

To maintain overall combine performance, the STS threshing elements should be replaced when the rear blade edge is worn to approximately 1/2-in. in height. Replacement bars are sold in weight-matched sets of three so that proper threshing module balance is maintained.

**The Bullet Rotor™ – STS Combine**

Model year 2006 the Bullet Rotor became
standard on 9660 – 9880 STS Combines. Model year 2007 it became standard on 9560 STS Combines.

The Bullet Rotor has been designed to increase material handling, offering customers increased throughput in tough crops, consuming less horsepower, and extending harvesting hours.

Customers will notice how much smoother the crop is handled through the separator at higher ground speeds, without any compromise to the high grain quality and crop versatility for which STS Combines are well know.

**Concaves – STS Combine**

The concaves are located under the threshing elements in the threshing section. The threshing elements and the concaves thresh the grain off the crop.

The Single Tine Separator Combine can be equipped with any one of the three different types of concaves to best meet crop variety and conditions. The small wire and large wire concaves are available in the Extended-Wear version.

- **Large wire concave**
  - Best for rice, milo, sunflower and some edible beans
  - Field installed option

- **Round-Bar Multi-Crop wire concave**
  - Best for corn and soybeans
  - Factory installed option

- **Small wire concave**
  - Designed for small grain such as wheat, barely, and canola
  - Factory installed option