



# Dozer Tilt Function Explained

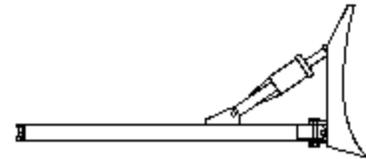
Even when watching a dozer blade tilt, many people are mystified by the process. This page helps unravel the mystery of how a tilt cylinder makes a Dozer Blade tilt.

Dozer Tilt is controlled by a structural triangle formed by the Push Arm, the Dozer Moldboard and the Tilt Cylinder. So long as all three sides of the triangle remain unchanged the shape of the triangle remains unchanged. Change any one of the sides of a triangle when two corners of the triangle are in fixed locations, then the third point must move. Dozer Tilt mechanisms use this basic principle.



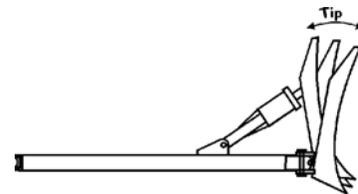
## A VISUALIZATION

To assist in visualizing the action here, picture the moldboard to be anchored and that the end of push arm is free to move. Since the cylinder is the top chord of the triangle, the arm must move up and down if the cylinder is lengthened or shortened.



## MOLDBOARD TENDS TO TIP

Here we have attached ends of the push arms to trunnion balls and freed the moldboard to move as required. As the cylinder length changes, the moldboard tips.

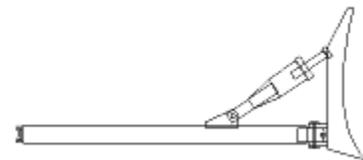


## TILTING A STRAIGHT DOZER

Of course tip isn't what is desired so in the case of a Straight Dozer, the moldboard is restrained from tipping by a fixed strut at the opposite end. As the cylinder changes length the only movement left is the the rise and fall of the arm and moldboard at the cylinder end.

With one end of the blade restrained from raising or lowering by the fixed strut and the other moving up or down, tilting of the overall blade is achieved.

When tip is desired, a second tilt cylinder must be added. In this case, the cylinders can be controlled to move in and out together,



or opposite each other. Tilting, requires that the cylinders move opposite each other much like they do with Angle Dozer Dual [Tilt Cylinder Kits](#). Tipping requires the two cylinders to extend or retract together.

### **TILTING AND ANGLE DOZER**

Angle Dozers are restrained from tipping by the connection between the back of the blade and the c-frame. In fact, the moldboard is attached at it's center to the c-frame in such a manner that it pivots to allow [tilting](#) and [angling](#). Hence, when one side rises the other must fall. To accommodate this, [Dual Tilt Cylinders](#) are used. As one cylinder extends to raise the end of the blade, the other retracts to lower the opposite end.

