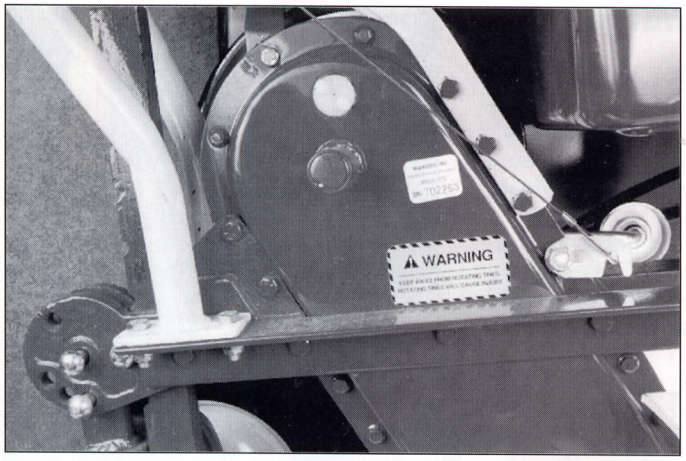
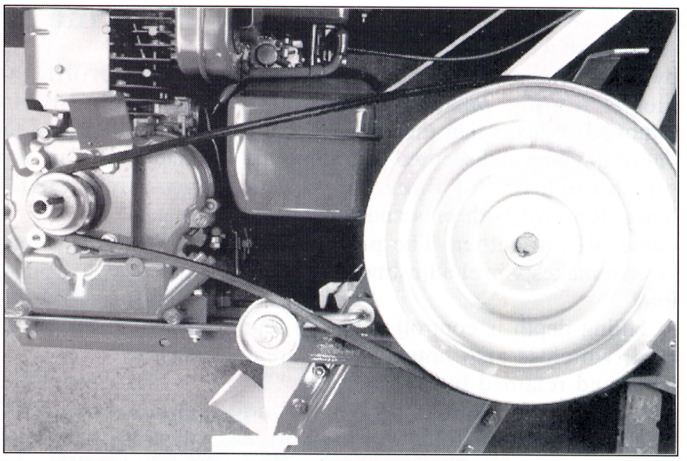


Upper half of transmission assembly also secures pulley cover bracket, handle braces and idler arm/adjusment link. Oil filler cap and input shaft housing are at top, center.



Detachment of belt cover reveals power transmission setup. Both engine pulley and large transmission pulley are keyed to stay in place and secured with set screws.

sprocket. This sprocket and loop of RS35 roller chain drive a 36-tooth idler sprocket, which rides on roller bearings. An adjacent 9-tooth sprocket and length of RS50 roller chain drive the tine assembly shaft's 17-tooth sprocket.

The tine assembly shaft is designed for abuse. It's 1 ¼ in. in diameter and made from case hardened, ground and polished carbon steel. It is fully supported by roller bearings. Seals on both tine and input shafts keep oil in and dirt out.

The Merry Tiller's transmission reduces RPM by a ratio of 6:1. Together, the transmission and pulley system deliver a reduction ratio of about 30:1, which gives the Merry Tiller a lot of dirt-busting torque. At maximum engine speed (3,600 RPM), tine speed is just 115 RPM.

Merry Tiller's transmission is an expensive component, but it should seldom need replacing. If problems develop, MacKissic has all the parts necessary for a rebuild.

According to MacKissic Project Engineer Jeff Arendt, the transmission sprockets will last "forever" if chain wear is controlled. Arendt recommends checking chain backlash occasionally to make sure the chains aren't wearing out. It's a simple test that can be performed without any disassembly.

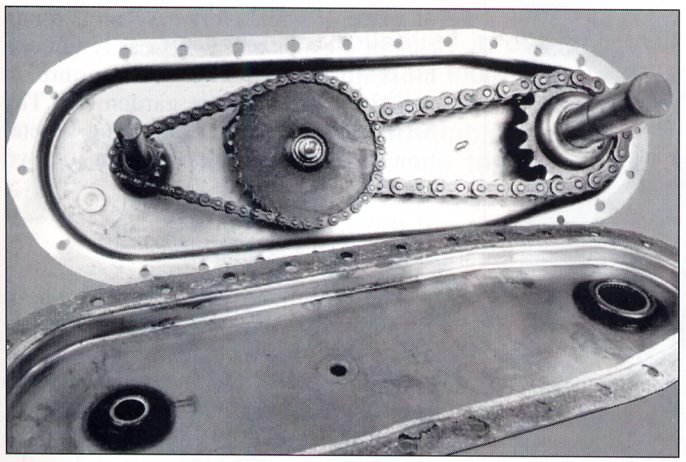
To check chain condition, turn the large transmission pulley until all slack is removed from chains and sprockets. Mark the tine shaft and the outer edge of the large pulley. While observing both marks, roll the pulley in the opposite direction until all internal slack is removed and the tine shaft just begins to move. The mark on the large pulley should not travel more than three inches before the mark on the tine shaft begins to move. If more travel is observed, it's time to replace the chains or perhaps other components within the transmission.

MacKissic calls its standard tines "slasher" tines, and they have been designed to cultivate aggressively yet smoothly. The attack angle allows each tine to enter the earth gradually, which saves wear and tear on the operator.

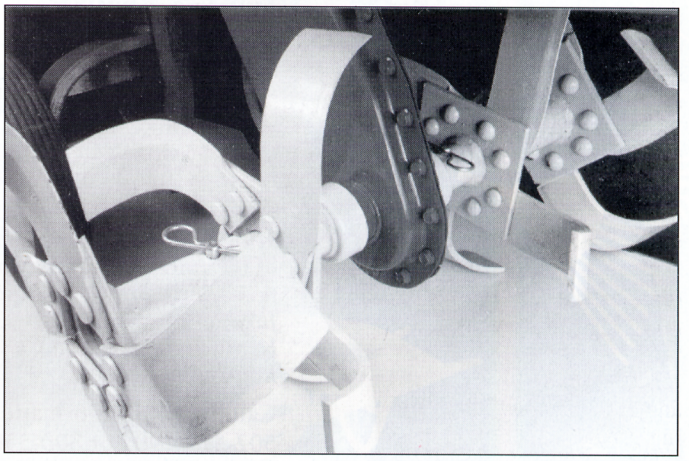
Merry Tiller tines are heavy duty, made from hard, high carbon steel. The slasher tines are ¼ in. thick on their trailing edge. There is no flexing or bounce, which also improves digging power and operator comfort. Individual tine arms are securely riveted to the tine hubs.

The tine shaft houses four tine units which are easily removed and held to the tine shaft by sturdy clevis pins with "hair pin" retainer clips. With the four slasher tine units in place, tilling width is 26 in. For tilling between rows or in other tight spots, the two outside tine units can be removed, reducing the tilling swath to just 15 in. The two interior tine units are fitted with "weed cups" which cover and protect the shaft housing and seals.

For transport, the Merry Tiller is fitted with two 10 x 1.75 steel, ball bearing



"Bulletproof" three stage transmission system reduces engine revolutions to give Merry Tiller its bite. Input shaft is left, idler sprockets in center and sturdy tine assembly shaft, right.



Standard Merry Tiller tine assembly is rugged. Note heavy rivets that attach tines to hubs and protective "weed cup" collar on inner tine. Clevis pins and hair pin clips allow quick removal.