

RANSOMES LIGHT-WEIGHT MOWING EQUIPMENT

David Legg
Ransomes
Madison, WS

Many developments have been made over the years to reduce the weight and yet improve the output and durability of machinery for cutting large areas of fine turf found on golf course fairways. In 1902, the first gasoline engine was introduced into the market, although it looked very heavy with its large rolls, cogs and exposed drive chains. It was quite a step forward from the steam driven machine which had preceded it.

In 1914 a patent was taken out by a Mr. Worthington of Shawnee, U.S.A. for ganging together a number of side wheel mowers within a frame to be drawn by a horse and for the first time, large areas could be cut quickly and economically.

With the introduction of the tractor, more units could be ganged together allowing even greater production and efficiency. Although this type of mower is still used on many golf courses today, it relies on the traction wheels of the gang to drive the cutters and if the ground is wet or the grass is long or dense, these wheels can break traction causing them to skid and tear turf or the rear rolls tongue up causing uneven cutting.

The tow type mower relies on drawbar pull from the tractor and therefore the tractor tires are the only method of transmitting power from the tractor to the mower. When the P.T.O. shaft appeared on tractors, the gang mowers could then be power driven thus eliminating the need for the units to be heavy. The first power driven machines were mechanically driven by belts, chains and universal couplings and although the mowers did a better job of cutting under tough conditions, they required adjustments and lubrication and tended to breakdown more often.

The trailed type power mower has a disadvantage on undulating fairways because as the tractor negotiates undulating terrain, it changes the angles of the trailing framework and unless the mowers are fully floating, will cause them to cut at different heights or even scalp over the "humps". Mowers which are close coupled or mounted round the tractor generally have a better floating capability.

Sixteen years ago, Ransomes introduced the Hydraulic Power 5/7, the first successful power driven machine. The hydraulic power replaced all the moving parts of the mechanical drive machine, greatly improving the efficiency and the down time.

The Mark 2 floating head was specially designed for the American market where close mowing of fairways is a must and the ground is often far from even. The Ransomes cutting head does not rely on ground pressure for its drive, and therefore is counterbalanced by large springs which allow the units to float instead of being dragged over the ground, and there are no wheels which could mark the turf. The total weight of each unit on the ground is only 40 pounds. It is supported on two full length steel rollers and therefore it is impossible for the units to scalp even at very low heights of cut.

The tractor is equipped with turf tires for reduced marking and compaction. The recommended tire pressure gives us a good indication of

our pounds per square inch on the ground. For instance, if the pressure in the tire is 12 lbs. per square inch, there would be 12 lbs. per square inch on the ground, the tire pressure and the ground pressure are the same. For every action there is an equal and opposite reaction, as we have learned at school.

The Mounted 5 has the same type of unit as the 5/7, but does not tie up the tractor. It is close coupled by the 3 point linkage. The machine comes off in less than 5 minutes, allowing the tractor to be used for other work around the course. Again there are no wheels and it is possible to cut up to and over the sides of traps without dropping in.

The 5/3 which has been around for over 8 years is rapidly gaining a reputation for cutting fairways. The machine weighs only 2,800 lbs., half that of the normal 7 gang. The cutting width is 11 ft. 6 in., and it is capable of cutting 6 acres per hour. The units lift instantly out of work from the drivers seat and this, coupled with the rear wheel steering, allows the machine to cross cut fairways in almost the same time it takes to mow up and down. The units are counter balanced to reduce ground pressure and to help them rise over undulations. This also transfers some of the weight back to our tractor drive wheels which gives us increased traction, preventing the wheels from slipping on slopes or under wet conditions. The weight of the tractor is evenly distributed. The engine is mounted over our large turf tires reducing marking from our steering wheels and increasing traction. The 5/3 is powered with a four cylinder water-cooled Ford engine which burns approximately 8/10 of a gallon per hour, the same as many small single cylinder air cooled engines. It is completely hydraulic, no belts or chains or clutches to worry about. The cutting frequency can be adjusted from a course cut 1.56" or 25 cuts per meter to .43" or 90 cuts per meter a very fine cut. Therefore the machine is equally at home in the semi-rough or on the finest fairways.

Ransomes have recently introduced two new products: the all hydraulic 213 which has the same durability as the 5/7, but in a 3 gang; and the Motor 180, a lightweight triplex for banks, tees, collars and aprons. Both of these machines are available for this cutting season. As the superintendent is always looking at ways to provide even better playing surfaces, our engineers are constantly looking at new ways of manufacturing and supplying the right piece of equipment for the job.