OGURA Clutch Brake Application Ideas!

Agricultural Spraying System

The application illustrated above uses an Ogura clutch and brake to allow the operator to control the length of the spray hose through a radio controlled system. Another Ogura clutch is used to turn the pressure pump on and off automatically as the pressure in the spray system drops.

This is how the system works. A gasoline engine is used as the prime power source which drives the pressure pump, and through a gear reducer, the unwind and wind up of the spray hose. The engine also supplies the electrical power to charge the battery, which supplies the power to engage the clutches, disengage the brake, and power the radio control (R/C) system.

The operator controls the unwind and wind up of the spray hose, through the R/C system, which engages the Ogura VCE clutch. The VCE clutch is placed between the engine and the gearbox where, operating at the high speed shaft, allows the use of a smaller clutch. The VCE series clutch was also chosen because of its compact size, and its economical cost. An Ogura SNB spring applied brake is used to stop and hold the hose reel to prevent additional hose from coming off the reel when the operator wants the unwinding of the hose to stop. A SNB brake is used because using spring force it does not require any electrical power to apply the brake. This feature reduces the demand on the battery and allows the brake to be engaged while the spray equipment is being transported between fields when the engine would not normally be running.

The engine also drives an Ogura 7FS general purpose clutch, which is controlled by a pressure switch that senses the pressure in the spray hose. When the operator begins spraying, the pressure in the system drops below the minimum set point of the pressure switch, and allows the clutch to be engaged to drive the pressure pump. When spraying stops, the system pressure increases to the pressure switch maximum set point and disengages the clutch. The advantage of using the clutch rather than a pressure actuated, re-circulation valve is that the pump is only driven when pressure is required thereby reducing wear on the pressure pump. This also reduces the load on the engine reducing gas consumption, making the system more efficient and environmentally friendly.