1810 RPM
60 seconds = 30.167 R.P.S.

72 Revolutions needed
30.167 R.P.S. = 2.386 Working Time

2.386 Seconds Working Time
+.4 Second Index Time
2.786 Total Time
2.8 Seconds Rounded Off

We see that it has a time cycle of 2.8 with a 50 tooth gear as the driver, driving a 60 tooth idler gear and this in turn drives an 80 tooth driven gear.

Now to proceed with the tooling for this job. In the first position use stock stop 2904-10-SA and adjustable drill holder 2717-SA. Into the drill holder we put a combination lathe center. This center has a 5/8" body and 1/4" drill. Rework the center making two tools from one lathe center. The reason this was used, it will break the edge of the hole to remove the burr while the form tool is facing the end. In the first position we rough form with holder (3060-1-1-SA) and carbide dovetail tool, the carbide dovetail tool was chosen because we will only be penetrating the skin when forming out the .544 diameter. Second position revolve drill 1/2 to 1 and use 2714-SA drill holder with a #25 (.1495) drill and drill bushing. This drills 1/2 the depth of the .1495 diameter hole. The second position circular form tool forms the diameters to within .004 of the finished part. Third position revolve drill 1/2 to 1 and use 2714-SA drill holder with a #25 (.1495) drill and special ddrill bushing. Drill the remainder of the depth of the .1495 diameter hole. The third position sizing tool holder 2726-0-SA with a circualr sizing tool and roll are used to bring the diameters and widths to the correct dimensions. In the fourth position use tap holder 2747-C-SA and a #10-24 N.C.-2 tap and bushing.

NOTE - Most taps have low cutting edges and should be fluted out before using. Fluting out a tap can be done with a mounted grinding wheel held in either an air or electric drill. The reason for fluting is to eliminate the low cutting edges produced when the thread is ground. NOTE - Form tools will also have low cutting edges unless ground with a cupped wheel. Fifth position blade tool holder 2768-SA and 3/32" wide cutoff blade, ground 1/16" wide, back 5/32" and off on a 45 angle. This gives us the maximum rigidity with the minimum width of cutoff. The left end must be countersunk. Use 1263-5-10-SA stationary head burring attachment to hold the part while being cutoff and countersunk.

It is advantageous to use the stationary head burring attachment with the countersinking arm and stop attachment 1263-119-1-SA. The burring attachment is a revolving spindle with an independently operated chuck in line with the work spindle in the fifth position. It is driven in the same direction and exactly the same speed as the work spindles.