STEPLESS HYDRAULIC-VOLUMETRIC-MECHANICAL TRANSMISSION MADE BY NTU "KPI" EQUIPPED WITH INDEPENDENT POWER TAKE-OFF SHAFT MECHANISM FOR THE TRACTORS MANUFACTURED "KHARKIV TRACTOR PLANT"

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The hydraulic-volumetric-mechanical transmission (HVMT) with an independent power take-off shaft (PTOS) mechanism for the tractors manufactured "KHTP" was presented. The key point is that PTOS mechanism has the same technology as the one that ensures tractor straight-line movement (Fig. 1, item 2, 3, 4), which is highly important from the unification and financial costs points of view. PTOS is joined with the help of friction clutch (F) and does its job as an extension of the carrier of planetary row 4 (Fig. 1).

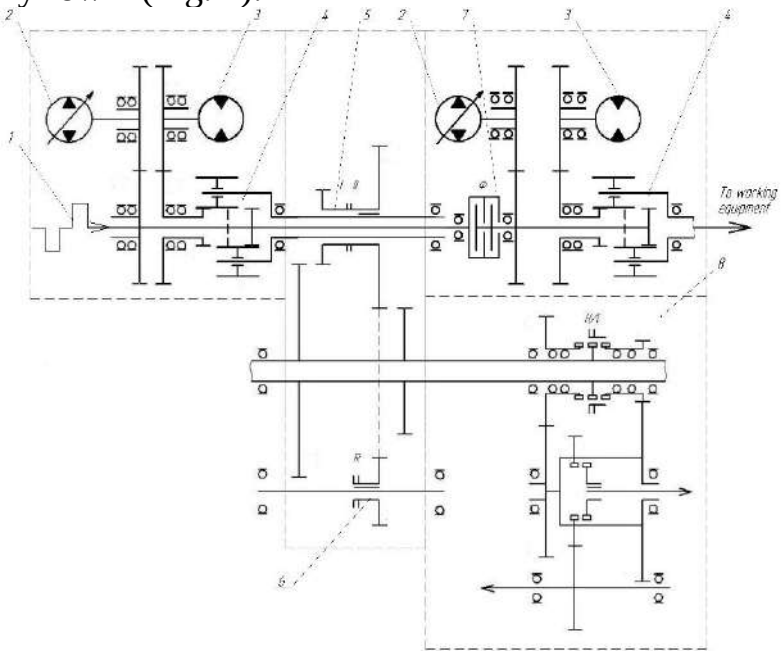

Fig. 1 – Stepless power take-off shaft as part of transmissions HVMT-1C, HVMT-2C for the tractors manufactured JC "KHTP"

In the two-flow HVMT with a differential at the output there is a circulation of power as well as its reverse flow through the HVMT when the adjustment parameter is changed in the intervals (-1; 0.9), which reduces the efficiency on PTOS. The interval (0.9; 0.1) is the special zone in HVMT when the power passes only through the mechanical part and PTOS reaches its maximum efficiency. The revolutions of the PTOS are proportional to the average revolutions of the hydraulic motor shaft 4. In the interval (0,1; 1) the power passes through the GOMT in parallel flows which also means the efficiency of the PTOS is close to the maximum. The revolutions of PTOS grow in proportion to the growth of the HVMT adjustment parameter and the growth of the hydraulic motor 4 shaft revolutions (Fig. 1) reaching its peak. The gear ratio on the input gearbox in front of the PTOS is chosen so that in the zone of high efficiency standard PTOS speeds 540, 1000, 1500 min^{-1} are obtained while providing independent stepless control of the PTOS in a wide range, which increases the efficiency of the PTOS and the tractor itself.