THM 4T65-E

SHIFT QUALITY CONCERNS OR EXCESSIVE CLUTCH CLEARANCE

COMPLAINT: After overhaul, the transaxle may exhibit long drawn-out upshifts at higher throttle openings or wide open throttle position. Data viewed on the scan tool display indicates that the 1-2 shift and/or the 2-3 shift have shift duration exceeding the accepted 0.65 seconds. This same result is indicated when viewing the Trans Adaptive Pressure (TAP-CELL) parameters. The PCM ***may*** or ***may not*** store code P1811.

CAUSE: The cause may be, excessive clutch clearance in the 2nd clutch and/or 3rd clutch packs which would require a higher volume of oil to fill the cavity and compress the wave plate before the clutch can be fully applied. It is common to find as much as .130" or more clearance with no evidence of friction plate deterioration. There are no selective elements available from OEM so they do not provide a clutch clearance specification.

CORRECTION: As a general rule, clutch packs require .008"-.012" of clearance for each friction plate, unless otherwise specified in a factory service manual. Some clutch packs, referred to as "Single Sided" plates, will have friction material on one side of both the drive and driven plates. ***If this is the case, pick one set or the other, not the total both combined.*** An example of this is the 3rd clutch in the 4T65-E transaxle. With less than .008" clearance per friction plate, you risk having the clutch plates drag when it is not applied, creating a scorched plate from lack of lube.

2ND CLUTCH ASSEMBLY:

The 2nd clutch assembly has 6 friction plates, 5 steel plates and 1 wave plate, as shown in the housing cut-away in Figure 1. Referring back to the "general rule", this means that our preferred 2nd clutch clearance should be .048"-.072". The OEM steel plates are .068" thick. If the 2nd clutch clearance is .116" or more, adding an extra steel plate on top of the wave plate may be all that is needed to correct this concern.

There are also thicker steel plates now available, from ALTO Products, that are .088" thick so that you can "fine tune" your 2nd clutch clearance. ALTO Products part number is 062733-228.

Special Note: Do not attempt to eliminate the "Waved" plate. If it is broken, warped or has become flat, replacement will be mandatory.

CORRECTION (Cont'd):

3RD CLUTCH ASSEMBLY:

The 3rd clutch assembly has 5 "Single Sided" driving plates (external spline), and 5 "Single Sided" driven plates (internal spline), and 1 wave plate, as shown in the housing cut-away in Figure 2. Referring back to the "general rule", this means that our preferred 3rd clutch clearance should be .040"-.060". The OEM driving plates are .076" in total thickness with the steel core measuring .048". The OEM driven plates are .082" in total thickness with the steel core measuring .050". If the 3rd clutch clearance is .088" or more, you could remove the friction material from one extra external spline driving plate and place it on top of the wave plate first, and then add the normal stack of drive and driven "Single Sided" plates. Another possibility is substituting various model 4T60-E or 440-T4 3rd clutch plates until the preferred clutch clearance is obtained.

Special Note: Do not attempt to eliminate the "Waved" plate. If it is broken, warped or has become flat, replacement will be mandatory.

SPACER PLATE:

Further modification to the valve body spacer plate can also be made to allow the 2nd clutch and 3rd clutch cavities to fill quicker. Opening the 2nd and/or 3rd clutch feed orifices in the spacer plate .010" larger than original, as shown in Figure 3, will also allow a larger volume of oil the the clutch pack. The original orifice size is .070".

Special Note: Spacer plate orifice modification is not a recommended procedure as part of a normal overhaul. This should be considered as an option, only after all other possibilities have been eliminated. Never exceed .082" total orifice size.

TYPICAL 2ND CLUTCH HOUSING

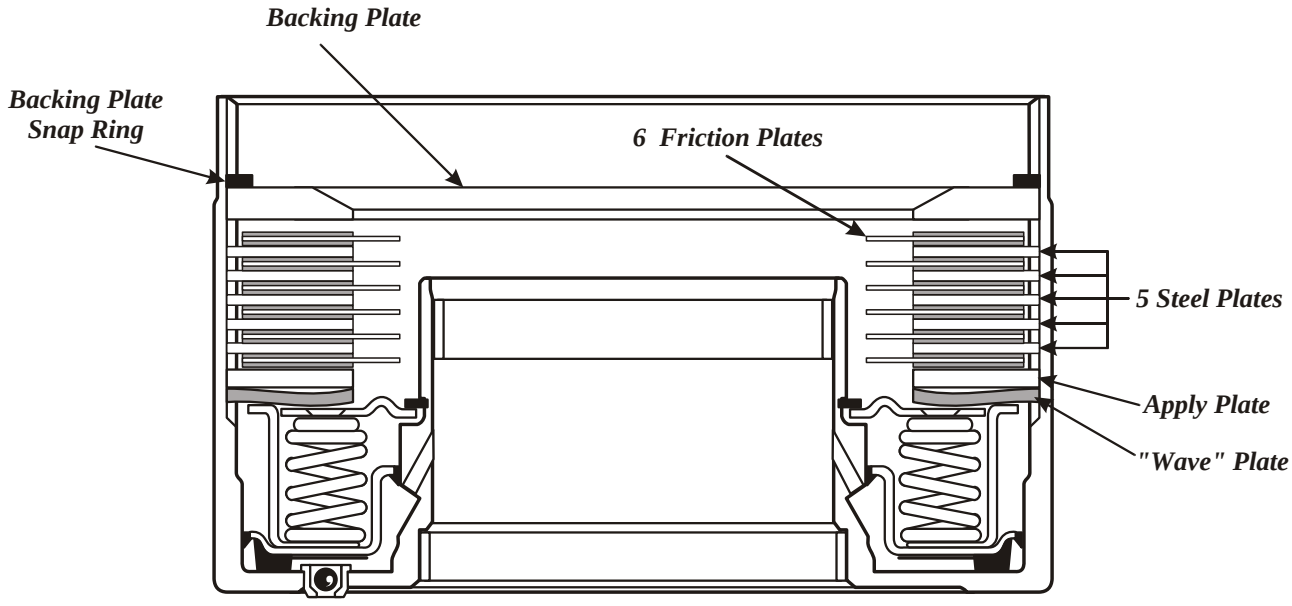

Figure 1

TYPICAL INPUT/3RD CLUTCH HOUSING

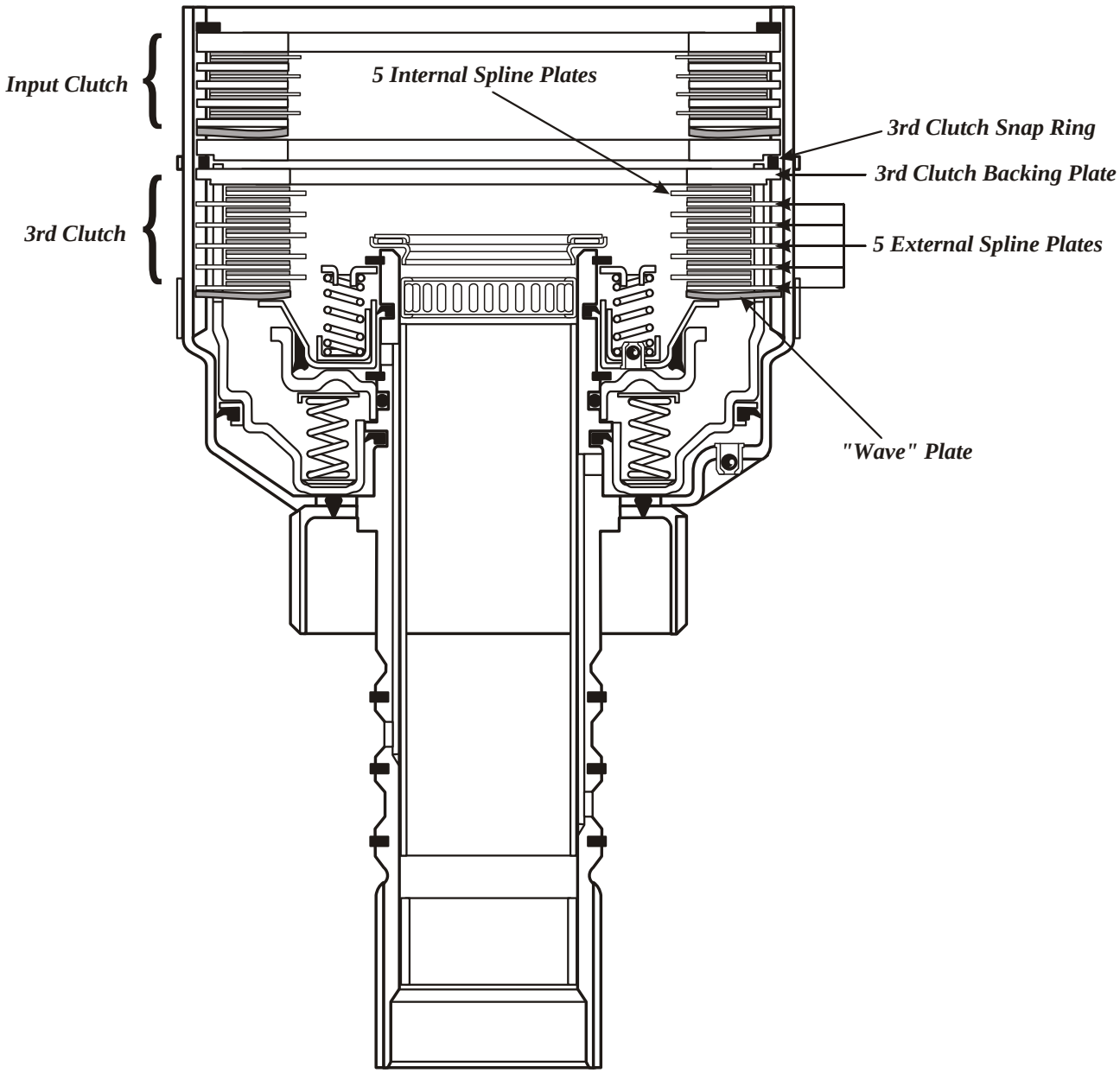

Figure 2

TYPICAL SPACER PLATE
(View from channel plate side)

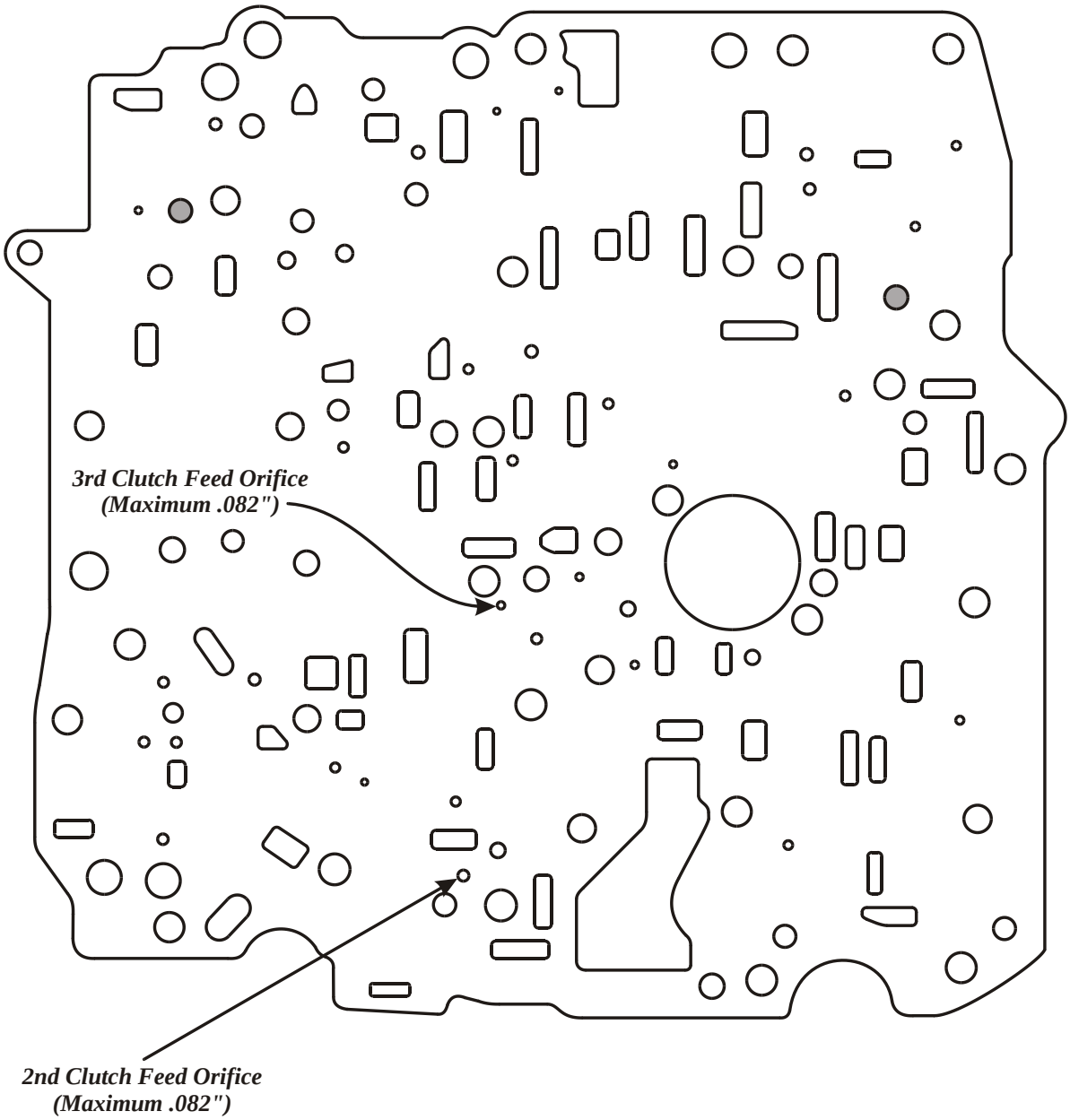

Figure 3