10R80, 10R100, & 10R60 Transmission Details

Best 10R Donor Transmissions for Specific V8 Swaps

Engine	Best Choice	Second Choice	Pros	Cons
Godzilla	10R100 from 2023-up Super Duty	10R80 from V8 F150 or Mustang	10R100 is the OEM Transmission for 6.8 & 7.3L and has a stronger rear planetary assembly. 10R80 units are usually less expensive, especially updated 2021-up F150 units. 2023-up will have the updated CDF drum. 10R100 and Mustang 10R80 units are all M-Shift, requiring no mods.	10R100 may be larger and more costly. 2021-up F150 units will need E to M-Shift conversion, see [1]. Mustang 10R80 is generally more expensive.
Coyote	V8 F150 or Mustang	EcoBoost 10R80 with Performance Adapter	2021-up F150 units are less expensive. 2023-up will have the updated CDF drum. EcoBoost V6 transmissions are just as strong as V8 units.	Mustang 10R80s are more expensive. EcoBoost units may cost less, but require bellhousing adapter. 2021-up F150 units will need E to M-Shift conversion, see [1].
4.6L & 5.4L Modular	V8 F150 or Mustang	EcoBoost 10R80 with Performance Adapter	2021-up F150 units are less expensive, and 2023-up will have the updated CDF drum. Ecoboost V6 transmissions are just as strong as V8s and may be cheaper, while the smaller bellhousing improves clearance.	V8 Mustang 10R80s are more expensive. EcoBoost units may cost less, but require a bellhousing adapter. 6 bolt crankshafts will require a custom flexplate, so an Ecoboost 10R80 & adapter becomes more appealing. 2021-up F150 units will need E to M-Shift conversion, see [1].
Small Block Ford	EcoBoost V6 transmission with adapter. 4WD applications with 400 ft/lb torque or less can use a 3.3L NA Police Explorer 10R80 (not hybrid) transmission.	V8 10R80 from F150 or Mustang with Performance Adapter.	Ecoboost V6 units are generally less expensive, as are 2021-up F150 transmissions, and since both require adapters, the EcoBoost F150 is probably the most economical option. The 4WD 3.3L Police Explorer 10R80 is extremely plentiful and a very inexpensive option for 4WD applications up to 400 ft-lb.	V8 Mustang 10R80s are more expensive. 2021-up F150 units will need E to M-Shift conversion, see [1].
Other V8s	EcoBoost V6 transmission with available appropriate adapter. 4WD applications with 400 ft/lb torque or less can use a 3.3L NA Police Explorer 10R80 (not hybrid) transmission.	V8 10R80 from F150 or Mustang with appropriate adapter, if available.	Ecoboost V6 units are generally less expensive, as well as 2021-up F150 transmissions, and since both require adapters, the EcoBoost F150 is probably the most economical option. The 4WD 3.3L Police Explorer 10R80 is extremely plentiful and a very inexpensive option for 4WD applications up to 400 ft-lb.	V8 Mustang 10R80s are more expensive. 2021-up F150 units will need E to M-Shift conversion, see [1].

[1] See last page for E-Shift versus M-Shift details.

We do not know of any adapters for the 2.3L EcoBoost 4 cylinder transmissions, so they are currently only useful with their original engines. We will continue to update this document as new adapters and information become available.

10R80, 10R100 and 10R60 Clutch Friction Plate Quantity by Application

Clutch	10R80-1	10R80 2.3L-1	10R80 2.3-2	10R80 3.3L	All 10R60
A	3	3	3	3	4
B	5	4	4	5	4
C	5	5	4	4	5
D	6	6	5	5	6
E	5	4	4	4	5
F	4	4	3	3	3

10R80-1	All F150, Expedition/Navigator, Transit, V8 Mustang, & 3.0L Explorer 10R80 transmissions All 10R100 Transmissions (F250-F600 Super Duty 6.8 & 7.3L). Strongest Configuration.
10R80 2.3L-1	2018 Mustang 10R80 2.3L Ecoboost (only). This is the strongest 2.3L 10R80 clutch configuration.
10R80 2.3L-2	All other 10R80 2.3L Ecoboost (Mustang and Ranger). This is the lightest-duty 10R80 configuration, but it should still handle up to 400 ft-lbs.
10R80 3.3L	Explorer-only 3.3L Non-Turbo 10R80, Police and Civilian. Should handle 400+ ft-lb engine torque. This clutch configuration is similar in strength to a 10R60. Not used in F150.
All 10R60	All 10R60 transmissions have the same clutch count as of 2025 (the clutch plates are mostly smaller, so counts run higher). The 10R60 is about 22 lbs lighter than a 10R80 and a bit smaller. It may be useful for cars with tighter tunnels, so we are considering adding support for it, and are planning to evaluate the fitment benefits.

Please note that this clutch data was derived from factory shop manuals, which sometimes contain errors. We have cross-checked this data where possible, but it is not 100% guaranteed.

10R80, 10R100, & 10R60 Valve Body & Transmission Application Details

Model Year	Vehicle Line: Mustang 10R80	F150 10R80	Super Duty 10R100	Bronco 10R60	Ranger 10R80 & 10R60 [R]	Expedition/ Navigator 10R80	RWD Transit 10R80	Explorer/ Aviator [X] 10R60-80
2017	-	A	-	-	-	-	-	-
2018	D	C	-	-	-	Column Shift – C E-Shift – E	-	-
2019	D	C	-	-	C, 10R80	Column Shift – C E-Shift – E	-	-
2020	D	C	-	-	C, 10R80	Column Shift – C E-Shift – E	K	E-Shift – F 10R80 – K
2021	J	F	-	K	C, 10R80	Column Shift – C E-Shift – E	K	E-Shift – F 10R80 – K
2022	J	F	-	K F (Raptor)	C, 10R80	F	K	E-Shift – F 10R80 – K
2023	J	F	K	K F (Raptor)	C, 10R80	F	K	E-Shift – F 10R80 – K
2024	K	F	K	K F (Raptor)	E-Shift – F M-Shift – K	F	K	E-Shift – F 10R80 – K
2025	K	F	K	K F (Raptor)	E-Shift – F M-Shift – K	F	K	E-Shift – F 10R80 – K
2026	K		K				K	E-Shift – F 10R80 – K

Type	Part Numbers	Sep. Plate PN.	Description and Features
A	HL3Z-7A100-A	HL3Z-7Z490-D [S] HL3P-7Z490-CH [E]	Manual Shift, with Engine Start/Stop, TCC damper, and gain control valve. No thermal bypass valve. Different lube circuit. 2017 only.
C	JL3Z-7A100-C	JL3Z-7Z490-F [S] JL3P-7Z490-CC [E]	Manual Shift, with Engine Start/Stop and gain control valve. No TCC damper or thermal bypass valve. Previous PN., Valve Body: JL3Z-7A100-A, Sep plate: JL3Z-7Z490-E
D	JL3Z-7A100-D	JL3Z-7Z490-D [S] JL3P-7Z490-DB [E]	Manual Shift, with TCC damper, gain control valve, and thermal bypass. No Engine Start/Stop. Previous PN.: JL3Z-7A100-B
E	JL1Z-7A100-A	JL1Z-7Z490-D [S] JL1P-7Z490-AD [E]	Elect. Shift, with Engine Start/Stop and gain control valve. No TCC damper or thermal bypass valve. Other differences may prevent M-Shift conversion. Previous Sep plate PN.: JL1Z-7Z490-C
F	L1MZ-7A100-F	L1MZ-7Z490-M [S] L1MP-7Z490-FB [E]	Elect. Shift, with Engine Start/Stop, No gain control Valve, TCC damper, or thermal bypass. Can be converted to Manual Shift. Previous PN., Valve Body: L1MZ-7A100-B, Sep Plate: L1MZ-7Z490-B, -E
J	L1MZ-7A100-J	L1MZ-7Z490-J [S] L1MP-7Z490-HB [E]	Manual Shift, with thermal bypass. No Engine Start/Stop, gain control valve, or TCC damper. Previous PN.: L1MZ-7A100-G
K	L1MZ-7A100-K	L1MZ-7Z490-F [E] L1MP-7Z490-GB [E]	Manual Shift, with Engine Start/Stop. No gain control valve, TCC damper or thermal bypass. Previous PN.: L1MZ-7A100-A, -E

Notes: The 10R140 & 10R80MHT (10R80 hybrid trans.) use unique valve bodies that don't interchange with these parts.
Some applications can be either Manual Shift or Electric Shift, depending upon trim level, engine, transmission, etc.
Use of improved CDF drum began on 8/16/2022 for 10R80, and on 11/2022 for 10R60.

Quick 10 does not currently support 10R100 and 10R60 as of December 2025, but we are planning to add these transmissions. 10R100 should work with our current configurations, but it has not yet been tested.

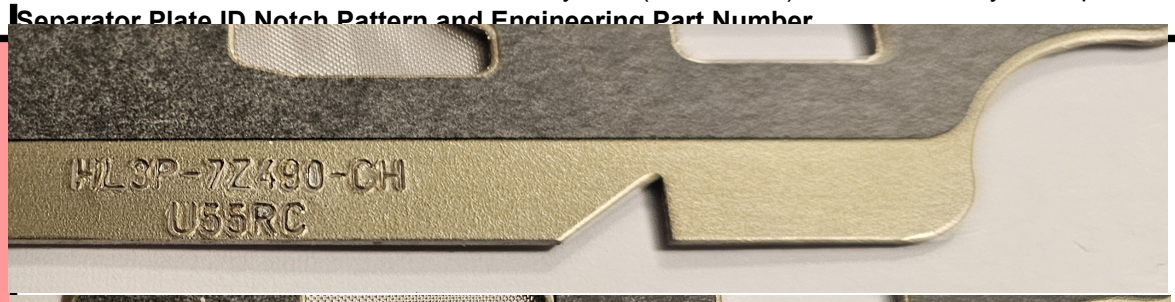
Valve body part numbers are Ford service part numbers, and will differ from the numbers printed on the actual parts (engineering part numbers).

[S] = Service Part Number, as purchased from the dealership

[E] = Engineering Part Number, which is stamped on the actual part (see next page)

[R] = Rangers use 10R80 Transmissions Through 2023, and 10R60 from 2024-on.

[X] = Explorers use 10R80, 10R60, & 10R80MHT transmissions. 2.3L are 10R60, 3.0L and 3.3L can be either, but Police seem to all be 10R80. Some 3.3L are hybrids (10R80MHT). Be sure to verify when purchasing.

Type	Separator Plate ID Notch Pattern and Engineering Part Number
A	
C	
D	
E	
F	
J	
K	

Valve Body Feature:	Description (and its effect):
Manual Shift (M-Shift)	Manual Shift transmissions allow the use of a conventional shifter with linkage or cable control, including column, floor and aftermarket shifters. This allows a traditional driving experience and is currently the only method supported by Quick 10.
Electronic Shift (E-Shift)	Electronic Shift Transmissions require an electronic shift control module that replaces a mechanical shifter. This configuration uses a CAN bus connection to the shifter, instead of a manual cable or linkage to select Park, Reverse, Neutral, Drive, etc. Most of the OEM E-Shifters lack the tactile feel that racers and hot-rodders are used to in a performance-oriented vehicle. There are also concerns that a power failure could cause the transmission to engage park while the vehicle is at speed. Fortunately, the 2021 and later E-Shift valve bodies can be converted to manual shift operation with a simple parts kit. The previous Expedition and Navigator E-Shift valve bodies may be capable of this conversion, but this is not yet verified. We are also considering creating our own E-Shifter for the Quick 10, if demand warrants.
Gain Control Valve	The gain control valve reduces the pressure range of the D and E clutch regulator valves, based upon commanded line pressure. This allows finer control of the clutch pressures under low load conditions. This function was never implemented in GM valve bodies and was eliminated in 2021 and later Ford valve bodies. In OEM applications, it is important to use the correct valve body for the vehicle. The Quick 10 works with or without this valve, as is not utilized in our strategies. Therefore, it doesn't matter whether this valve is enabled or not.
TCC Damper	The TCC damper is used to smooth out dithering pulses from the TCC solenoid. Most 10R80 valve bodies do not have this feature, but it might be important for the OEM strategies. With Quick 10, the presence of this valve is not important, as it will work with or without it. If this valve is not needed for a specific OEM application, it is better to not have it, as it is prone to wear.
Thermal Bypass Valve	The Thermal Bypass valve is only used in 2018 to 2023 Mustang applications. It bypasses the transmission cooler when the transmission is cold to enable the transmission to warm up faster. This keeps the transmission fluid at a thinner viscosity for more consistent shift behavior and reduced drag. Other Ford applications, such as trucks, employ “Active Warm-Up”, which uses a coolant-to-oil heat exchanger to regulate temperature. You can use either type of valve body with Quick 10 and simply connect your transmission cooler directly to the cooler ports of the transmission. In applications without the thermal bypass valve, the transmission will take much longer to reach operating temperature and may not reach the full OEM operating temperature in many cases. This will result in slightly lower efficiency, due to the thicker fluid, but will also reduce thermal breakdown of the fluid. Therefore, this is mostly of a personal choice. In OEM 10-speed applications, it is critical to use the correct type of valve body to insure proper transmission operation and no fault codes. It is generally not practical to add this feature in the valve body, but you can install an external oil cooler thermostat, such as one of the Improved Racing units to provide stable transmission temperatures and quick warm-up for transmissions that don't have a thermal bypass valve.
Engine Start-Stop	Present in every 10R80 and 10R60, except 2018-2023 Mustang. Not present in 10R100. This feature must be maintained in OEM applications to prevent fault codes. Quick 10 does not support start-stop, but this feature is harmless if unused.