

SPECIFICATIONS

General Specifications

Item	Specification
Fluid⁽¹⁾	
MERCON® Multi-Purpose (ATF) Transmission Fluid X-2-QDX	MERCON®
Fluid Capacities⁽²⁾	
20 plate oil-to-air cooler	16.1L (17.1 quarts)
26 plate oil-to-air cooler	16.7L (17.7 quarts)
Fluid Filter	
Inline Transmission Fluid Filter Kit XC3Z-7B155-AA	-
Inline Transmission Fluid Filter XC3Z-7B155-BA	-
Lubricants	
Silicone Brake Caliper Grease and Dielectric Compound XG-3	ESE-M1C171-A
Multi-Purpose Grease XG4	ESR-M1C159-A
<p>CAUTION:</p> <p>(1) Using a transmission fluid that indicates a dual usage (MERCON® and MERCON®V) in a transmission application requiring only MERCON®, may cause transmission damage. Use of any fluid other than the recommended fluid may cause transmission damage.</p> <p>NOTE:</p> <p>Refer to the fluid level indicator and the Owner's Guide for the type of transmission fluid required. Some fluid labels may indicate dual usage such as MERCON® and MERCON®V. These dual-usage fluids are not to be used in transmissions that use only the MERCON® type fluid. These dual-usage fluids may be used in transmissions that require MERCON®V use.</p> <p>(2) The above fluid capacities are approximate dry fill capacity and include fluid coolers and fluid cooler tubes. Fluid level indicator should be used to determine actual fluid requirement and fluid specifications. Check level at operating temperature. DO NOT OVERFILL. The transmission fluid should be changed every 30,000 miles (48,000 km) regardless of normal or special operating conditions. 5.4L applications with in-tank coolers and OTA may require an additional few ounces.</p>	

Gear	Friction Elements						
	Intermediate Band	Coast	Overdrive	Intermediate	Direct	Forward	Reverse
(D) First	—	*	—	—	—	apply	—
(D) Second	—	*	—	apply	—	apply	—
(D) Third	—	*	—	apply	apply	apply	—
(D) Fourth	—	—	apply	apply	apply	apply	—
1	—	apply	—	—	—	apply	apply
2	apply	apply	—	apply	—	apply	—
Reverse	—	apply	—	—	apply	—	apply

- a In (D) range with the transmission control switch pressed, the coast clutch is applied and the overdrive one-way clutch is bypassed.
b On certain applications in (D) range, the coast clutch solenoid and clutch is controlled by the PCM.

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Fig. 31: Band and Clutch Application Chart A
Courtesy of FORD MOTOR CO.

Gear	One-Way Clutches					
	Overdrive		Intermediate		Low	
	Drive	Coast	Drive	Coast	Drive	Coast
(D) First	HOLD	*	—	—	HOLD	O/R
(D) Second	HOLD	*	HOLD	O/R	O/R	OFF
(D) Third	HOLD	*	O/R	O/R	O/R	O/R
(D) Fourth	O/R	O/R	O/R	O/R	O/R	O/R
1	HOLD	CC	—	—	HOLD	—
2	HOLD	CC	HOLD	BA	O/R	O/R
Reverse	HOLD	CC	O/R	O/R	—	—

- a In (D) range with the transmission control switch pressed, the coast clutch is applied and the overdrive one-way clutch is bypassed.
b On certain applications in (D) range, the coast clutch solenoid and clutch is controlled by the PCM.

O/R — Overrunning

CC — Coast Friction Clutch Applied

BA — Band Applied

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Fig. 32: Band and Clutch Application Chart B
Courtesy of FORD MOTOR CO.

Throttle Position	Range	Shift	Vehicle Speed *	
			Axle Ratio	
			3.73	4.10
Closed Throttle	(D) , D	4-3	64-68 (40-42)	58-61 (36-38)
	(D) , D	3-2	26-29 (16-18)	24-27 (15-17)
	(D) , D	2-1	14-18 (9-11)	13-16 (8-10)
Light Throttle TP Voltage 1.25 Volts	(D) , D	1-2	16-19 (10-12)	14-18 (9-11)
	(D) , D	2-3	27-31 (17-19)	26-29 (9-11)
	(D) , D	3-4	66-69 (41-43)	60-63 (37-39)
	(D) , D	4-3	64-68 (40-42)	58-61 (36-38)
	(D) , D	3-2	26-29 (16-18)	24-27 (15-17)
	(D) , D	2-1	14-18 (9-11)	13-16 (8-10)
Wide Open Throttle	(D) , D	1-2	69-72 (43-45)	63-66 (39-41)
	(D) , D	2-3	114-117 (71-73)	103-106 (64-66)
	(D) , D	4-3	163-166 (101-103)	148-151 (92-94)
	(D) , D	3-2	105-108 (65-67)	97-100 (60-62)
	(D) , D	2-1	60-63 (37-39)	55-58 (34-36)

a Nominal shift speed at sea level is shown. Actual shift speed will depend on tire brand, size and axle ratio.

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Fig. 33: Shift Speed - Approximate Km/h (MPH) (F-250, F-350, Excursion With 5.4L Over 8500 GVW Rating)
Courtesy of FORD MOTOR CO.

Throttle Position	Range	Shift	Vehicle Speed *		
			Axle Ratio		
			3.73	4.30	4.88
Closed Throttle	(D) , D	4-3	53-55 (33-34)	47-48 (29-30)	40-42 (25-26)
	(D) , D	3-2	29-30 (18-19)	26-27 (16-17)	23-24 (14-15)
	(D) , D	2-1	14-16 (9-10)	13-14 (8-9)	11-14 (7-8)
Light Throttle TP Voltage 1.25 Volts	(D) , D	1-2	21-23 (13-14)	18-19 (11-12)	16-18 (10-11)
	(D) , D	2-3	37-39 (23-24)	31-32 (19-20)	27-29 (17-18)
	(D) , D	3-4	55-56 (34-35)	48-50 (30-31)	42-43 (26-27)
	(D) , D	4-3	53-55 (33-34)	47-48 (29-30)	40-42 (25-26)
	(D) , D	3-2	29-31 (18-19)	26-27 (16-17)	23-24 (14-15)
	(D) , D	2-1	14-16 (9-10)	13-14 (8-9)	11-13 (7-8)
Wide Open Throttle	(D) , D	1-2	64-66 (40-41)	56-58 (35-36)	48-50 (30-31)
	(D) , D	2-3	126-127 (78-79)	108-109 (67-68)	95-97 (59-60)
	(D) , D	3-4	193-196 (120-122)	169-171 (105-106)	148-150 (92-93)
	(D) , D	4-3	185-187 (115-116)	161-163 (100-101)	142-143 (88-89)
	(D) , D	3-2	108-109 (67-68)	93-95 (58-59)	82-84 (51-52)
	(D) , D	2-1	60-61 (37-38)	51-53 (32-33)	45-47 (28-29)

a Nominal shift speed at sea level is shown. Actual shift speed will depend on tire brand, size and axle ratio.

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Fig. 34: Shift Speed - Approximate Km/h (MPH) (F-250, F-350, F-450 Excursion, Series Super Duty With 6.8L)
Courtesy of FORD MOTOR CO.

Throttle Position	Range	Shift	Vehicle Speed *			
			Axle Ratio			
			3.73	4.10	4.30	4.88
Closed Throttle	(D) , D	4-3	66-72 (41-44)	60-65 (37-40)	51-56 (32-34)	45-49 (28-30)
	(D) , D	3-2	27-29 (17-18)	24-26 (15-16)	22-24 (14-15)	20-21 (12-13)
	(D) , D	2-1	13-14 (8-9)	12-13 (7-8)	11-12 (7-8)	10-11 (6-7)
Light Throttle	(D) , D	1-2	25-27 (15-17)	22-24 (14-15)	23-25 (14-16)	21-22 (13-14)
	(D) , D	2-3	44-48 (27-30)	40-43 (25-27)	39-42 (24-26)	35-37 (21-23)
	(D) , D	3-4	75-81 (46-50)	67-73 (42-45)	69-75 (43-46)	61-66 (38-41)
TP Voltage 1.25 Volts	(D) , D	4-3	66-72 (41-44)	60-65 (37-40)	51-56 (23-34)	45-49 (28-30)
	(D) , D	3-2	27-29 (17-18)	24-26 (15-16)	22-24 (14-15)	20-21 (12-13)
	(D) , D	2-1	13-14 (8-9)	12-13 (7-8)	11-12 (7-8)	10-11 (6-7)
Wide Open Throttle	(D) , D	1-2	45-49 (28-30)	41-44 (25-27)	38-41 (24-26)	34-37 (21-23)
	(D) , D	2-3	80-87 (50-54)	72-78 (45-48)	68-74 (42-46)	60-65 (37-40)
	(D) , D	3-4	123-134 (76-83)	111-120 (69-75)	105-113(65-70)	92-100 (57-62)
	(D) , D	4-3	114-124 (71-77)	103-111 (64-69)	97-105 (60-65)	86-93 (53-57)

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Fig. 35: Shift Speed - Approximate Km/h (MPH) (F-250, F-350, F450, F550, Super Duty With 7.3L DITD)(1 Of 2)
 Courtesy of FORD MOTOR CO.

Throttle Position	Range	Shift	Vehicle Speed *			
			Axle Ratio			
			3.73	4.10	4.30	4.88
	(D) , D	3-2	74-80 (46-49)	66-72 (41-45)	63-68 (39-42)	55-60 (34-37)
	(D) , D	2-1	34-37 (21-23)	31-33 (19-21)	31-33 (19-21)	27-29 (17-18)

a Nominal shift speed at sea level is shown. Actual shift speed will depend on tire brand, size and axle ratio.

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Fig. 36: Shift Speed - Approximate Km/h (MPH) (F-250, F-350, F450, F550, Super Duty With 7.3L DITD)(2 Of 2)
 Courtesy of FORD MOTOR CO.

Clutch	Steel	Friction	Clearance mm (Inch)	Selective Snap Rings	
				Part Number	Thickness mm (Inch)
All	4 ^a	4	1.40-0.76 (0.055-0.030)	377437-S	1.42-1.52 (0.056-0.060)
				377127-S	1.88-1.98 (0.074-0.078)
				377444-S	2.34-2.44 (0.092-0.096)
				386841-S	2.79-2.90 (0.110-0.114)
				386842-S	3.25-3.35 (0.128-0.132)

a Plus a steel wave cushion spring installed between the front pressure plate and a steel separator plate.

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Fig. 37: Forward Clutch Pack Specifications
 Courtesy of FORD MOTOR CO.

Clutch	Steel	Friction	Clearance mm (Inch)	Selective Snap Rings	
				Part Number	Thickness mm (Inch)
All except 7.3L	4	4	2.06-1.14 (0.081-0.045)	377128-S 377127-S	2.21-2.11 (0.087-0.083) 15.24-1.42 (0.600-0.056)
7.3L DI Diesel	5	5		377126-S	1.75-1.65 (0.069-0.065)

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Fig. 38: Direct Clutch Pack Specifications
Courtesy of FORD MOTOR CO.

Clutch	Steel	Friction	Clearance mm (Inch)	Selective Snap Rings	
				Part Number	Thickness mm (Inch)
All	3 ^a	3	—	E9TP-7B421-BA ^b	1.80-1.90 (0.071-0.075)

a Plus one apply plate.

b A non-selective snap ring.

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Fig. 39: Intermediate Clutch Pack Specifications
Courtesy of FORD MOTOR CO.

Clutch	Steel	Friction	Clearance mm (Inch)	Selective Snap Rings	
				Part Number	Thickness mm (Inch)
All applications	2	2	1.09-0.74 (0.043-0.029)	F81-7N169-BA F81-7N169-CA F81-7N169-DA	1.90-1.80 (0.075-0.071) 1.65-1.55 (0.065-0.061) 1.37-1.27 (0.054-0.050)
	3	3			

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Fig. 40: Coast Clutch Pack Specifications
Courtesy of FORD MOTOR CO.

Clutch	Steel	Friction	Clearance mm (Inch)	Selective Snap Rings	
				Part Number	Thickness mm (Inch)
5.4L, 6.8L	5 ^a	5	2.90-0.30 (0.114-0.012)	N805207-S ^b	1.88-1.98 ^c (0.074-0.078) ^b
7.3L DI Diesel	6 ^c	6	2.67-0.30 (0.105-0.012)		

a Plus a steel wave cushion spring installed between the reverse clutch piston and a steel separator plate.

b Plus one apply plate.

c Plus a steel wave cushion spring installed between the front pressure plate and a steel separator plate.

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Fig. 41: Low/Reverse Clutch Pack Specifications
Courtesy of FORD MOTOR CO.

Clutch	Steel	Friction	Clearance mm (Inch)	Selective Snap Rings	
				Part Number	Thickness mm (Inch)
5.4L 2V	2	2	1.19-0.56 (0.047-0.022)	E9TP-7B421-EA E9TP-7B421-DA E9TP-7B421-CA E9TP-7B421-BA	3.61-3.51 (0.142-0.138) 3.10-3.00 (0.122-0.118) 2.59-2.49 (0.102-0.098) 2.06-1.96 (0.081-0.077)
5.4L 2V, 5.4L SC, 6.8L, 7.3L Diesel	3	3	1.50-0.84 (0.059-0.033)	E9TP-7B421-AA	1.55-1.45 (0.061-0.057)

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Fig. 42: Overdrive Clutch Pack Specifications
Courtesy of FORD MOTOR CO.

Gear	Ratio
1st	2.71 to 1
2nd	1.54 to 1
3rd	1.00 to 1
4th	0.71 to 1
Reverse	2.18 to 1

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Fig. 43: Identifying Gear Ratios
Courtesy of FORD MOTOR CO.