

General Data, Dimensions and Tolerances

Survey of Transmission Types

Transmission Type	Vehicle Model	Installed
K4A 025	280 S/8, 280 SE/8, 300 SEL/8 280 SL/8	up to May 1969
K4C 025	280 S/8, 280 SE/8, 300 SEL/8	as from May 1969
K4A 040	280 SE/9 3.5, 300 SEL/9 3.5	
K4B 050	300 SEL/8 6.3	

Transmission Ratios

Gear Step	Transmission	K4A 025	K4C 025	K4A 040	K4B 050
1	in front and rear planetary gear set	3.98	3.98	3.98	3.98
2	in front, center and rear planetary gear set ¹⁾	2.52	2.39	2.39	2.46
3	in rear planetary gear set	1.58	1.46	1.46	1.58
4	no transmission	1	1	1	1
Rv.	in front and rear planetary gear set	4.15	5.47	5.47	4.15

¹⁾ In transmission K4A 025 only the front planetary gear set is engaged during second speed.

Shift Points

Transmission Type			K4A 025		K4C 025		K4A 040		K4B 050	
Selector lever position	Accelerator pedal position	Shift pattern	▲ km/h	▼ km/h	▲ km/h	▼ km/h	▲ km/h	▼ km/h	▲ km/h	▼ km/h
4	Idle throttle	1-2-1	-	-	9	-	10	5	-	-
		2-3-2	25	18	27	20	29	21	30	20
		3-4-3	45	30	37	28	42	31	45	35
	Full throttle	1-2-1	18 ¹⁾	-	25	5	27	5	18 ¹⁾	-
		2-3-2	45	18	51	20	57	21	45	20
		3-4-3	120	30	120	45	130	50	120	35
	Kick-down	1-2-1	25	10	25	16	27	19	30	20
		2-3-2	75	30	51	42	57	47	75	35
		3-4-3	120	105	120	105	130	117	120	105
3	Idle throttle	1-2-1	-	-	9	-	10	5	-	-
		2-3-2	25	18	32	27	36	30	30	20
	Full throttle	1-2-1	18 ¹⁾	-	25	5	27	5	18 ¹⁾	-
		2-3-2	75	18	71	34	79	37	75	20
	Kick-down	1-2-1	25	10	25	16	27	19	30	20
		2-3-2	75	64	71	60	79	68	75	60
2	Idle throttle	1-2-1	15	10	35	5 ²⁾	40	5	20	10
	Full throttle	1-2-1	45	10	35	19	40	19	45	15
	Kick-down	1-2-1	45	30	35	30	40	32	45	35

Note: All values are approximate values

Explanation of symbols: ▲ Shifting up ▼ Shifting down

¹⁾ Applies only when first speed has been attained with kick-down first.

²⁾ Only at insufficient partial throttle.

Number of Teeth

		K4A 025	K4C 025	K4A 040	K4B 050
Front planetary gear set	Ring gear	76	76	76	76
	Planetary gear	14	17	17	14
	Sun gear	50	44	44	50
Center planetary gear set	Ring gear	—	76	76	76
	Planetary gear	—	17	17	17
	Sun gear	—	44	44	44
Rear planetary gear set	Ring gear	76	76	76	76
	Planetary gear	17	20	20	17
	Sun gear	44	35	35	44

Modulating Pressure in kp/cm²

Transmission Type	K4A 025	K4C 025	K4A 040	K4B 050
Basic pressure	0.6 ± 0.05	0.65	0.65	0.6 ± 0.05
Max. pressure	2.9	3.8	3.8	2.9
Kickdown pressure	4.6 — 0.2	—	—	4.6 — 0.2

Modulating Pressure Adjustment

Transmission Type	K4A 025, K4B 050		K4C 025, K4A 040	
	Length	Identification	Length	Identification
Pressure pin	80	without notch	39.65	bright
	81	one notch	40.15	yellow
	82	two notches	40.65	black

Working Pressure in kp/cm²

Transmission Type		K4A 025	K4B 050	
1st and 2nd speed	Basic pressure	Clutches	3.2	2.3
		Brake bands	4.0	1) ¹⁾
	Max. pressure	Clutches	9.5	6.7
		Brake bands	9.5	6.7
3rd and 4th speed	Basic pressure	Clutches	1.8	2.3
		Brake bands	2.0	3.0
	Max. pressure	Clutches	5.4	6.7
		Brake bands	5.4	6.7
Reverse speed	Basic pressure	6.6	7.5	
	Max. pressure	15.6	16.5	

1) 1st speed 3.0; 2nd speed 4.8.

Transmission Type		K4C 025	K4A 040
1st and reverse speed	Basic pressure	6.95 ± 0.3	7.0 ± 0.3
	Max. pressure	14.5 ± 0.4	13.4 ± 0.4
2nd speed selector lever position 2	Basic pressure	6.95 ± 0.3	7.0 ± 0.3
2nd to 4th speed	Basic pressure	3.4 ± 0.2	3.4 ± 0.2
	Max. pressure	7.05 ± 0.2	6.5 ± 0.2

Regulator Pressure in kp/cm²

Driving speed km/h	K4C 025	K4A 040
20	0.75 + 0.1	0.75 + 0.1
40	1.6 + 0.2	1.6 + 0.2
60	2.3 + 0.2	2.3 + 0.2
90	3.3 + 0.2 ²⁾	3.3 + 0.2 ²⁾
120	4.6 + 0.3 ²⁾	4.6 + 0.3 ²⁾

2) Can be measured only at full throttle.

Step Pressure

Step pressure kp/cm ²		Driving speed in km/h		
		K4A 025	K4B 050	
3.4 ± 0.1	Pressure jump when	shifting up	25	30
		shifting down	18	20
	Pressure test at	20	25	
6.9 ± 0.1	Pressure jump when	shifting up	45	45
		shifting down	32	35
	Pressure test at	35	40	
6.9 ± 0.1 ¹⁾	Pressure jump when	shifting up	75	75
		shifting down	60	60
	Pressure test at	65	65	
11.2 ± 0.5	Pressure jump when	shifting up	120	120
		shifting down	100	100
	Pressure test at	110	110	

1) Can be measured only at full throttle.

2) In selector lever position "3" only.

Dimensions and Components

Transmission Type	K4A 025	K4C 025	K4A 040	K4B 050
Clearance "c" between starter locking switch and cam disc	1 ± 0.3	—	—	—
Axial clearance "a" between spacing pin and notch plate of range selector lever	0.3 ± 0.1	—	—	0.3 ± 0.1
Length adjustment "A" of pull rod for parking lock mechanism	78 ± 0.1	—	—	89.8 ± 0.2
Idle travel brake band piston	23 + 1	3.0 – 4.0	3.0 – 4.0	(B1) 23 + 1 (B2) 28 + 1
Tightening torque of adjusting screw for brake band B3 (use adjusting gauge 112 589 03 23 00)	0.5	0.5 ¹⁾	0.5 ¹⁾	0.6
Installation dimension "a" for radial sealing ring in rear transmission housing cover	86 + 0.5	—	—	86 + 0.5
Installation dimension "b" for radial ball bearing in rear transmission housing cover	58.5 ± 1	—	—	58.1 ± 1
Installation dimension "c" for radial ball bearing of drive shaft	6.5 + 0.1	—	—	6.5 + 0.1
Axial play of hollow shaft between clutch K2 and locking ring	0.25 ± 0.10	—	—	—
Release clearance "L" of multiple disc clutches	Clutch K1	0.95 ± 0.25	0.95 ± 0.25	0.95 ± 0.25
	Clutch K2	0.95 ± 0.25	0.95 ± 0.25	0.95 ± 0.25
	Clutch K3	0.95 ± 0.25	—	—
End clearance of center planetary gear set sun gear	—	0.7 + 0.1	0.2 + 0.1	—
End clearance of front planetary gear set	—	0.2 + 0.1	0.2 + 0.1	—
End clearance of rear planetary gear set sun gear	0.25 + 1	0.25 + 1	0.25 + 1	—
Clearance of axial bearing in front transmission housing cover	0.5 + 0.1	—	—	0.5 ± 0.1
Clearance of grooved bearing in front transmission housing cover	—	0.4 + 0.1	0.4 + 0.1	—
Cutout speed of idle throttle switch (max.)	1,600	—	—	1,200

Note: Letters in quotation marks refer to illustrations in service manual Passenger Car Models Starting August 1959.

¹⁾ Tighten adjusting screw (without gauge) to 0.5 mkp, then loosen for 1¼ turns and tighten check nut.

Tightening Torques in mkp

Transmission Type	K4A 025 K4B 050	K4C 025 K4A 040
Hexagon socket bolts for hydraulic clutch on driven plate	3.0	—
Hexagon bolts for hydraulic clutch on driven plate	3.5	3.5
Hex. bolts for primary pump	2.0	2.0
Hex. bolts for front transmission housing	1.3	1.3
Hex. bolts for rear transmission housing	1.3	1.3
Slot nut on three-legged flange	8.0 ¹⁾	12.0
Hexagon socket bolt for detent plate on shaft or range selector lever	—	1.0
Hex. bolt for leaf spring of detent plate	—	1.0
Hex. bolts for switch housing on centrifugal governor	—	0.8
Hex. bolts for regulator housing on centrifugal regulator	—	0.8
Hex. bolts for modulating pressure housing on transmission housing	—	0.7
Hex. bolt for speedometer drive	—	0.8
Hex. bolt for secondary pump	—	0.8
Philips head screw for holding plate on locking piston	—	0.4
Hex. bolts for regulator unit on transmission housing	0.8	—
Hex. socket bolts for secondary regulator pump	1.0	—
Hex. bolts for brake band piston covers B1, B2, B3	1.3	—
Hex. bolts for cover—modulating pressure transmitter	0.7	—
Hex. bolts for double lift magnet on transmission housing	1.3	—
Hex. bolts for supporting plate—gear set in transmission housing	2.0	—
Hex. bolts (on top with nut) for clutch bowl on transmission housing	6.0	—
Hex. bolts (at bottom) for clutch bowl on transmission housing	5.0	—
Hex. bolts for shifting sleeve housing on transmission housing	1.3	1.3
Hex. bolts for shifting sleeve housing—top and bottom	0.8	0.8
Hex. bolts for oil pan on transmission housing	0.8	0.7
Cheesehead screws for oil filter on shifting sleeve housing	—	0.4
Cheesehead screws for starter locking and backup light switch	—	0.5

¹⁾ On transmission K4B 050 tightening torque 10 mkp.