MEASUREMENT/ADJUSTMENT VALUE INPUT SHEET

id051700665300

Differential Backlash Measurement/Adjustment

Symbol	Item	Formula	Unit	First time		Second time		Third time	
A	FRONT SIDE GEAR AND PINION GEAR BACKLASH	—	mm {in}						
B	REAR SIDE GEAR AND PINION GEAR BACKLASH	—	mm {in}						
C	FRONT DIFFERENTIAL BACKLASH	Average value of A	mm {in}						
D	REAR DIFFERENTIAL BACKLASH	Average value of B	mm {in}						
E	STANDARD DIFFERENTIAL BACKLASH	—	mm {in}	0.030—0.150 {0.0012—0.0059}					
F	MEASUREMENT RESULT OF FRONT DIFFERENTIAL BACKLASH	—	mm {in}	OK/NG		OK/NG		OK/NG	
G	MEASUREMENT RESULT OF REAR DIFFERENTIAL BACKLASH	—	mm {in}	OK/NG		OK/NG		OK/NG	
H	THICKNESS OF REMOVED FRONT THRUST WASHER	—	mm {in}						
I	THICKNESS OF REMOVED REAR THRUST WASHER	—	mm {in}						
J	MEDIAN VALUE OF DIFFERENTIAL BACKLASH SPECIFICATION	—	mm {in}	0.090 {0.00354}					
K	FRONT DIFFERENTIAL BACKLASH GAP	C - J	mm {in}						
L	REAR DIFFERENTIAL BACKLASH GAP	D - J	mm {in}						
M	FRONT THRUST WASHER THICKNESS GAP	K × 0.1 mm {0.00394 in} / 0.08 mm {0.00315 in}	mm {in}						
N	REAR THRUST WASHER THICKNESS GAP	L × 0.1 mm {0.00394 in} / 0.08 mm {0.00315 in}	mm {in}						
O	THICKNESS OF OPTIMUM FRONT THRUST WASHER	H + M	mm {in}						
P	THICKNESS OF OPTIMUM REAR THRUST WASHER	I + N	mm {in}						

bgw2za00000005

Description example

Symbol	Item	Formula	Unit	First time		Second time		Third time	
A	FRONT SIDE GEAR AND PINION GEAR BACKLASH	—	mm {in}	0.160 {0.00630}	0.170 {0.00669}	0.110 {0.00433}	0.100 {0.00394}		
B	REAR SIDE GEAR AND PINION GEAR BACKLASH	—	mm {in}	0.160 {0.00630}	0.150 {0.00591}	0.085 {0.00335}	0.075 {0.00295}		
C	FRONT DIFFERENTIAL BACKLASH	Average value of A	mm {in}	0.165 {0.00650}		0.105 {0.00413}			
D	REAR DIFFERENTIAL BACKLASH	Average value of B	mm {in}	0.155 {0.00610}		0.080 {0.00315}			
E	STANDARD DIFFERENTIAL BACKLASH	—	mm {in}	0.030—0.150 {0.0012—0.0059}					
F	MEASUREMENT RESULT OF FRONT DIFFERENTIAL BACKLASH	—	mm {in}	OK/(NG)		(OK)/NG		OK/NG	
G	MEASUREMENT RESULT OF REAR DIFFERENTIAL BACKLASH	—	mm {in}	OK/(NG)		(OK)/NG		OK/NG	
H	THICKNESS OF REMOVED FRONT THRUST WASHER	—	mm {in}	0.810 {0.03189}					
I	THICKNESS OF REMOVED REAR THRUST WASHER	—	mm {in}	0.795 {0.0313}					
J	MEDIAN VALUE OF DIFFERENTIAL BACKLASH SPECIFICATION	—	mm {in}	0.090 {0.00354}					
K	FRONT DIFFERENTIAL BACKLASH GAP	C - J	mm {in}	0.075 {0.00295}					
L	REAR DIFFERENTIAL BACKLASH GAP	D - J	mm {in}	0.065 {0.00256}					
M	FRONT THRUST WASHER THICKNESS GAP	K × 0.1 mm {0.00394 in} / 0.08 mm {0.00315 in}	mm {in}	0.094 {0.00369}					
N	REAR THRUST WASHER THICKNESS GAP	L × 0.1 mm {0.00394 in} / 0.08 mm {0.00315 in}	mm {in}	0.081 {0.00320}					
O	THICKNESS OF OPTIMUM FRONT THRUST WASHER	H + M	mm {in}	0.904 {0.03559}					
P	THICKNESS OF OPTIMUM REAR THRUST WASHER	I + N	mm {in}	0.876 {0.03449}					

bgw2za00000023

High Clutch Clearance Measurement/Adjustment

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	DIAL GAUGE VALUE WITH PISTON OPERATED	—	mm {in}			
B	DIAL GAUGE VALUE WITHOUT PISTON OPERATED	—	mm {in}			
C	HIGH CLUTCH CLEARANCE	A - B	mm {in}			
D	HIGH CLUTCH CLEARANCE SPECIFICATION	—	mm {in}	1.100—1.300 {0.04331—0.05118}		
E	MEASUREMENT RESULT OF HIGH CLUTCH CLEARANCE	—	mm {in}	OK/NG	OK/NG	OK/NG
F	THICKNESS OF REMOVED SNAP RING	—	mm {in}			
G	RANGE	C + F	mm {in}			

bgw2za00000007

Description example

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	DIAL GAUGE VALUE WITH PISTON OPERATED	—	mm {in}	1.405 {0.05532}	1.245 {0.04901}	
B	DIAL GAUGE VALUE WITHOUT PISTON OPERATED	—	mm {in}	0.055 {0.00217}	0.090 {0.00354}	
C	HIGH CLUTCH CLEARANCE	A - B	mm {in}	1.350 {0.05315}	1.155 {0.04547}	
D	HIGH CLUTCH CLEARANCE SPECIFICATION	—	mm {in}	1.100—1.300 {0.04331—0.05118}		
E	MEASUREMENT RESULT OF HIGH CLUTCH CLEARANCE	—	mm {in}	OK/(NG)	(OK)/NG	OK/NG
F	THICKNESS OF REMOVED SNAP RING	—	mm {in}	1.615 {0.06358}		
G	RANGE	C + F	mm {in}	2.965 {0.11673}		

bgw2za00000008

Low Clutch Clearance Measurement/Adjustment

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	WEIGHT OF WEIGHT	—	N {kgf, lbf}			
B	CORRECTION VALUE OF LOW CLUTCH CLEARANCE (WEIGHT OF UNIT N)	(A - 89 N) × 0.00105 mm {0.0000413 in}	mm {in}			
	CORRECTION VALUE OF LOW CLUTCH CLEARANCE (WEIGHT OF UNIT kgf)	(A - 9.08 kgf) × 0.01030 mm {0.0004055 in}	mm {in}			
	CORRECTION VALUE OF LOW CLUTCH CLEARANCE (WEIGHT OF UNIT lbf)	(A - 20.01 lbf) × 0.00467 mm {0.0001839 in}	mm {in}			
C	DIAL GAUGE VALUE WITH PISTON OPERATED	—	mm {in}			
D	DIAL GAUGE VALUE WITHOUT PISTON OPERATED	—	mm {in}			
E	LOW CLUTCH CLEARANCE	C - D - B	mm {in}			
F	LOW CLUTCH CLEARANCE SPECIFICATION	—	mm {in}	1.200—1.400 {0.04725—0.05511}		
G	MEASUREMENT RESULT OF LOW CLUTCH CLEARANCE	—	mm {in}	OK/NG	OK/NG	OK/NG
H	THICKNESS OF REMOVED SNAP RING	—	mm {in}			
I	RANGE	E + H	mm {in}			

bgw2za00000009

Description example

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	WEIGHT OF WEIGHT	—	N {kgf, lbf}	150 {15.30, 33.72}	150 {15.30, 33.72}	
B	CORRECTION VALUE OF LOW CLUTCH CLEARANCE (WEIGHT OF UNIT N)	(A - 89 N) × 0.00105 mm {0.0000413 in}	mm {in}	0.064 {0.00252}	0.064 {0.00252}	
	CORRECTION VALUE OF LOW CLUTCH CLEARANCE (WEIGHT OF UNIT kgf)	(A - 9.08 kgf) × 0.01030 mm {0.0004055 in}	mm {in}			
	CORRECTION VALUE OF LOW CLUTCH CLEARANCE (WEIGHT OF UNIT lbf)	(A - 20.01 lbf) × 0.00467 mm {0.0001839 in}	mm {in}			
C	DIAL GAUGE VALUE WITH PISTON OPERATED	—	mm {in}	2.120 {0.08346}	1.855 {0.07303}	
D	DIAL GAUGE VALUE WITHOUT PISTON OPERATED	—	mm {in}	0.595 {0.02342}	0.480 {0.01890}	
E	LOW CLUTCH CLEARANCE	C - D - B	mm {in}	1.461 {0.05752}	1.311 {0.05161}	
F	LOW CLUTCH CLEARANCE SPECIFICATION	—	mm {in}	1.200—1.400 {0.04725—0.05511}		
G	MEASUREMENT RESULT OF LOW CLUTCH CLEARANCE	—	mm {in}	OK/(NG)	(OK)/NG	OK/NG
H	THICKNESS OF REMOVED SNAP RING	—	mm {in}	1.705 {0.06713}		
I	RANGE	E + H	mm {in}	3.166 {0.12465}		

bgw2za00000010

R-3-5 Brake Clearance Measurement/Adjustment

Symbol	Item	Formula	Unit	First time
A	RETAINER THICKNESS OF SPRINGS AND RETAINER COMPONENT	—	mm{in}	
B	DIAL GAUGE VALUE WITH R-3-5 BRAKE PISTON OPERATED	—	mm{in}	
C	DIAL GAUGE VALUE WITHOUT R-3-5 BRAKE PISTON OPERATED	—	mm{in}	
D	R-3-5 BRAKE CLEARANCE ADJUSTMENT VALUE	B - C	mm{in}	
E	THICKNESS OF SNAP RING (FZ01 19 469) FOR R-3-5 BRAKE CLEARANCE MEASUREMENT/ ADJUSTMENT	—	mm{in}	
F	RANGE	D + E - A	mm{in}	

bgw2za00000011

Description example

Symbol	Item	Formula	Unit	First time
A	RETAINER THICKNESS OF SPRINGS AND RETAINER COMPONENT	—	mm{in}	1.225 {0.04823}
B	DIAL GAUGE VALUE WITH R-3-5 BRAKE PISTON OPERATED	—	mm{in}	2.280 {0.08976}
C	DIAL GAUGE VALUE WITHOUT R-3-5 BRAKE PISTON OPERATED	—	mm{in}	0.205 {0.00807}
D	R-3-5 BRAKE CLEARANCE ADJUSTMENT VALUE	B - C	mm{in}	2.075 {0.08169}
E	THICKNESS OF SNAP RING (FZ01 19 469) FOR R-3-5 BRAKE CLEARANCE MEASUREMENT/ ADJUSTMENT	—	mm{in}	2.625 {0.10335}
F	RANGE	D + E - A	mm{in}	3.475 {0.13681}

bgw2za00000012

2-6 Brake Clearance Measurement/Adjustment

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	RETAINER THICKNESS OF SPRINGS AND RETAINER COMPONENT	—	mm {in}		←	←
B	DISTANCE A	—	mm {in}			
C	AVERAGE VALUE OF DISTANCE A	Average value of B	mm {in}			
D	2-6 BRAKE CLEARANCE	C - A	mm {in}			
E	2-6 BRAKE CLEARANCE SPECIFICATION	—	mm {in}	1.000—1.200 {0.03938—0.04724}		
F	MEASUREMENT RESULT OF 2-6 BRAKE CLEARANCE	—	mm {in}	OK/NG	OK/NG	OK/NG
G	THICKNESS OF REMOVED RETAINING PLATE	—	mm {in}			
H	RANGE	D + G	mm {in}			

bgw2za00000013

Description example

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	RETAINER THICKNESS OF SPRINGS AND RETAINER COMPONENT	—	mm {in}	1.425 {0.05610}	←	←
B	DISTANCE A	—	mm {in}	2.675 {0.10532} / 2.650 {0.10433} / 2.665 {0.10492} / 2.670 {0.10512}	2.580 {0.10157} / 2.555 {0.10059} / 2.560 {0.10079} / 2.565 {0.10098}	
C	AVERAGE VALUE OF DISTANCE A	Average value of B	mm {in}	2.665 {0.10492}	2.565 {0.10098}	
D	2-6 BRAKE CLEARANCE	C - A	mm {in}	1.240 {0.04882}	1.140 {0.04488}	
E	2-6 BRAKE CLEARANCE SPECIFICATION	—	mm {in}	1.000—1.200 {0.03938—0.04724}		
F	MEASUREMENT RESULT OF 2-6 BRAKE CLEARANCE	—	mm {in}	OK/(NG)	(OK)/NG	OK/NG
G	THICKNESS OF REMOVED RETAINING PLATE	—	mm {in}	2.015 {0.07933}		
H	RANGE	D + G	mm {in}	3.255 {0.12815}		

bgw2za00000014

Low and Reverse Brake Clearance Measurement/Adjustment

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	DIAL GAUGE VALUE WITH PISTON OPERATED	—	mm {in}			
B	DIAL GAUGE VALUE WITHOUT PISTON OPERATED	—	mm {in}			
C	LOW AND REVERSE BRAKE CLEARANCE	A - B	mm {in}			
D	AVERAGE VALUE OF LOW AND REVERSE BRAKE CLEARANCE	Average value of C	mm {in}			
E	LOW AND REVERSE BRAKE CLEARANCE SPECIFICATION	—	mm {in}	1.650—1.850 {0.06497—0.07283}		
F	MEASUREMENT RESULT OF LOW AND REVERSE BRAKE CLEARANCE	—	mm {in}	OK/NG	OK/NG	OK/NG
G	THICKNESS OF REMOVED SNAP RING	—	mm {in}			
H	RANGE	D + G	mm {in}			

bgw2za00000015

Description example

Symbol	Item	Formula	Unit	First time				Second time				Third time			
A	DIAL GAUGE VALUE WITH PISTON OPERATED	—	mm {in}	2.470 {0.09724}	2.665 {0.10492}	2.070 {0.08150}	1.840 {0.07244}	1.570 {0.06181}	1.845 {0.07264}	1.695 {0.06673}	1.760 {0.06929}				
B	DIAL GAUGE VALUE WITHOUT PISTON OPERATED	—	mm {in}	0.595 {0.02343}	0.765 {0.03012}	0.205 {0.00807}	-0.035 {-0.00138}	-0.105 {-0.00413}	0.155 {0.00610}	0.010 {0.00039}	0.090 {0.00354}				
C	LOW AND REVERSE BRAKE CLEARANCE	A - B	mm {in}	1.875 {0.07382}	1.900 {0.07480}	1.865 {0.07343}	1.875 {0.07382}	1.675 {0.06594}	1.690 {0.06654}	1.685 {0.06634}	1.670 {0.06575}				
D	AVERAGE VALUE OF LOW AND REVERSE BRAKE CLEARANCE	Average value of C	mm {in}	1.879 {0.07398}				1.680 {0.06614}							
E	LOW AND REVERSE BRAKE CLEARANCE SPECIFICATION	—	mm {in}	1.650—1.850 {0.06497—0.07283}											
F	MEASUREMENT RESULT OF LOW AND REVERSE BRAKE CLEARANCE	—	mm {in}	OK/(NG)				(OK)/NG				OK/NG			
G	THICKNESS OF REMOVED SNAP RING	—	mm {in}	2.305 {0.09075}											
H	RANGE	D + G	mm {in}	4.184 {0.16472}											

bgw2za00000016

Secondary Gear and Output Gear Preload Measurement/Adjustment

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	ANGULAR CONTACT BALL BEARING PRELOAD	—	N·m {kgf·cm, in·lbf}		←	←
B	TOTAL PRELOAD	—	N·m {kgf·cm, in·lbf}			
C	SECONDARY GEAR AND OUTPUT GEAR PRELOAD	B - A	N·m {kgf·cm, in·lbf}			
D	SECONDARY GEAR AND OUTPUT GEAR PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	1.4—2.5 {14.3—25.4, 12.4—22.1}		
E	MEASUREMENT RESULT OF SECONDARY GEAR AND OUTPUT GEAR PRELOAD	—	—	OK/NG	OK/NG	OK/NG
F	THICKNESS OF REMOVED SHIM	—	mm {in}			
G	MEDIAN VALUE OF SECONDARY GEAR AND OUTPUT GEAR PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	1.95 {19.9, 17.2}		
H	PRELOAD GAP	G - C	N·m {kgf·cm, in·lbf}			
I	SHIM THICKNESS GAP	H × 0.1 mm {0.00394 in} / 1.27 N·m {12.9 kgf·cm, 11.2 in·lbf}	mm {in}			
J	THICKNESS OF OPTIMUM SHIM	F + I	mm {in}			

bgw2za00000025

Description example

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	ANGULAR CONTACT BALL BEARING PRELOAD	—	N·m {kgf·cm, in·lbf}	1.2 {12.2, 10.6}	←	←
B	TOTAL PRELOAD	—	N·m {kgf·cm, in·lbf}	2.3 {23.4, 20.3}	3.2 {32.6, 28.3}	
C	SECONDARY GEAR AND OUTPUT GEAR PRELOAD	B - A	N·m {kgf·cm, in·lbf}	1.1 {11.2, 9.7}	2.0 {20.4, 17.7}	
D	SECONDARY GEAR AND OUTPUT GEAR PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	1.4—2.5 {14.3—25.4, 12.4—22.1}		
E	MEASUREMENT RESULT OF SECONDARY GEAR AND OUTPUT GEAR PRELOAD	—	—	OK/NG	OK/NG	OK/NG
F	THICKNESS OF REMOVED SHIM	—	mm {in}	0.855 {0.03366}		
G	MEDIAN VALUE OF SECONDARY GEAR AND OUTPUT GEAR PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	1.95 {19.9, 17.2}		
H	PRELOAD GAP	G - C	N·m {kgf·cm, in·lbf}	0.85 {8.7, 7.5}		
I	SHIM THICKNESS GAP	H × 0.1 mm {0.00394 in} / 1.27 N·m {12.9 kgf·cm, 11.2 in·lbf}	mm {in}	0.067 {0.00264}		
J	THICKNESS OF OPTIMUM SHIM	F + I	mm {in}	0.922 {0.03630}		

bgw2za00000026

Ring Gear and Differential Preload Measurement/Adjustment

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	RING GEAR AND DIFFERENTIAL PRELOAD	—	N·m {kgf·cm, in·lbf}			
B	RING GEAR AND DIFFERENTIAL PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	2.6—4.0 {26.6—40.7, 23.1—35.4}		
C	MEASUREMENT RESULT OF RING GEAR AND DIFFERENTIAL PRELOAD	—	—	OK/NG	OK/NG	OK/NG
D	THICKNESS OF REMOVED SHIM	—	mm {in}			
E	MEDIAN VALUE OF RING GEAR AND DIFFERENTIAL PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	3.3 {33.7, 29.2}		
F	PRELOAD GAP	E - A	N·m {kgf·cm, in·lbf}			
G	SHIM THICKNESS GAP	F × 0.1 mm {0.00394 in} / 1.6 N·m {16.3 kgf·cm, 14.1 in·lbf}	mm {in}			
H	THICKNESS OF OPTIMUM SHIM	D + G	mm {in}			

bgw2za00000027

Description example

Symbol	Item	Formula	Unit	First time	Second time	Third time
A	RING GEAR AND DIFFERENTIAL PRELOAD	—	N·m {kgf·cm, in·lbf}	2.4 {24.5, 21.2}	3.2 {32.6, 28.3}	
B	RING GEAR AND DIFFERENTIAL PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	2.6—4.0 {26.6—40.7, 23.1—35.4}		
C	MEASUREMENT RESULT OF RING GEAR AND DIFFERENTIAL PRELOAD	—	—	OK/(NG)	(OK)/NG	OK/NG
D	THICKNESS OF REMOVED SHIM	—	mm {in}	0.905 {0.03563}		
E	MEDIAN VALUE OF RING GEAR AND DIFFERENTIAL PRELOAD SPECIFICATION	—	N·m {kgf·cm, in·lbf}	3.3 {33.7, 29.2}		
F	PRELOAD GAP	E - A	N·m {kgf·cm, in·lbf}	0.9 {9.2, 8.0}		
G	SHIM THICKNESS GAP	F × 0.1 mm {0.00394 in} / 1.6 N·m {16.3 kgf·cm, 14.1 in·lbf}	mm {in}	0.056 {0.00220}		
H	THICKNESS OF OPTIMUM SHIM	D + G	mm {in}	0.961 {0.03783}		

bgw2za00000028

Total End Play Measurement/Adjustment

Symbol	Item	Formula	Unit	First time			
A	TOTAL END PLAY ADJUSTMENT VALUE	—	mm{in}				
B	AVERAGE OF TOTAL END PLAY ADJUSTMENT VALUE	Average value of A	mm{in}				
C	THICKNESS OF SHIM (FZ01 19 2L1) FOR TOTAL END PLAY MEASUREMENT/ ADJUSTMENT	—	mm{in}				
D	RANGE	B + C	mm{in}				

bgw2za00000021

Description example

Symbol	Item	Formula	Unit	First time			
A	TOTAL END PLAY ADJUSTMENT VALUE	—	mm{in}	0.120 {0.00472}	0.110 {0.00433}	0.110 {0.00433}	0.120 {0.00472}
B	AVERAGE OF TOTAL END PLAY ADJUSTMENT VALUE	Average value of A	mm{in}	0.115 {0.00453}			
C	THICKNESS OF SHIM (FZ01 19 2L1) FOR TOTAL END PLAY MEASUREMENT/ ADJUSTMENT	—	mm{in}	3.010 {0.11850}			
D	RANGE	B + C	mm{in}	3.125 {0.12303}			

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