

**ARCHIVE**

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# SHIMANO

**2013-2014**

**Products compatibility information**

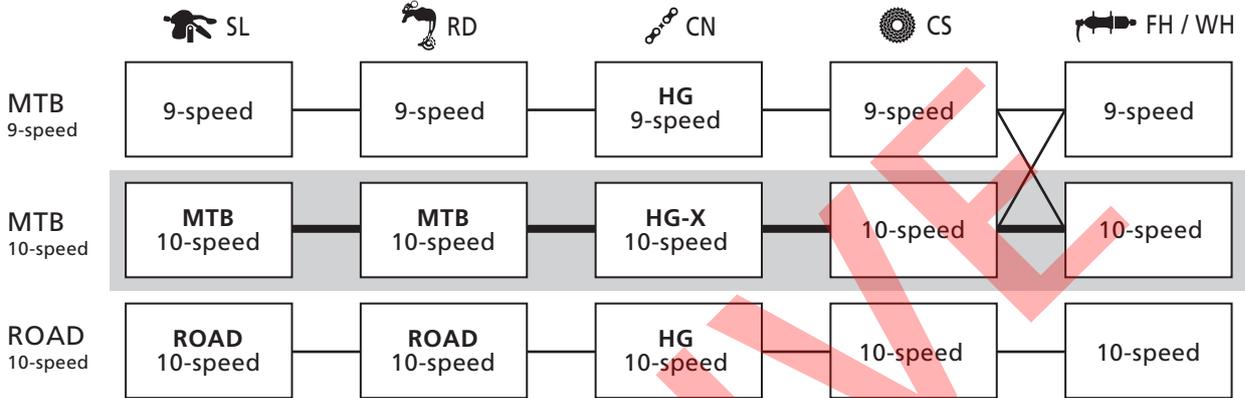
# MTB and ROAD components

## Drivetrain for MTB components

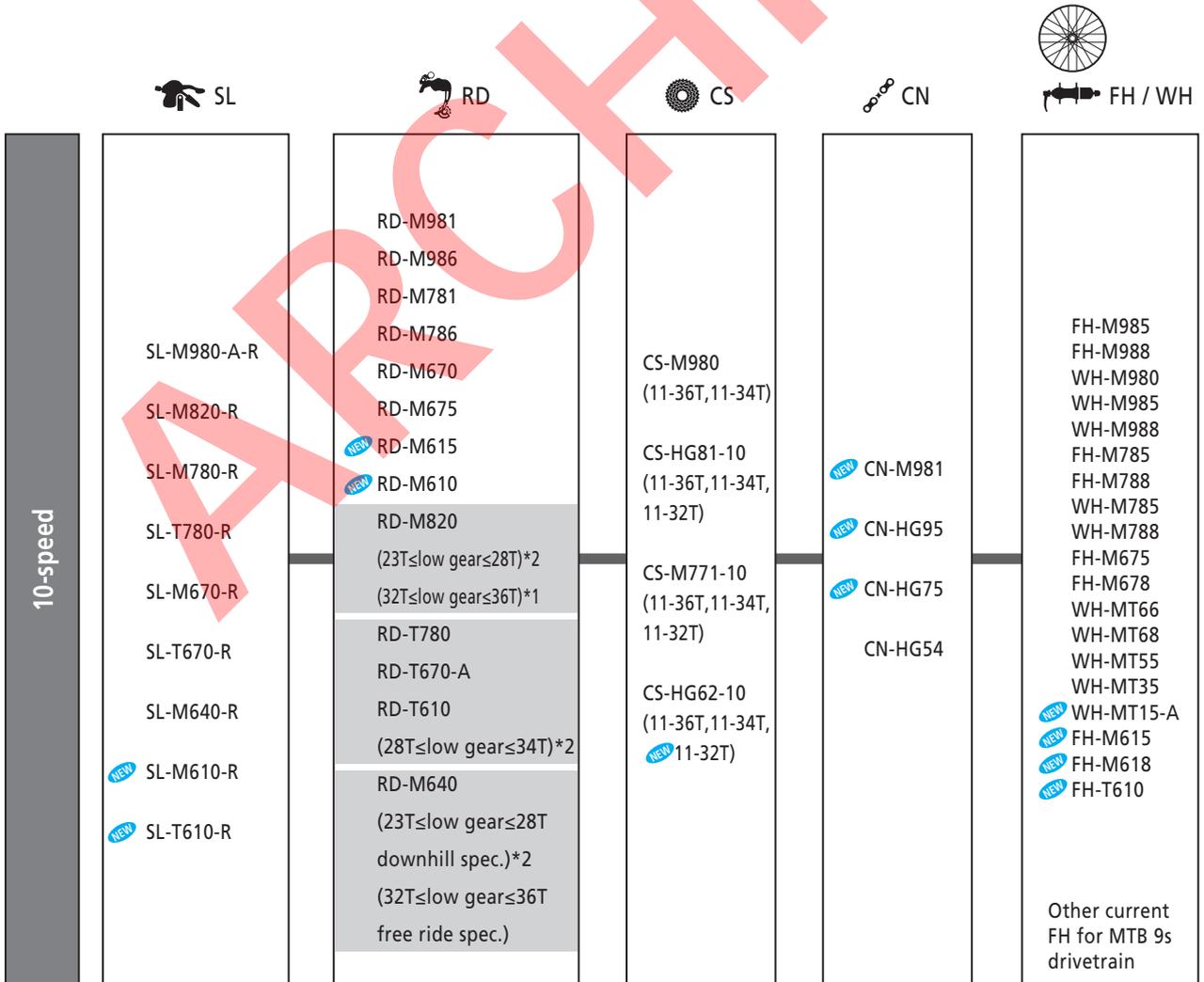
When using components of different series together, be aware of the points given below.

### 1. Rear drivetrain interchangeability

#### 1-1. 9,10-speed rear drivetrain compatibility



#### 1-2. 10-speed rear drivetrain



\*1: Mode converter

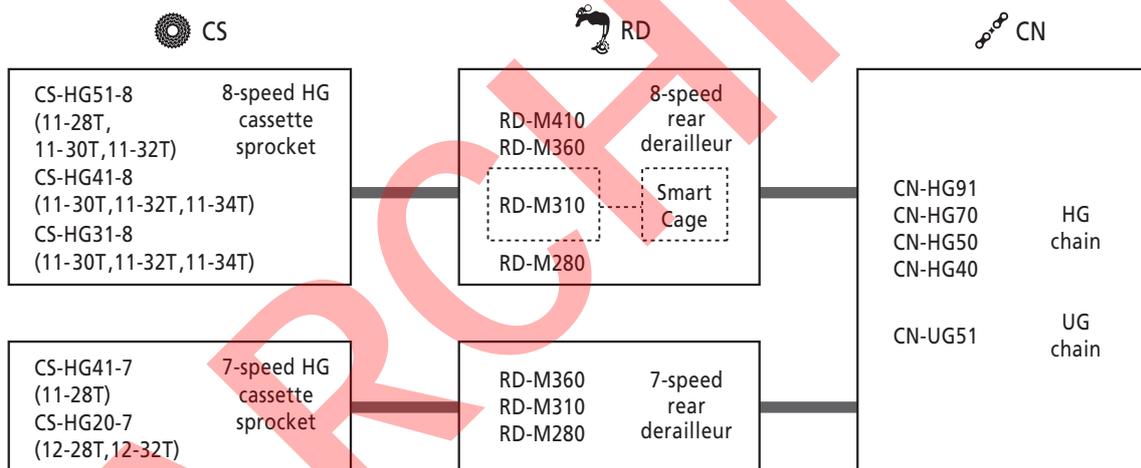
\*2: Compatible with road Cassette sprocket

### 1-3. 9-speed rear drivetrain

CS		Shadow RD	W-servo RD	CN
		RD-M772 RD-M662 RD-M592	RD-M430 RD-M390 <small>NEW</small> RD-M370	CN-7701 CN-HG93 CN-HG73 CN-HG53
CS-HG61-9 bh	12 – 36T	X	–	X
CS-HG80-9 au CS-HG61-9 au CS-HG50-9 au CS-HG30-9 au CS-HG20-9 bn	11 – 34T	X	X	X
CS-HG80-9 ar CS-HG61-9 ar CS-HG50-9 ar CS-HG30-9 ar CS-HG20-9 bo	11 – 32T	X	X	X
CS-HG80-9 bg CS-HG61-9 bg	11 – 28T	–	X	X

X: Yes

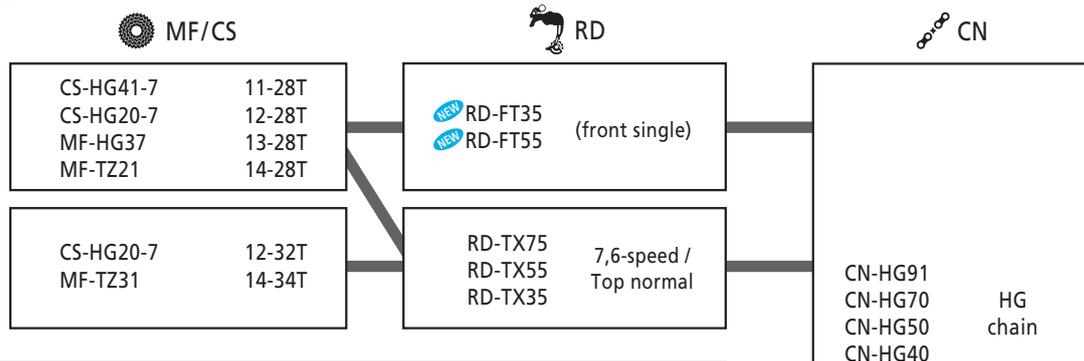
### 1-4. 8,7-speed HG



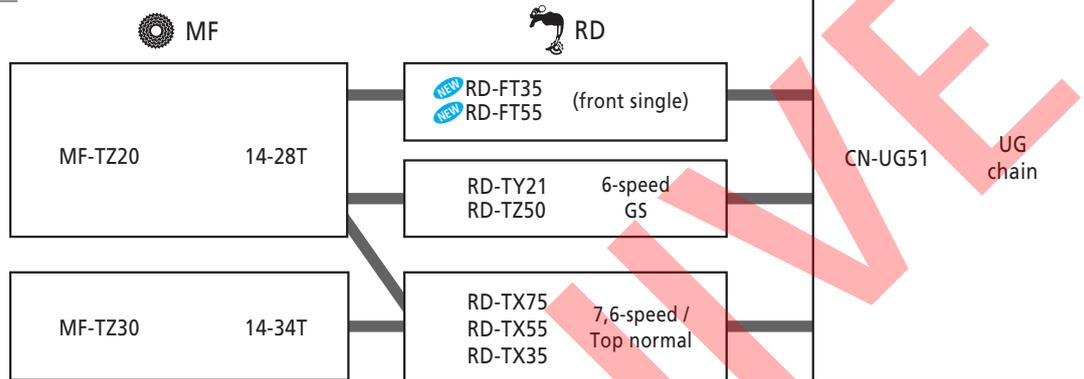
\* The rear derailleur for 8-speed can also be used for 7-speed drivetrain.

## 1-5. 7-speed HG and 6-speed

### 7-speed

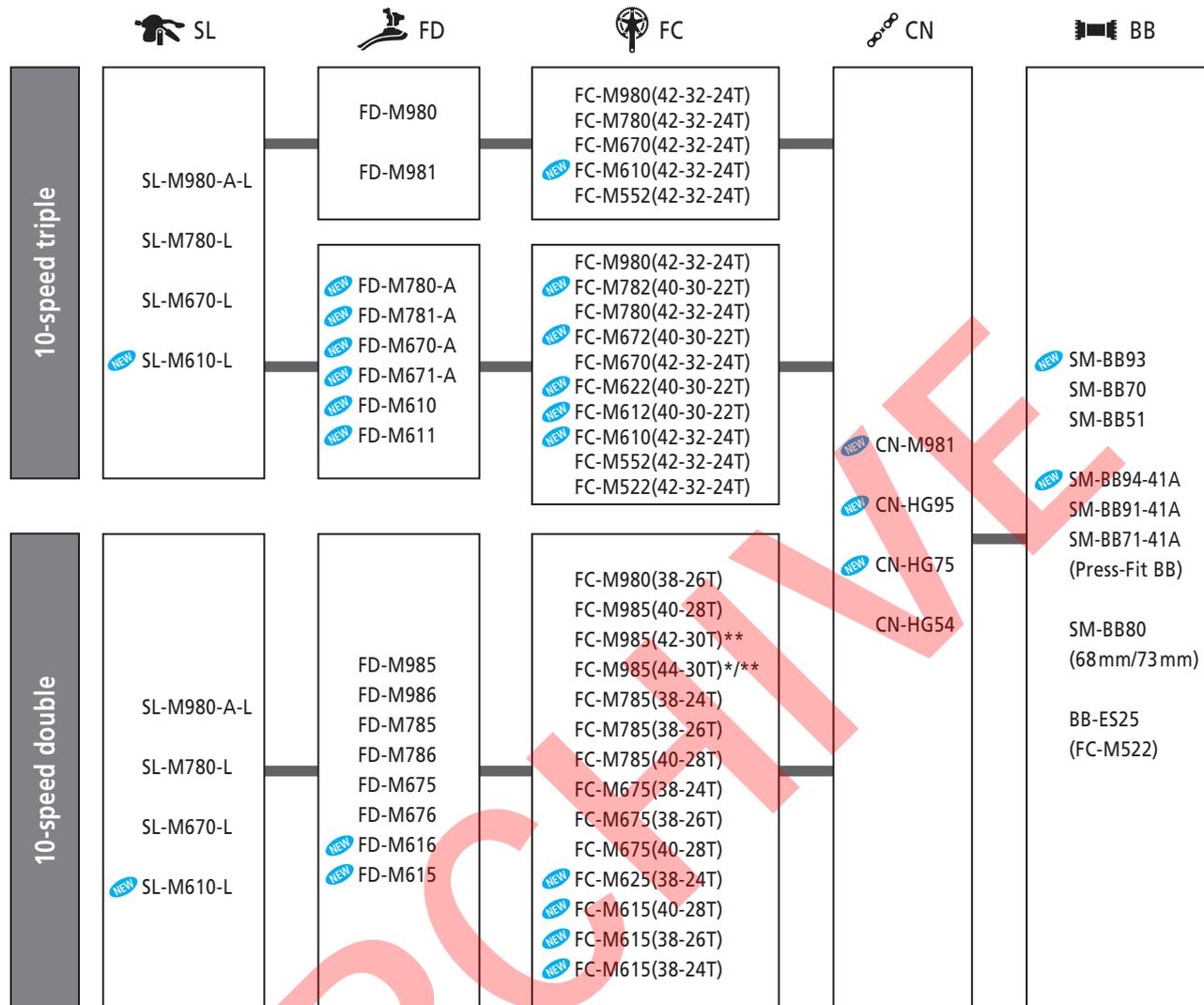


### 6-speed



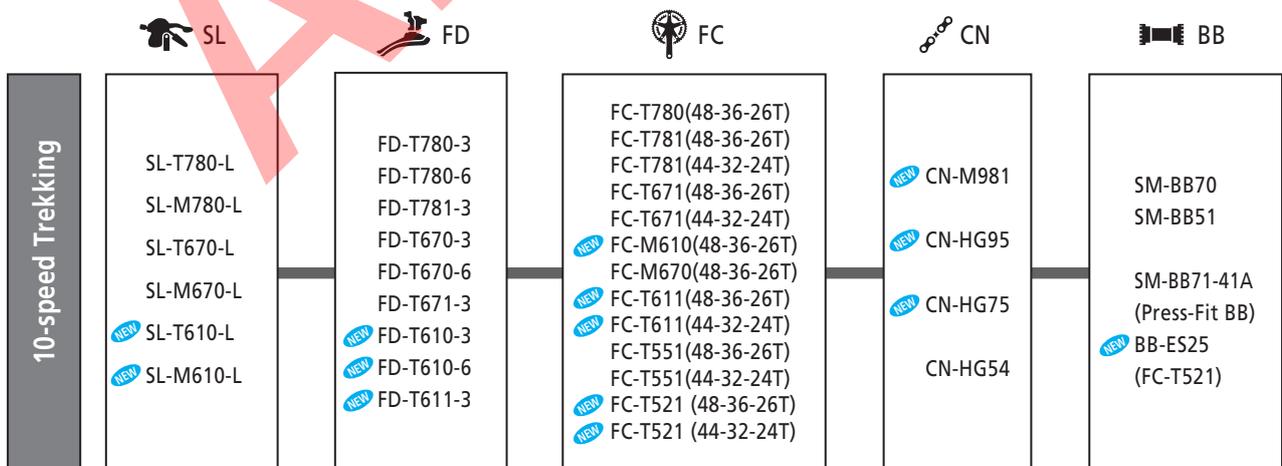
## 2. Front drivetrain interchangeability

### 2-1. 10-speed front drivetrain



\*: Mount position is required for FD-M986-D used with double front chainwheel 44T.

\*\* : Not compatible with E2 type front derailleur.



## 2-2. 10-speed FC-FD compatibility

FC Model No.	Gear combination	Top swing							
		For triple				For double			
		FD-M980	NEW FD-M780-A NEW FD-M670-A NEW FD-M610	FD-M980-E	NEW FD-M780-A-E NEW FD-M670-A-E NEW FD-M610-E	FD-T780-3 FD-T780-6 FD-T670-3 FD-T670-6 FD-T610-3 FD-T610-6	NEW FD-M985 NEW FD-M785 NEW FD-M675 NEW FD-M615	FD-M985-E	FD-M985-E2 FD-M785-E2 FD-M675-E2 NEW FD-M615-E2 (w / o BB plate only)
FC-M980 FC-M780 FC-M670 FC-M610 FC-M552 FC-M522 (BB-ES25 113 mm)	42-32-24T	X	X	X	X	-	-	-	-
NEW FC-M782 NEW FC-M672 NEW FC-M622 NEW FC-M612	40-30-22T	-	X	-	X	-	-	-	-
NEW FC-M610	48-36-26T	-	-	-	-	X	-	-	-
FC-T780 FC-M670	48-36-26T	-	-	-	-	X	-	-	-
FC-T781 FC-T671 FC-T611 FC-T551 FC-T521	48-36-26T	-	-	-	-	X	-	-	-
FC-M985	44-30T	-	-	-	-	-	X	X	-
	42-30T	-	-	-	-	-	X	X	-
	40-28T	-	-	-	-	-	X	X	X
FC-M980	38-26T	-	-	-	-	-	X	-	X
FC-M785 FC-M675 FC-M625 FC-M615	40-28T	-	-	-	-	-	X	X	X
NEW NEW NEW NEW	38-26T	-	-	-	-	-	X	-	X
	38-24T	-	-	-	-	-	X	-	X

FC Model No.	Gear combination	Down swing						
		For triple				For double		
		FD-M981	NEW FD-M781-A NEW FD-M671-A NEW FD-M611	FD-M981-D	NEW FD-M781-A-D NEW FD-M671-A-D NEW FD-M611-D	FD-T781-3 FD-T671-3 FD-T611-3	NEW FD-M986 NEW FD-M786 NEW FD-M676 NEW FD-M616	NEW FD-M986-D NEW FD-M786-D NEW FD-M676-D NEW FD-M616-D
FC-M980 FC-M780 FC-M670 FC-M610 FC-M552 FC-M522 (BB-ES25 113mm)	42-32-24T	X	X	X	X	-	-	-
NEW FC-M782 NEW FC-M672 NEW FC-M622 NEW FC-M612	40-30-22T	-	X	-	X	-	-	-
NEW FC-M610	48-36-26T	-	-	-	-	X	-	-
FC-T780 FC-M670	48-36-26T	-	-	-	-	X	-	-
FC-T781 FC-T671 FC-T611 FC-T551 FC-T521	48-36-26T	-	-	-	-	X	-	-
FC-M985	44-30T	-	-	-	-	-	X	X*
	42-30T	-	-	-	-	-	X	X
	40-28T	-	-	-	-	-	X	X
FC-M980	38-26T	-	-	-	-	-	X	X
FC-M785 FC-M675 FC-M625 FC-M615	40-28T	-	-	-	-	-	X	X
NEW NEW	38-26T	-	-	-	-	-	X	X
	38-24T	-	-	-	-	-	X	X

\*: Mount position is required for FD-M986-D used with double front chainwheel 44T.

X: Yes

All information on this page as of Nov. 1st 2013.

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## 2-3. 9-speed triple FC-FD compatibility

FC \ FD		Speed		9-speed			
		Chain line		50 mm			
		Chainstay angle		66° - 69 °			63° - 66°
		Top swing FD		-	FD-M770-E	FD-M770 FD-M590-6 FD-M430-6 FD-M390-6 FD-M370-6 <small>NEW</small>	FD-M772A FD-T660A-3 FD-M590-3 FD-M430-3 FD-M390-3 FD-M370-3 <small>NEW</small>
Chain line	BB Model No. / Structure	Down swing FD		FD-M771 FD-M771D FD-M661D	-	FD-M591-6 FD-M431-6 FD-M371-6 <small>NEW</small>	FD-M773 FD-T661-3 FD-M591-3 FD-M431-3 FD-M371-3 <small>NEW</small>
		FC model No.					
50 mm	2pc type FC	FC-M770 FC-M542 FC-M543K FC-M590 FC-M591	44-32-22T	X	X	X	X
		FC-M771K FC-M543K FC-M590 FC-M591	48-36-26T	-	-	X	X
	BB-ES25 (please refer chart as below for detailed combination)	FC-M521	44-32-22T	X	-	X	X
	BB-ES25 126 (-K)	FC-M431-8 FC-M391-8					
	BB-UN26 LL123 (-K)	FC-M431 FC-M391 FC-M371					
	BB-ES25 118 (-E)	FC-M430-8	44-32-22T	X	X	X	X
	BB-UN26 LL113 (-E)	FC-M430					
	BB-ES25 (please refer chart as below for detailed combination)	FC-M521	48-36-26T	-	-	X	X
	BB-ES25 126 (-K)	FC-M431-8 FC-M391-8					
	BB-UN26 LL123 (-K)	FC-M431 FC-M391 FC-M371					

X: Yes

### FC-M521 / BB-ES25 combination

		MTB (without chain case)	Trekking (with chain case)	E-type
BB shell width	68 mm	ABBES25AKB21W (use with 1.8 mm spacer) / ABBES25B21	ABBES25AKB21W (use without 1.8 mm spacer) / ABBES25AKB21	ABBES25EB21
	73 mm	ABBES25C21	-	ABBES25EC21

## 2-4. 8,7,6-speed triple FC-FD compatibility

		Speed		8,7-speed					
		Chain line		50.0 mm		47.5 / 50.0 mm		47.5 / 50.0 mm	
		Chainstay angle		66° - 69°	63° - 66°	66° - 69°	63° - 66°	66° - 69°	63° - 66°
		Top swing FD		FD-M410-E	FD-M410-E	FD-M360-6 FD-M310-6	FD-M360-3 FD-M310-3	FD-M190A-6	FD-M190-3
Chain line	BB Model No. / Structure	Down swing FD		-	-	FD-M311-6	FD-M311-3	-	-
50 mm	BB-ES25 (-K) 126 (K)	FC-M361-8	42-32-22T	-	-	X	X	-	-
		FC-M311-8		-	-	X	X	-	-
	BB-UN26 (-K) LL123 (-K)	FC-M361 FC-M311	42-32-22T	-	-	X	X	-	-
	BB-UN26 (-E) LL123 (-E)	FC-M361 FC-M311	42-32-22T	X	X	-	-	-	-
47.5 + t mm	BB-UN26-K D-NL K	FC-M171-A	42-34-24T	-	-	-	-	X	X
		FC-M171 FC-M131	48-38-28T	-	-	X	X	-	-

		Speed		8,7-speed		7,6-speed			7,6-speed		
		Chain line		47.5 / 50.0 mm		47.5 / 50.0 mm		47.5 / 50.0 mm		47.5 mm	
		Chainstay angle		66° - 69°	63° - 66°	66° - 69°	63° - 66°	66° - 69°	63° - 66°	66° - 69°	66° - 69°
		Top swing FD		FD-M191-6	FD-M191-3	FD-TX50-6 FD-TY10*	FD-TX50-3	FD-TX51-6	FD-TX51-3	FD-TZ30	FD-TZ31
Chain line	BB Model No. / Structure	Down swing FD		-	-	-	-	-	-	-	-
50 mm	BB-ES25 (-K) 126 (K)	FC-M361-8	42-32-22T	-	-	-	-	-	-	-	-
		FC-M311-8		-	-	-	-	-	-	-	-
	BB-UN26 (-K) LL123 (-K)	FC-M361 FC-M311	48-38-28T	X	X	-	-	X	X	-	X
47.5 + t mm	BB-UN26-K D-NL K	FC-M171-A	42-34-24T	-	-	X	X	-	-	X	-
		FC-M171 FC-M131	48-38-28T	X	X	-	-	X	X	-	X

\* FD-TY10 L size is designed for 50 mm chain line.

X: Yes

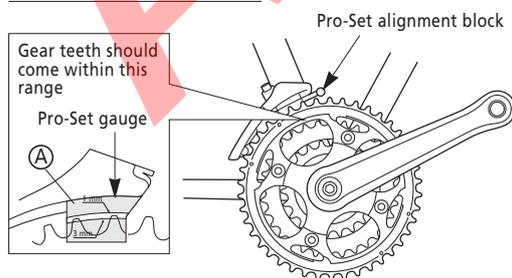
### Note:

When using the front derailleur designed for a 7-speed system on an 8-speed system, the front derailleur plate may interfere with the chain even if its installed correctly.

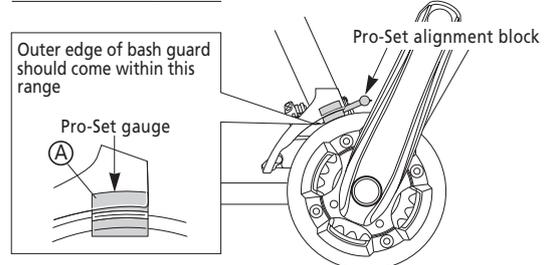
How to set position for front chainwheel with bigger top gear chain ring or bash guard in the same series.

1. Set A
2. Check if outer plate and bigger chainring have clearance
3. Reposition height of front derailleur in case problem at process (2)

### Without bash guard



### With bash guard

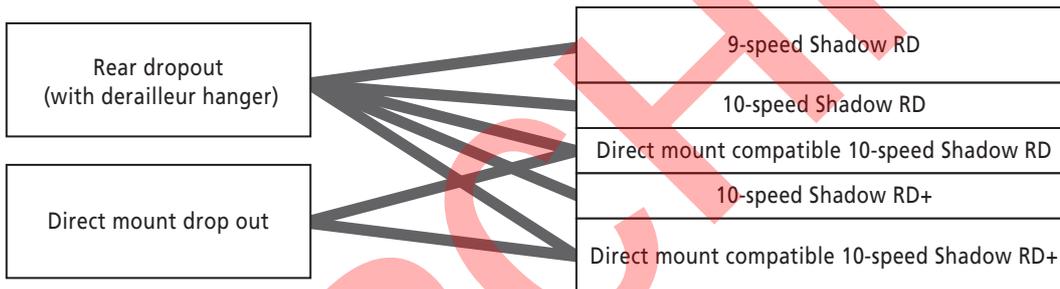


# 3. Dropout and Rear derailleur

## Compatibility

Rear dropout (with derailleur hanger)	Direct mount drop out	RD type	XTR	SAINT	DEORE XT	SLX	Deore LX	DEORE	ZEE
X	-	9-speed Shadow RD	RD-M972	-	RD-M772	RD-M662	-	RD-M592	-
X	-	10-speed Shadow RD	RD-M980	-	RD-M780	RD-M663	-	-	-
X	X (without bracket)	Direct mount compatible 10-speed	RD-M981	-	RD-M781	RD-M670	-	 RD-M610	-
X	-	10-speed Shadow RD+	RD-M985	-	-	-	-	-	-
X	X (without bracket)	Direct mount compatible 10-speed	RD-M986	RD-M820	RD-M786	RD-M675	-	 RD-M615	RD-M640
X	-	9-speed W-servo RD	-	-	-	-	RD-T660	-	-
X	-	10-speed W-servo RD	-	-	RD-T780	-	RD-T670-A	 RD-T610	-

X: Yes



**Note 1:**

With use bracket mount, Shadow RD and Shadow RD+ can install to standard drop out.

**Note 2:**

Without bracket mount, Shadow RD and Shadow RD+ can install to new direct mount drop out.

**Note 3:**

Direct mount dropout for RD-M820 downhill mode, RD-M640 downhill spec require difference dimension, please refer to page 20, 21 and 71.

Interchangeability

## 4. Front derailleur and crankset

The allowable combinations of front derailleurs depend on the difference in the number of teeth of the gears and the shape of the front derailleur plate.

If the conditions given below are not satisfied, then the desired shiftability may not be obtained.

FC (top gear) - (low gear) ≤ FD (top and low capacity)  
 FC (top gear) - (middle gear) ≤ FD (allowance of difference in teeth number between top and middle)

Front derailleurs and the number of teeth for corresponding cranksets are given in the chart.

## 5. Front derailleur and chain line (Tourney)

The Shimano line-up for front derailleurs and the chain lines they support are given in the chart below.

		28.6 mm (S)	31.8 mm (M)	34.9 mm (L)
Chain line (mm)	FD-TY10	ø47.5		ø50.0
	FD-TZ31 FD-TZ30	ø47.5		-

## 6. Crankset, bottom bracket, and chain line

In order to use SIS to its full extent, the required correct chain line, along with the crankset and bottom bracket required to obtain that, are given in the chart below.

### 6-1. MTB components (separate type FC / BB)

Speed	Series	Crankset				Bottom bracket	Chain line and axle mark			
		Model No.	Type of crank				Model No.	47.5 mm	50.0 mm	52.5 mm
			OCTALINK	Square	Chaincase					
10	Non-series	FC-M522	X	-	-	BB-ES25	-	LL113	-	-
		FC-M521	X	-	X*	BB-ES25-AK	-	**	-	-
9	ALIVIO	FC-M431-8	X	-	X	BB-ES25(-K)	-	126(-K)	-	-
		FC-M431	-	X	X	BB-UN26(-K)	-	LL123(-K)	-	-
		FC-M430-8	X	-	-	BB-ES25(-E)	-	118(-E)	-	-
		FC-M430	-	X	-	BB-UN26(-E)	-	LL113(-E)	-	-
		FC-M391-8	X	-	X	BB-ES25(-K)	-	126(-K)	-	-
	Acera	FC-M391	-	X	X	BB-UN26(-K)	-	LL123(-K)	-	-
		Non-series	FC-M371	-	X	X	BB-UN26(-K)	-	LL123(-K)	-
8, 7	Acera ALTUS	FC-M361-8 (42T)	X	-	X	BB-ES25(-E)	-	126	-	-
		FC-M361	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-
		FC-M311	-	X	X*	BB-UN26(-K)	-	LL123(-K)	-	-
		FC-M311-8	X	-	X*	BB-ES25(-K)	-	126(-K)	-	-
		FC-M131	-	X	X	BB-UN26(-K)	D-NL(122.5)	-	-	D-NL(122.5)
8, 7, 6	Non-series	FC-M171	-	X	X	BB-UN26(-K)	D-NL(122.5)	-	-	D-NL(122.5)
		FC-M171-A	-	X	X	BB-UN26(-K)	D-NL(122.5)	-	-	D-NL(122.5)

X: Yes

**Note:**

If using a chain case, select a BB- ○○○○ (-K) / -K bottom bracket.

If using an E-type front derailleur, select a BB- ○○○○ (-E) bottom bracket.

\*:Chain case stay thickness should be 1.5 mm to 2.1 mm.

\*\*Please refer to page 176 for detailed combination.

**Note:**

FC-M521: Use 121AK with 1.8 mm spacer if no chain case used.

## 6-2. Capreo series components

The combinations of the front chainwheel and the bottom bracket to obtain proper chain line, which are necessary for the SIS (= Shimano indexed system) to function well, are presented in the following chart.

Series	Model No.	Crankset			Bottom bracket	Chain line and axle mark			
		Type of crank				Model No.	47.5 mm	50.0 mm	52.5 mm
Capreo	FC-F800	OCTALINK	Square	Chaincase	BB-UN26				
		-	X	X	BB-UN26-K	-	-	-	*117.5

X: Yes

### Note:

This specification can be used without the chain case as 52.5 mm chain line. In that case, a space is to be left between the shell and the adapter on the left side of the BB, but there is no problem in actual use.

## 7. Chain, chainring and cassette sprocket

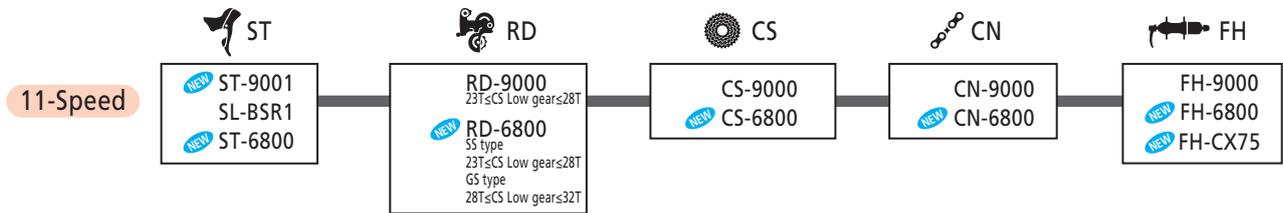
The allowable combinations for the Shimano chain (CN), chainrings (FC), and cassette sprockets (CS) are given in the chart below. These chains are available in order to match the type of drivetrain. Select the combination you desire after checking the chart below.

		9-speed		7, 8-speed	
		CS	FC	CS	FC
FC / CS		CS-M770 CS-HG80-9 CS-HG61-9 CS-HG50-9 CS-HG30-9 CS-HG20-9	FC-M770 FC-M771-K FC-M665 FC-M591 FC-M590 FC-M543-K FC-M542 FC-M521 FC-M431 FC-M430 FC-M430-8 FC-M391 FC-M391-8 FC-M371	CS-HG51-8 CS-HG41-8 CS-HG31-8 CS-HG41-7 CS-HG20-7	FC-M361 FC-M361-8 FC-M311 FC-M311-8 FC-M171 FC-M171-A FC-M131
CN	9-speed CN-7701 CN-HG93 CN-HG73 CN-HG53	X	X	-	-
	CN-HG50 CN-HG40 CN-UG51	-	-	X	X

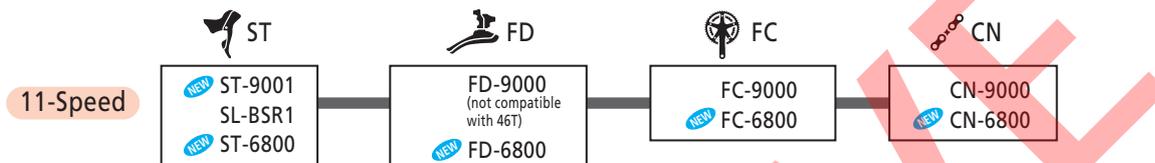
# Drivetrain for road bike components

## 1. 11-Speed

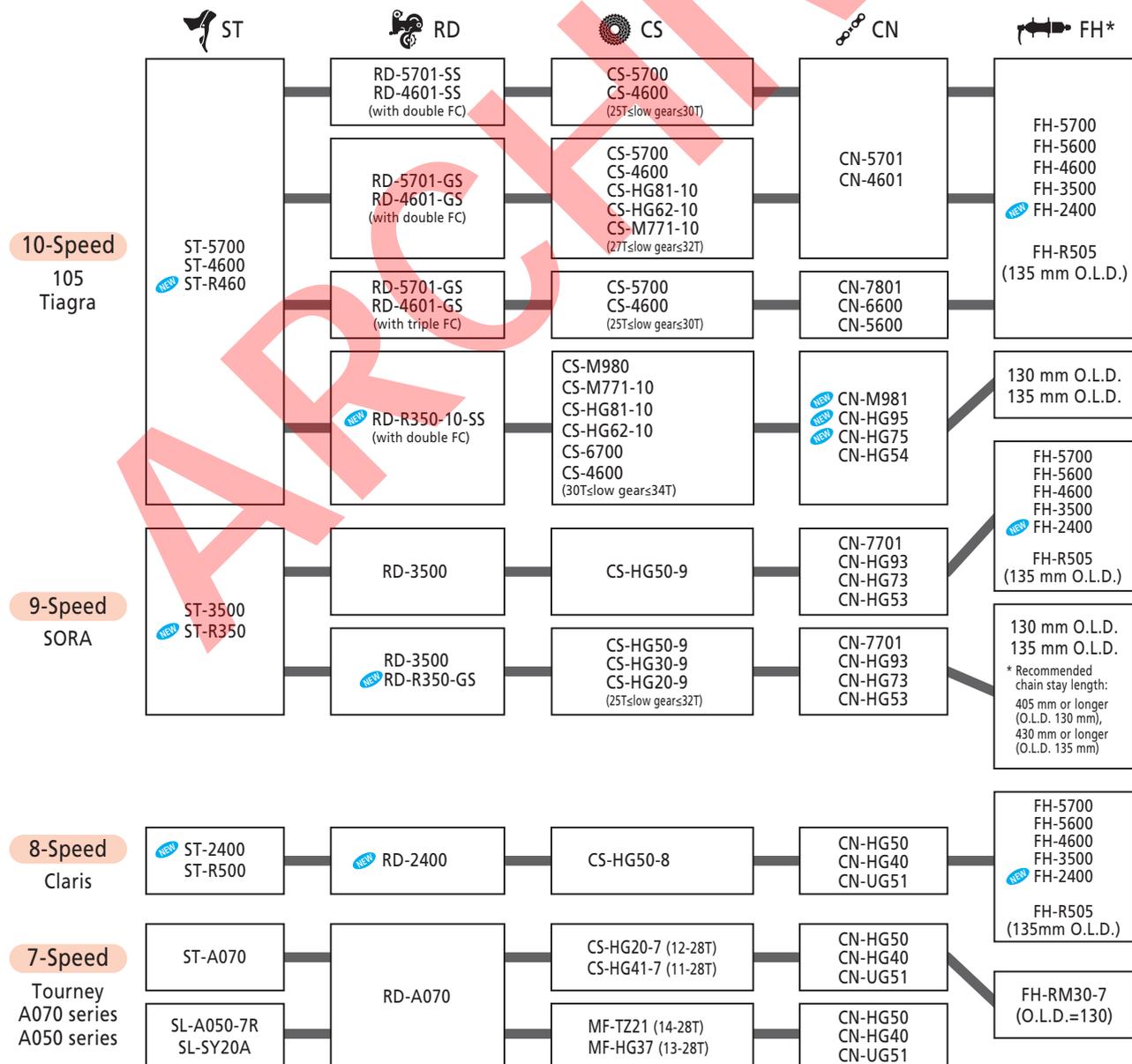
### 1-1. Rear drivetrain interchangeability



### 1-2. Front drivetrain interchangeability



## 2. Rear drivetrain interchangeability



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Interchangeability

## 2-1. Interchangeability between rear derailleur and cassette sprocket gear teeth

Gear	11-speed					
	<b>NEW</b> RD-9070	<b>NEW</b> RD-9000	<b>NEW</b> RD-6870		<b>NEW</b> RD-6800	
	SS	SS	SS	GS Front double	SS	GS Front double
11-23T	X	X	X	-	X	-
11-25T	X	X	X	-	X	-
12-25T	X	X	X	-	X	-
12-28T	X	X	X	X	X	X
11-28T	X	X	X	X	X	X
11-32T	-	-	-	X	-	X

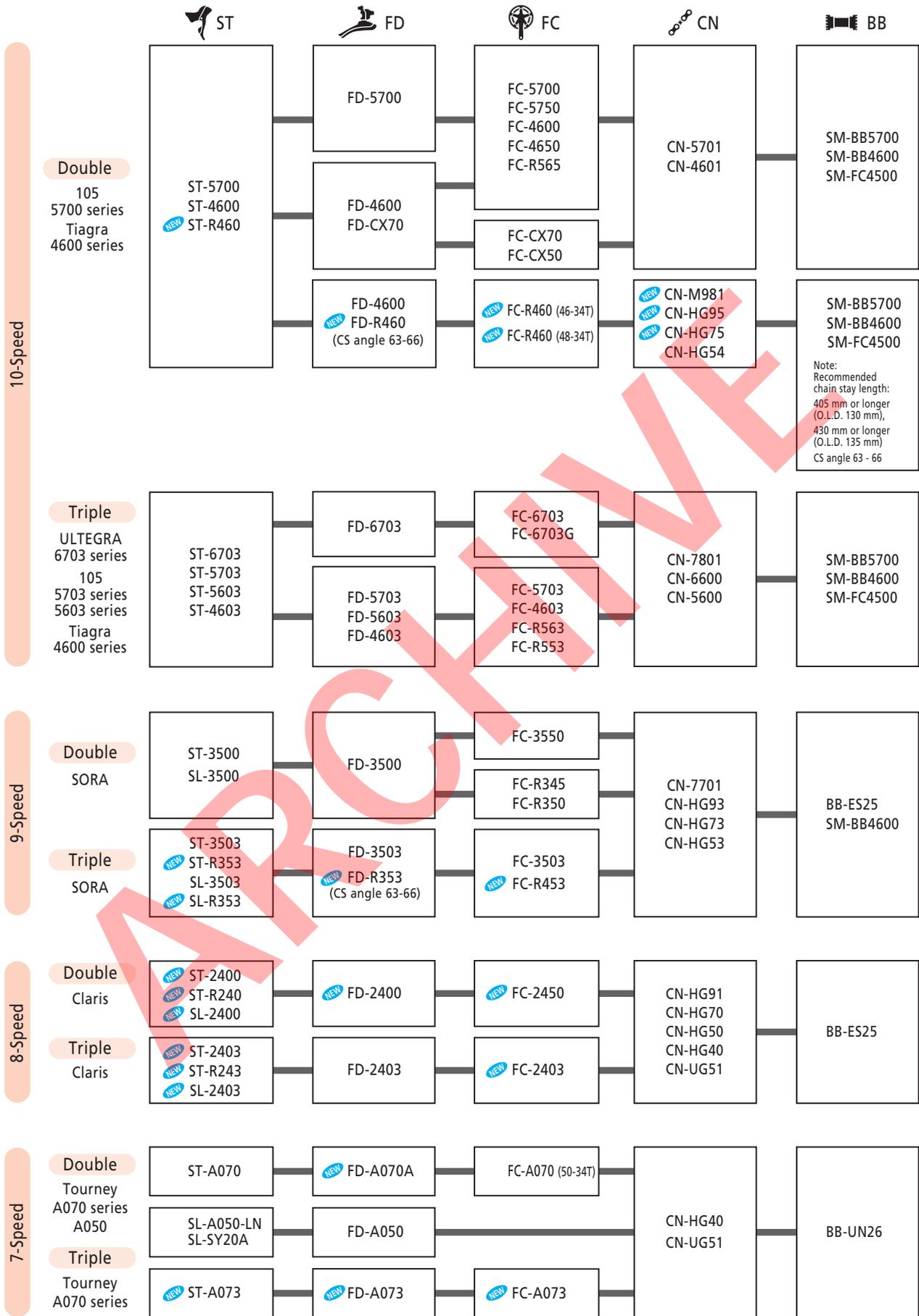
Gear	10-speed						
	RD-5701			RD-4601			<b>NEW</b> RD-R350-10
	SS	GS Front double	GS Front triple	SS	GS Front double	GS Front triple	SS
11-25T	X	-	X	X	-	X	-
12-25T	X	-	X	X	-	X	-
11-27T	X	X	X	X	X	X	-
12-27T	X	X	X	X	X	X	-
12-28T	X	X	X	X	X	X	-
11-28T	X	X	X	X	X	X	-
12-30T	X	X	X	X	X	X	X
11-32T	-	X	-	-	X	-	X
11-34T	-	-	-	-	-	-	X
13-25T	X	-	X	X	-	X	-
14-25T	X	-	X	X	-	X	-

Gear	9-speed		
	RD-3500		<b>NEW</b> RD-R350
	SS	GS	GS
11-25T	X	X	X
12-25T	X	X	X
12-27T	X	X	X
11-30T	X	X	X
11-32T	X	X	X
13-25T	X	X	X
14-25T	X	X	X

Gear	8-speed	
	RD-2400	
	SS	GS
12-25T	X	X
13-26T	X	X
11-28T	X	X
11-30T	X	X
11-32T	X	X

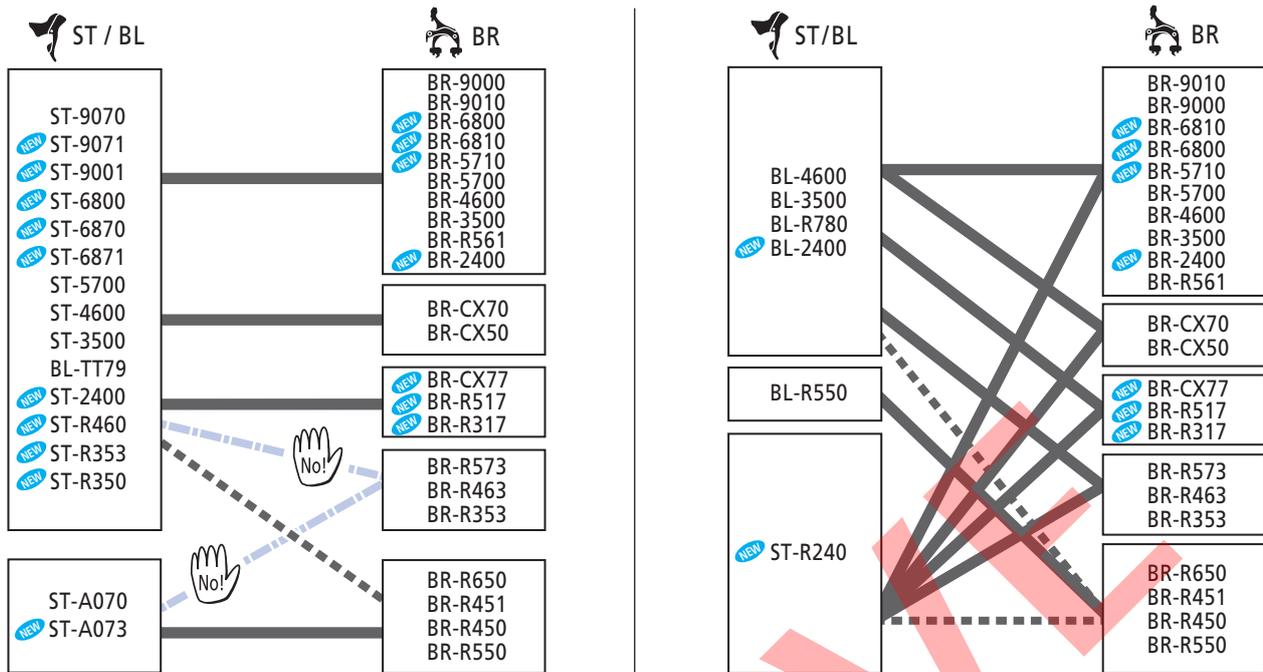
Gear	7-speed
	RD-A070
	SMARTCAGE
11-28T	X
12-28T	X
13-28T	X
14-28T	X

### 3. Front drivetrain interchangeability



Interchangeability

## 4. Brake systems interchangeability

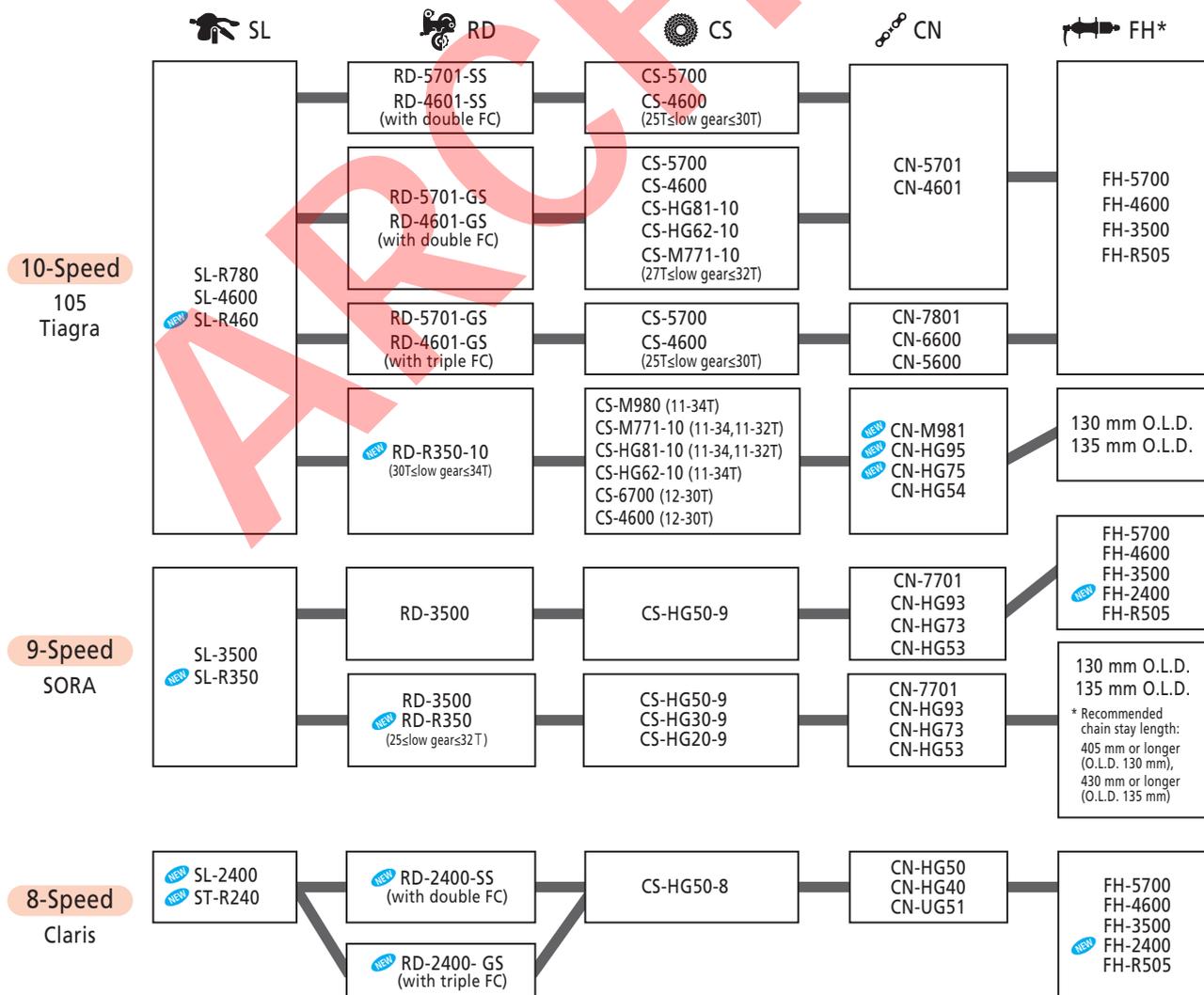


----- : Braking power is slightly less than standard combination.

⊞ : The "NO!" symbols indicate combinations that should not be used under any circumstances.

## 5. Interchangeability for flat handlebar

### 5-1. Rear system



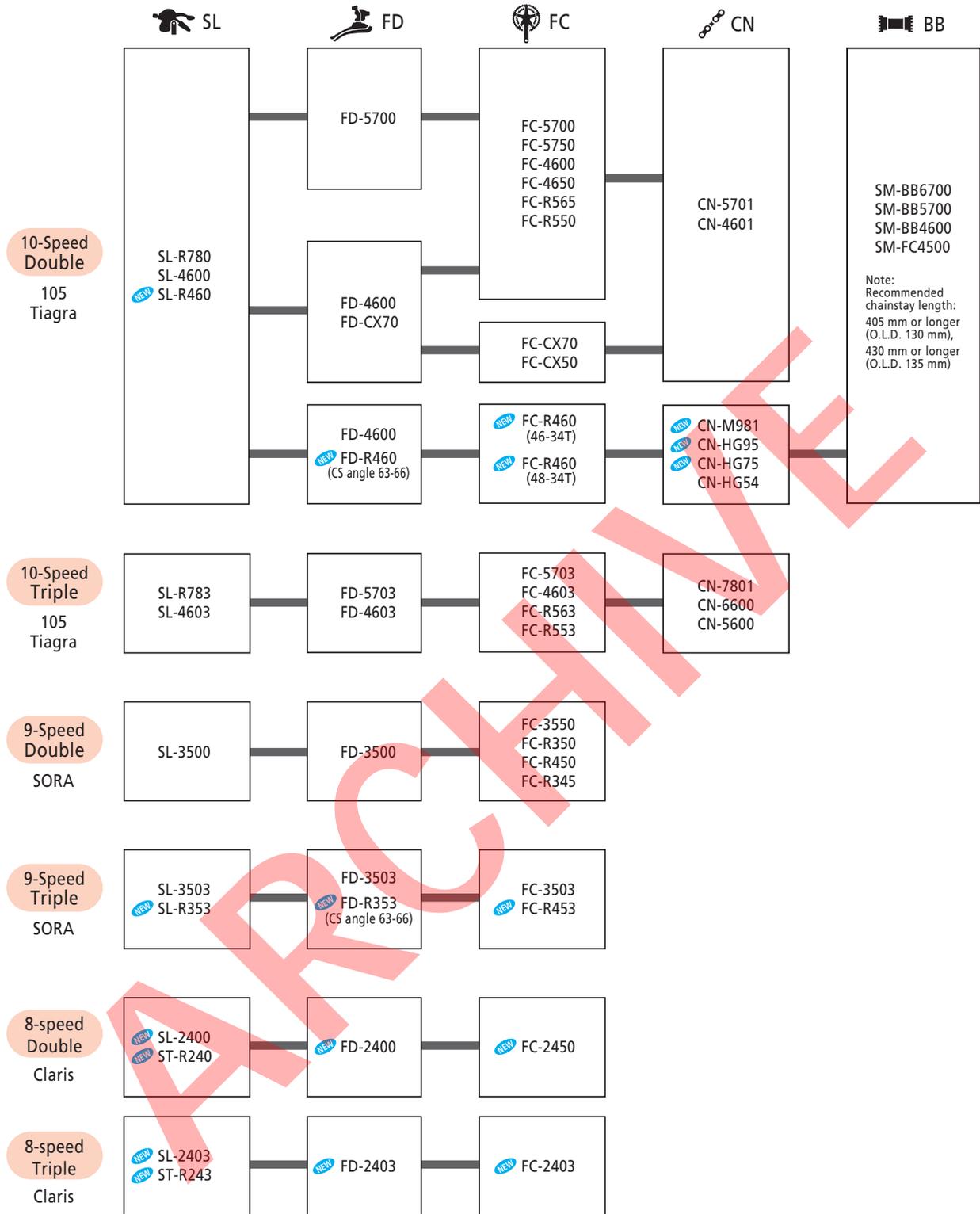
\* Recommended chain stay length:  
405 mm or longer (O.L.D. 130 mm),  
430 mm or longer (O.L.D. 135 mm)

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This information was updated on November 1, 2013. Shimano makes no warranty with respect to this information, including without limitation any warranty on the accuracy of measures, specifications and compatibility of the current products. Regarding any modification and new product information after November 1, 2013, please refer to the Shimano Business Customer Web Site or directly contact the sales person of our company.

## 5-2. Front system



Interchangeability

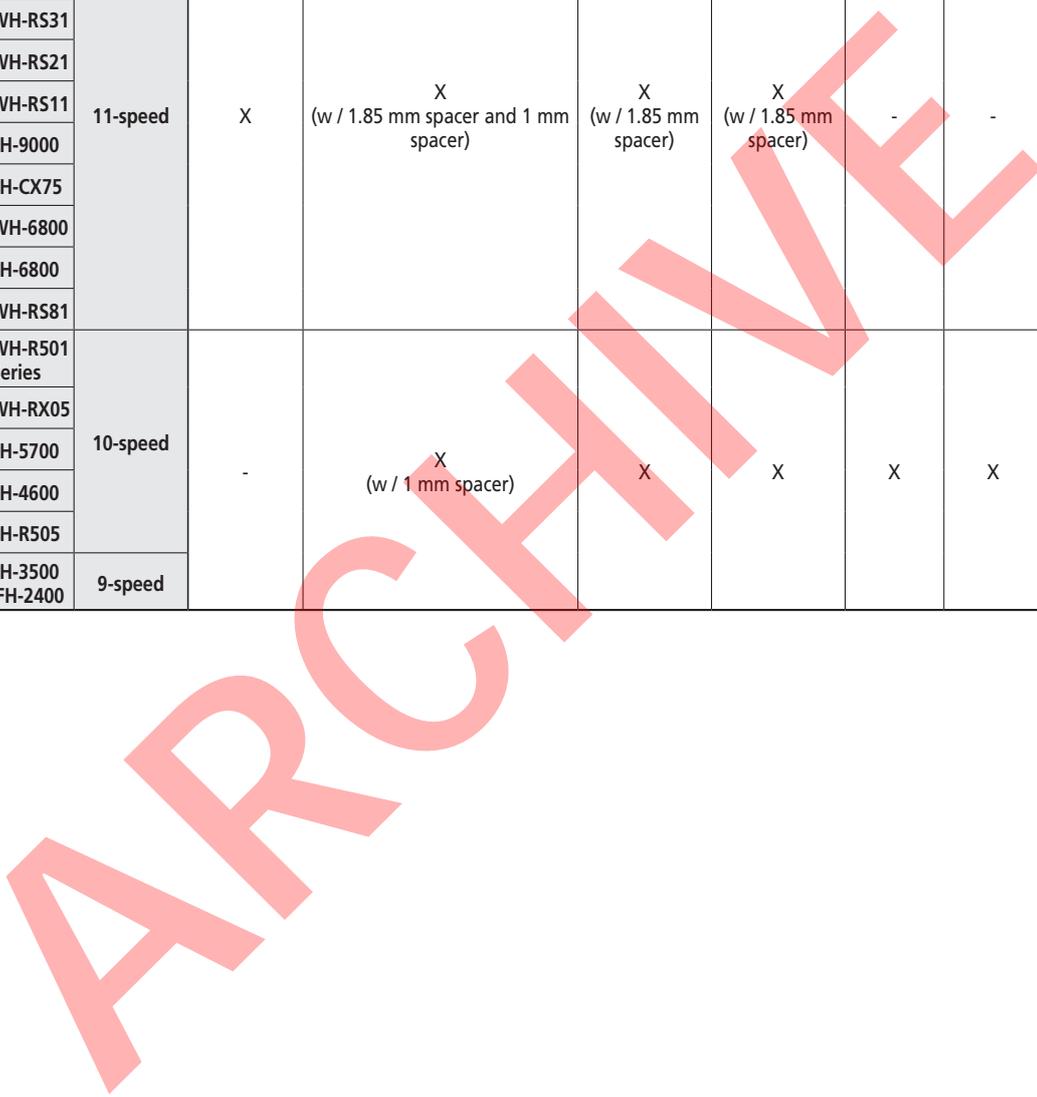
# Wheels and Cassette sprocket

## 1. Wheels and cassette sprocket interchangeability

WH CS interchangeability chart including the Model No.

			CS					
			CS-9000 <small>NEW</small> CS-6800	CS-5700	CS-4600	CS-HG81-10 CS-HG62-10 (FC double ≥ 34T)	CS-HG50-9	CS-HG50-8
			11-speed	10-speed			9-speed	8-speed
WH / FH	WH-9000 Series	11-speed	X	X (w / 1.85 mm spacer and 1 mm spacer)	X (w / 1.85 mm spacer)	X (w / 1.85 mm spacer)	-	-
	WH-RS61							
	<small>NEW</small> WH-RS31							
	WH-RS21							
	<small>NEW</small> WH-RS11							
	FH-9000							
	<small>NEW</small> FH-CX75							
	<small>NEW</small> WH-6800							
	<small>NEW</small> FH-6800							
	<small>NEW</small> WH-RS81							
WH-R501 Series	10-speed	-	X (w / 1 mm spacer)	X	X	X	X	
<small>NEW</small> WH-RX05								
FH-5700								
FH-4600								
FH-R505	9-speed							
<small>NEW</small> FH-3500 <small>NEW</small> FH-2400								

Interchangeability



## 2. Spoke protector

Select the spoke protector after checking the chart below.

It is decided by hole number of hub and number of the gear teeth, other than multiple freewheel.

Righthand flange diameter	Speed	Model No.	Cassette sprocket low gear No.					Spoke hole No.		
			28T	30T	32T	34T	36T	28H	32H	36H
53.8 mm	10	CS-M980	-	-	-	X	X	-	CP-FH56	CP-FH53
		CS-M771-10	-	-	X	X	X	-	CP-FH56	CP-FH53
		CS-HG81-10	-	-	X	X	X	-	CP-FH56	CP-FH53
		CS-HG62-10	-	-	X	X	X	-	CP-FH56	CP-FH53
	9	CS-HG80-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG80-9	X	-	-	-	-	-	CP-FH35	CP-FH50
		CS-HG61-9	-	-	-	-	X	-	CP-FH56	CP-FH53
		CS-HG61-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG61-9	X	-	-	-	-	-	CP-FH35	CP-FH50
		CS-HG50-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG30-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG20-9	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-ROAD	X	-	-	-	-	CP-FH08	CP-FH35	CP-FH31
		CS-HG60-8I	-	-	-	X	-	CP-WH12	CP-FH56	CP-FH53
	8	CS-HG51-8	X	X	-	-	-	CP-FH40	CP-FH35	CP-FH50
		CS-HG51-8	-	-	X	-	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG41-8	-	X	-	-	-	CP-FH40	CP-FH35	CP-FH50
		CS-HG41-8	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
		CS-HG31-8	-	X	-	-	-	CP-FH40	CP-FH35	CP-FH50
		CS-HG31-8	-	-	X	X	-	CP-WH12	CP-FH56	CP-FH53
	7	CS-HG41-7	X	-	-	-	-	CP-FH40	CP-FH35	CP-FH50
CS-HG20-7		-	-	X	-	-	-	CP-FH56	CP-FH53	
CS-HG20-7		X	-	-	-	-	-	CP-FH35	CP-FH50	
70.6 mm	10	CS-M980	-	-	-	X	X	-	CP-FH76	CP-FH76
		CS-M771-10	-	-	X	X	X	-	CP-FH76	CP-FH76
		CS-HG81-10	-	-	X	X	X	-	CP-FH76	CP-FH76
		CS-HG62-10	-	-	X	X	X	-	CP-FH76	CP-FH76
	9	CS-HG80-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG61-9	X	-	-	-	-	-	-	-
		CS-HG61-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG61-9	-	-	-	-	X	-	CP-FH76	CP-FH76
		CS-HG50-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG30-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG20-9	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG80-9	X	-	-	-	-	-	-	-
		CS-ROAD	X	-	-	-	-	-	-	-
		CS-HG60-8I	-	-	-	X	-	-	CP-FH76	CP-FH76
	8	CS-HG51-8	X	X	-	-	-	-	-	-
		CS-HG51-8	-	-	X	-	-	-	CP-FH76	CP-FH76
		CS-HG41-8	-	X	-	-	-	-	-	-
		CS-HG41-8	-	-	X	X	-	-	CP-FH76	CP-FH76
		CS-HG31-8	-	X	-	-	-	-	-	-
		CS-HG31-8	-	-	X	X	-	-	CP-FH76	CP-FH76
	7	CS-HG41-7	X	-	-	-	-	-	-	-
CS-HG20-7		-	-	X	-	-	-	CP-FH76	CP-FH76	
CS-HG20-7		X	-	-	-	-	-	-	-	

Interchangeability

Model No.		Cassette sprocket low gear No.			
		28T	32T	34T	36T
WH-M985 WH-M988 WH-M785 WH-M788 NEW WH-M785-29 NEW WH-M785-275	CS-M980	-	-	CP-WH14B	CP-WH14B
	CS-M771-10	-	CP-WH14B	CP-WH14B	CP-WH14B
	CS-HG81-10	-	CP-WH14B	CP-WH14B	CP-WH14B
	CS-HG62-10	-	CP-WH14B	CP-WH14B	CP-WH14B
	CS-HG80-9	CP-WH14B	CP-WH14B	CP-WH14B	-
	CS-HG61-9	CP-WH14B	CP-WH14B	CP-WH14B	CP-WH14B
	CS-HG50-9	-	CP-WH14B	CP-WH14B	-
WH-MT68 WH-MT66 WH-MT55 WH-MT55-29	CS-M980	-	-	CP-WH14A	CP-WH14A
	CS-M771-10	-	CP-WH14A	CP-WH14A	CP-WH14A
	CS-HG81-10	-	CP-WH14A	CP-WH14A	CP-WH14A
	CS-HG62-10	-	CP-WH14A	CP-WH14A	CP-WH14A
	CS-HG80-9	CP-WH14A	CP-WH14A	CP-WH14A	-
	CS-HG61-9	CP-WH14A	CP-WH14A	CP-WH14A	CP-WH14A
	CS-HG50-9	-	CP-WH14A	CP-WH14A	-
NEW WH-M980-29 WH-MT66-29 WH-MT6612-29	CS-M980	-	-	CP-WH16	CP-WH16
	CS-M771-10	-	CP-WH16	CP-WH16	CP-WH16
	CS-HG81-10	-	CP-WH16	CP-WH16	CP-WH16
	CS-HG62-10	-	CP-WH16	CP-WH16	CP-WH16
	CS-HG80-9	-	CP-WH16	CP-WH16	CP-WH16
	CS-HG61-9	CP-WH16	CP-WH16	CP-WH16	CP-WH16
	CS-HG50-9	-	CP-WH16	CP-WH16	CP-WH16
NEW WH-MT35 NEW WH-MT35-275 NEW WH-MT35-29 NEW WH-MT15-A NEW WH-MT15-A-29	CS-M980	-	-	CP-WH12	CP-WH12
	CS-M771-10	-	CP-WH12	CP-WH12	CP-WH12
	CS-HG81-10	-	CP-WH12	CP-WH12	CP-WH12
	CS-HG62-10	-	CP-WH12	CP-WH12	CP-WH12
	CS-HG80-9	CP-FH08	CP-WH12	CP-WH12	-
	CS-HG61-9	CP-FH08	CP-WH12	CP-WH12	CP-WH12
	CS-HG50-9	-	CP-WH12	CP-WH12	-

Interchangeability

Model No.		Cassette sprocket low gear No.							
		21T	23T	25T	26T	27T	28T	30T	32T*
WH-9000-C24-CL WH-9000-C24-TL WH-RS81-C24 WH-6800	CS-9000	-	CP-WH23	CP-WH23	-	-	CP-WH23	-	-
	10s CS	-	CP-W020	CP-W020	-	CP-W020	CP-W020	CP-W020	CP-W020
NEW WH-9000-C24-TU WH-9000-C35 WH-9000-C50 WH-9000-C75 NEW WH-RS81-C35 NEW WH-RS81-C50	CS-9000	-	CP-W184	CP-W184	-	-	CP-W184	-	-
	10s CS	-	CP-W024	CP-W024	-	CP-W024	CP-W024	CP-W024	CP-W024
WH-RS61 WH-RS21 WH-RS31 WH-RS11	CS-9000	-	CP-WH23	CP-WH23	-	-	CP-WH23	-	-
	10s CS	-	CP-W020	CP-W020	-	CP-W020	CP-W020	CP-W020	CP-W020
WH-RS20-A	CS-5700	-	-	CP-WH23	-	CP-WH23	CP-WH23	-	-
	CS-4600	-	-	CP-WH23	-	-	CP-WH23	CP-WH23	-
	CS-HG50-9	-	CP-WH23	CP-WH23	-	CP-WH23	-	-	-
	CS-HG50-8	CP-WH23	CP-WH23	CP-WH23	CP-WH23	-	-	-	-
WH-R501-30 WH-R501-A WH-R501	CS-5700	-	-	CP-FH06	-	CP-FH31	CP-FH31	-	-
	CS-4600	-	-	CP-FH06	-	-	CP-FH31	CP-FH46	-
	CS-HG50-9	-	CP-FH06	CP-FH06	-	CP-FH31	-	-	-
NEW WH-RX05	10s CS	-	CP-FH08	CP-FH08	CP-FH08	CP-FH08	CP-FH08	CP-FH40	-
	9s CS	-	CP-FH08	CP-FH08	CP-FH08	CP-FH08	CP-FH08	CP-FH40	CP-WH12

\* For compact crank set

## 2-1. Spoke protector for Capreo

Choose an appropriate spoke protector in the chart below.

FH		Spoke protector
FH-F700	24H	CP-FH35 / CP-FH31
	32H	CP-FH35
	36H	CP-FH31

## 2-2. Spoke protector for Road

speed	Model No.	Cassette sprocket low gear No.								Spoke holes No.			
		21T	23T	24T	25T	26T	27T	28T	30T	24H	28H	32H	36H
8, 9, 10	Road	X	X	-	X	-	-	-	-	CP-FH06	CP-FH08	CP-FH05	CP-FH06
		-	-	-	-	X	-	-	-	CP-FH31	CP-FH08	CP-FH35	CP-FH31
		-	-	-	-	-	X	X	-	CP-FH31	CP-FH08	CP-FH35	CP-FH31
		-	-	-	-	-	-	-	X	-	-	CP-FH45	CP-FH46
7	CS-HG20-7	-	-	-	-	-	-	X	-	-	-	CP-FH35	CP-FH50
	MF-TZ21	-	-	-	-	-	-	X	-	-	-	-	CP-HG22 / MF-TZ21-CP

Spoke protector can not use for 11-speed freehub.

## 3. Recommendation of the rim tape sizes for Shimano wheels

Rim sizes	Applicable wheel models	Recommended rim tape size
622 X 15C	WH-9000-C35-CL / C24-CL WH-RS11 / RS21 / RS31 WH-R501-30 / R501-A / R501  WH-RS81-C35-CL /  C24-CL	18 - 622
622 X 17C	WH-S501 / S500 / 9000-C50-CL /  RS81-C50-C	18 - 622
622 X 17C	 WH-RX05	20 - 622
622 X 19C	WH-S501-V / S500 / MT55-29 WH-T560 / MT66-29 /  MT15-A-29 /  MT35-29	20 - 622
584 X 19C	 WH-MT35-275	
559 X 19C	WH-MT55  WH-MT15-A /  MT35	20 - 559
Road tubeless	WH-9000-C24-TL WH-RS61  WH-6800	Never use rim tapes
MTB UST	WH-M985 / M988 WH-M785 / M788 WH-M778 / M765 WH-MT75 / MT65	Never use rim tapes
MTB UST	WH-MT66 / MT68	Sealing tape tubless system

# Disc brake

## 1. Hydraulic Disc Brake hose specification

Series	Model No.	Connection	Rigidity	Compatible brake lever and caliper
XTR	SM-BH90-SBM *4	Straight - Banjo	High power	BL-M987 /  BR-M987
	SM-BH90-SB *3	Straight - Banjo	High power	BL-M988-B / BR-M985
SAINT	SM-BH90-SBLS *1	Straight - Banjo	High power	BL-M820-B / BR-M820
ZEE	SM-BH90-SBS *2	Straight - Banjo	High power	BL-M640-B / BR-M640
DEORE XT SLX	SM-BH90-SB *3	Straight - Banjo	High power	BL-M785-B / BR-M785
				BL-T785-B / BR-M785
				BL-M675-B / BR-M675
DEORE	SM-BH90-SS	Straight - Straight	High power	BL-M615 /  BR-M615
Deore LX				BL-T675-B / BR-T675
ALFINE	SM-BH90-SB *3	Straight - Banjo		BL-S700-B / BR-S700
Non-series	SM-BH59	Straight - Straight	Standard	BL-T615 /  BR-T615
				BL-M505 / BR-M446
				BL-M445 / BR-M446
	SM-BH59-A		BL-T445 / BR-M446	
	SM-BH59-SB-J	Straight - Banjo	High power	BL-M395 / BR-M395 ST-R785 /  BR-R785

- \*1 : Banjo (long), Banjo bolt (short)
- \*2 : Banjo (normal), Banjo bolt (short)
- \*3 : Banjo (normal), Banjo bolt (normal)
- \*4 : Banjo (normal), Banjo bolt (special for BR-M987)

## 2. Disc brake caliper and Rotor compatibility

Caliper	Pad material	Rotor size			
		140 mm (SS)	160 mm (S)	180 mm (M)	203 mm (L)
BR-M987 BR-M785 BR-M675 BR-M615	Metal / Resin	SM-RT99-SS	SM-RT99-S SM-RT86-S SM-RT81-S SM-RT68-S SM-RT67-S SM-RT76-S SM-RT64-S SM-RT66-S	SM-RT99-M SM-RT86-M SM-RT81-M SM-RT79-M SM-RT68-M SM-RT67-M SM-RT76-M SM-RT64-M SM-RT66-M	SM-RT99-L SM-RT86-L SM-RT81-L SM-RT68-L SM-RT67-L SM-RT76-L SM-RT64-L SM-RT66-L
BR-M820 BR-M640	Metal / Resin				
BR-S700	Resin				
BR-T675 BR-T615 BR-M446 BR-M416-A BR-M395 BR-M375 BR-R317	Resin	-	SM-RT30-S SM-RT54-S SM-RT56-S	SM-RT30-M SM-RT54-M SM-RT56-M	-
BR-R785	Metal / Resin	SM-RT99-SS	SM-RT99-S SM-RT86-S SM-RT81-S SM-RT68-S	-	-
BR-CX77 BR-R517	Metal / Resin	-	SM-RT98-S SM-RT86-S SM-RT81-S SM-RT79-S SM-RT67-S SM-RT76-S SM-RT75-S SM-RT64-S SM-RT66-S	-	-

**Note:**

1. Suitable mount adapter is necessary according to your frame mount style.
2. SM-RT56 / RT54 / RT30 are compatible with Resin pad caliper specification only. If use with metal pads, rotor will be easily damaged.
3. When using 140mm rotor, braking power is less than 160 mm, please confirm the power is enough for your purpose. 140 mm rotor is recommended for rear use only.
4. Durability of B / E-type pad become shorter when the pad is used with narrow type rotor.
5. Narrow type 2piece rotor are not compatible to caliper for Wide type rotor because of interference.
6. Please refer page 86 for BR models compatible with B / E-type pad.

**Interference between brake caliper and adapter of rotor**

Do not use these combinations for a reason of interference between brake caliper and adapter of rotor.

Caliper	Rotor			
	140 mm (SS)	160 mm (S)	180 mm (M)	203 mm (L)
NEW BR-T675 BR-T615 BR-M446 BR-M395	NEW SM-RT99	NEW SM-RT99 SM-RT86 SM-RT81 SM-RT79 SM-RT76	NEW SM-RT99	SM-RT99 SM-RT86 SM-RT81 SM-RT79 SM-RT76

### 3. Combination chart (Mechanical Disc)

#### 3-1. Shimano Mechanical Disc Brake combination chart

In order to realize the best performance, we recommend that the following combination be used.

Series	Caliper	Mount type	Brake lever	Rotor	Pad
Non-series	BR-M416-A BR-M375	*	V-BRAKE BL (2 finger)	SM-RT54 SM-RT56 SM-RT30 for resin pad only	B01S Resin
	NEW BR-R517	*	Road lever**	SM-RT64 / 66	G01S Resin
	NEW BR-R317	*	Road lever**	SM-RT54 / 56	G01S Resin
	NEW BR-CX77	*	Road lever**	SM-RT81 / 86	G01A Resin / G03Ti Metal

\* Front mount: International standard / Post mount Rear mount: International standard

\*\* For BL-R780 / 4600 / 5700 / 4600

#### 3-2. Mechanical Disc brake and Brake lever interchangeability

Model No.	Brake lever type		
	2 finger	3,4 finger	3,4 finger w / modulator
			w / SM-PM50
BR-M416-A	X	-	X
BR-M375	X	-	X

# V-BRAKE and Hub roller brake

## 1. Interchangeability between brake systems

Depending on the brake and brake lever combination to be used, the relationship between the input at the brake lever and the actual braking force output at the wheels is very easily affected.

Be very careful when combining a brake and brake lever. Incorrect combinations can cause accidents or insufficient braking forces due to improper cable strokes. Be sure to carefully consult the chart below and select the brake and the matching brake lever.

Brakes	V-BRAKE		Roller Brake
	BR-T780 BR-M432 BR-M422 BR-MX70 BR-R353	BR-R463 BR-R573 BR-T670 BR-T610 BR-T610	
<b>Brake levers</b>		With power modulator model BR-T780 with SM-PM70 BR-T670 with SM-PM70 NEW BR-T610 with NEW SM-PM70 BR-M432 with SM-PM40 BR-M422 with SM-PM40 BR-R353 with SM-PM40 BR-R463 with SM-PM40 BR-R573 with SM-PM70	
<b>V-BRAKE Levers</b> ST-M430 ST-M390 NEW ST-M370 ST-M360 (2-finger) ST-M310 (2-finger) ST-EF65 (2-finger) ST-EF51 (2-finger) ST-EF51-A (2-finger)			Note
<b>V-BRAKE Levers</b> ST-M590 NEW BL-T610 NEW BL-T611 NEW BL-T780-B			
<b>V-BRAKE Levers with switch</b> BL-4600 BL-R780 BL-3500 NEW BL-2400			
<b>Brake lever with switch</b> ST-M310 (4-finger) ST-EF65 (4-finger) ST-EF51 (4-finger) ST-EF51-A (4-finger) SB-8520 ST-8520			
<b>Levers for Roller Brake</b>			

X: Yes



The "NO!" symbols indicate combinations that should not be used under any circumstances.

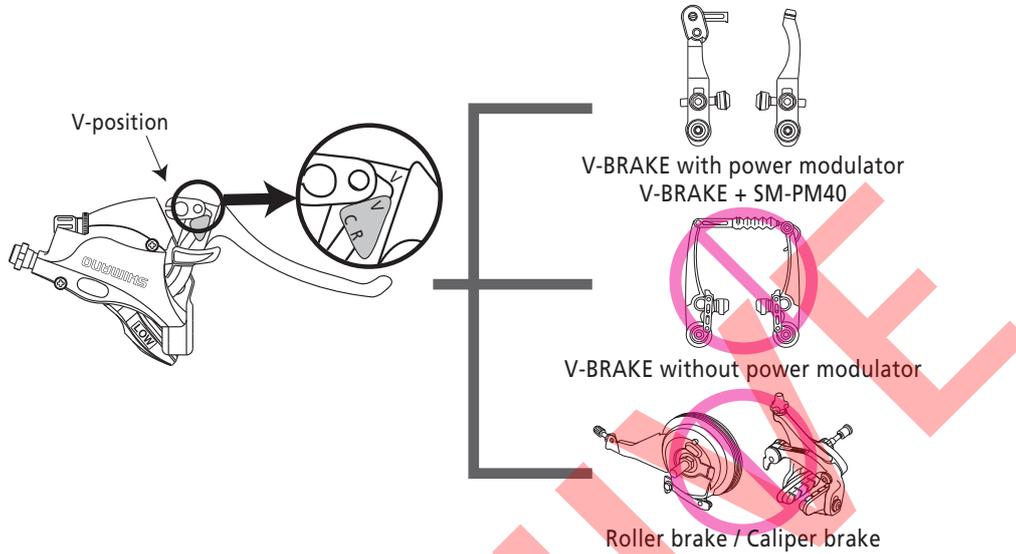
**Note:**

This combination will not provide the sufficient amount of braking force.

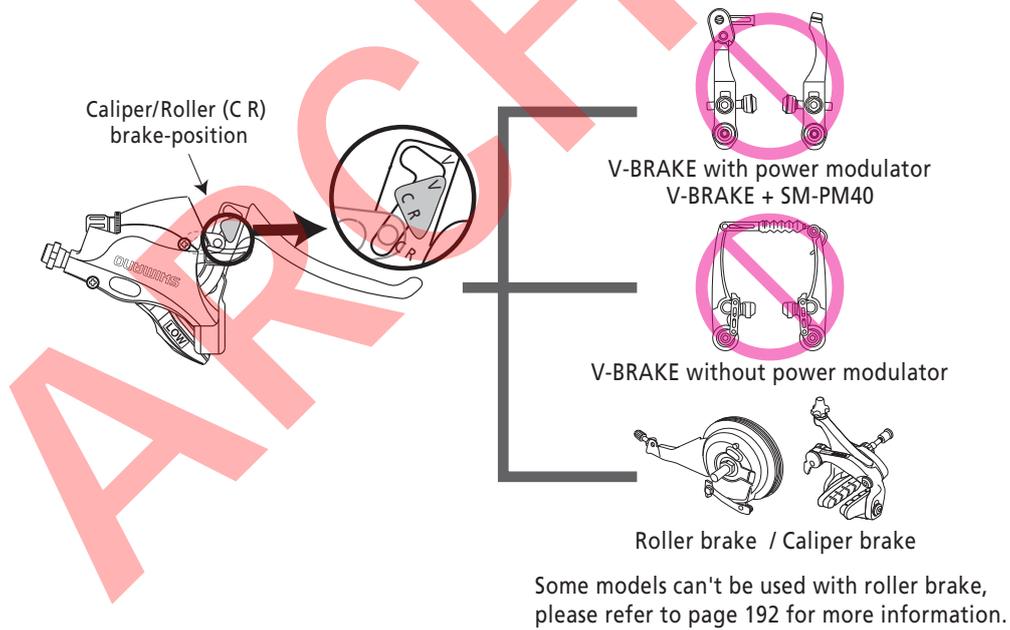
## 2. Brake lever with switch interchangeability

Four finger brake levers such as brake levers are equipped with a switch to change between the V-BRAKE with modulator mode (for example BR-M422 with SM-PM40) and the caliper brake or roller brake mode.

### 2-1. For V-BRAKE (with power modulator) mode



### 2-2. For Caliper brake / Roller brake



#### ⚠ Warning:

If the mode is not matched to the type of brake being used, this could result in inadequate or excessive braking power. Please proceed with caution when selecting the correct mode for the corresponding brake.

### 3. Brake shoe for V-BRAKE / Cantilever brake

#### 3-1. Brake / Shoe line-up

Brake Shoe												
	M70R2	M70R2 (Severe Condition shoe)	Ceramic	M70T3	M70T4	M70CT4 (Severe Condition shoe)	M65T3	M65T4	S70C	S70C (Severe Condition shoe)	S70T	S65T
BR-T780	—	—	—	—	—	Standard	—	—	Option	—	—	—
BR-T670	—	—	—	Option	—	Standard	—	—	Option	—	—	—
<b>NEW</b> BR-T610	—	—	—	—	Option	Standard	—	—	Standard	—	Option	—
BR-M432	Option	—	—	—	—	—	—	—	Standard	—	—	—
BR-M422	—	—	—	—	—	—	Option	Option	—	—	—	Standard
BR-MX70	—	—	—	Option	Option	—	—	—	—	Standard	—	—
BR-R550	—	Option	—	—	—	Option	—	—	—	Standard	—	—
BR-R573	Standard	—	—	—	—	Option	—	—	Option	—	—	—
BR-R463	—	—	—	—	—	Option	—	—	Standard	—	—	—
BR-R353	—	—	—	—	Option	—	—	—	—	—	Standard	—

#### 3-2. Shoe characteristics

	Cartridge shoe	M-system*	Length (mm)	Threaded shoe post	Brake shoe characteristics
M70R2	X	X	70	X	A race shoe that performs well in dry and wet conditions, and is also highly resistant to wear. may give off noise.
M70R2 (Severe Condition shoe)	X	X	70	X	+1mm thicker shoe with M70R2
Ceramic	X	—	70	X	Specific shoe for ceramic rims.
M70T3	—	X	70	X	Performs especially well in wet conditions and may pass EN standards. Gives off less noise, but the pad is heavier, faster rim wear, and tends to fade.
M65T3	—	X	65	X	Only for side wall machined rims. Performs especially well in wet conditions and may pass EN standard. Tend to be low noise, low rim wear and fade.
M70T4	—	X	70	X	
M65T4	—	X	65	X	
M70CT4 (Severe Condition shoe)	X	X	70	X	Cartridge shoe with M70T4
S70C	X	—	70	X	Performs well in dry conditions and tends to be low noise. Wears in muddy conditions.
S70T	—	—	70	X	
S65T	—	—	65	X	
S70C (Severe Condition shoe)	X	—	70	X	+1mm thicker shoe with S70C

X: Yes

\*: M-system maintenance its strong braking power and controllability even in wet environments.

### 4. Brake shoe for Capreo

#### 4-1. Shoe characteristics

	Cartridge shoe	M-system	Length (mm)	Threaded shoe post	Brake Shoe Charectistic
R55C (for F800 / F700)	X	X	55	X	Performs well in wet conditions and may pass EN standards. Tends to be low noise. But faster rim wear.

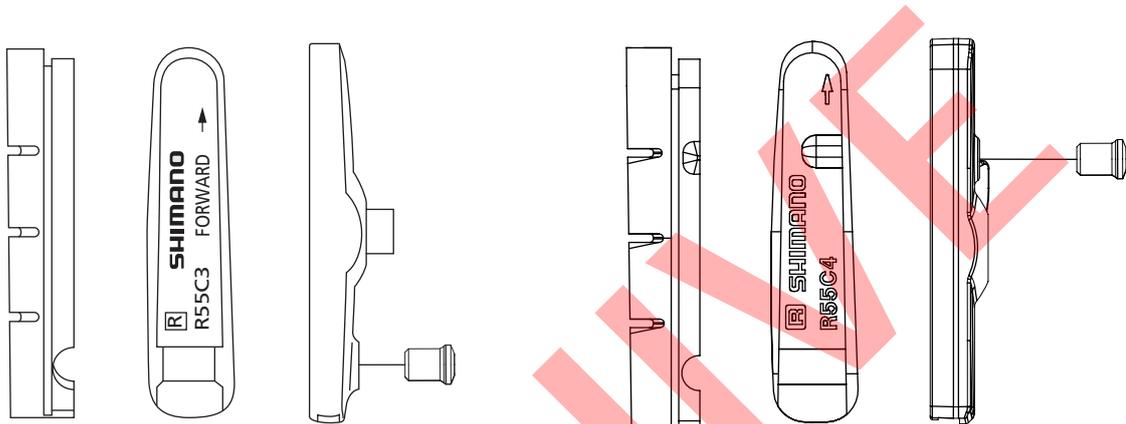
X: Yes

Interchangeability

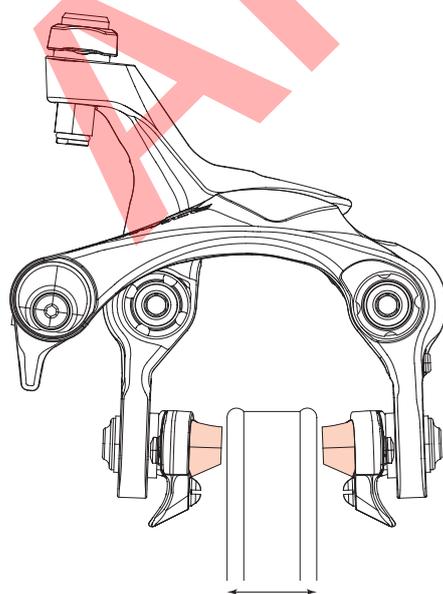
# Caliper brake (for road bikes)

## 1. Brake shoe recommendation to rim width

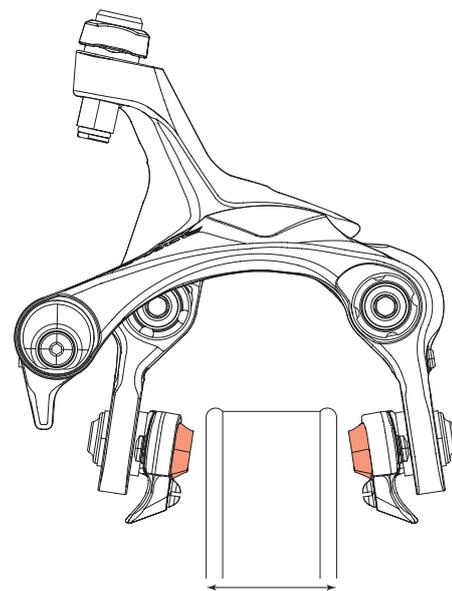
Brake shoe type	Brake caliper	
	BR-9000 / <sup>NEW</sup> BR-6800 / BR-5700 / BR-CX70 / BR650 / BR-R561	BR-9010 / <sup>NEW</sup> BR-6810 / <sup>NEW</sup> BR-5710
R55C4 / R55C4 for Carbon rim / R55C4-1 for Carbon rim	X	X
R55C3 / R55C3 for Carbon rim	X	-



Brake shoe type	Rim width	
	R55C4 / R55C4 for Carbon rim R55C3 / R55C3 for Carbon rim	19-26mm
	R55C4-1 for Carbon rim	19-28mm



**For 19-26mm**



**For 19-28mm**

Interchangeability

## 2. Brake / Shoe line-up

Series	Model No.	R55C4	R55C3	R55C4 for Carbon rim	R55C 4-1 for Carbon rim	R55C for Carbon rim	R55C2	R55C for Ceramic rim	R55C + 1	M50T	R50T	R50T2	R50T4
DURA-ACE	BR-9000 BR-9010	Standard	–	Option	Option	–	–	–	–	–	–	–	–
ULTEGRA	<b>NEW</b> BR-6800 <b>NEW</b> BR-6810	Standard	–	Option	Option	–	–	–	–	–	–	–	–
105	BR-5700	–	Standard	Option	–	–	–	–	–	–	–	–	–
	<b>NEW</b> BR-5710	Standard	–	Option	Option	–	–	–	–	–	–	–	–
Tiagra	BR-4600	–	–	–	–	–	–	–	–	–	–	Standard	Option
SORA	BR-3500	–	–	–	–	–	–	–	–	–	–	Standard	Option
Claris	<b>NEW</b> BR-2400	–	–	–	–	–	–	–	–	–	–	Standard	Option
Cyclocross	BR-CX70	–	Option	Option	–	–	–	–	Standard	–	–	–	–
	BR-CX50	–	–	–	–	–	–	–	–	–	–	Standard	–
Non-series	BR-R650	–	–	–	–	–	Standard	Option	–	–	–	–	–
	BR-R561	–	Standard	–	–	–	–	Option	–	–	–	–	–
	BR-R451	–	–	–	–	–	–	–	–	–	–	Standard	–

## 3. Shoe characteristics

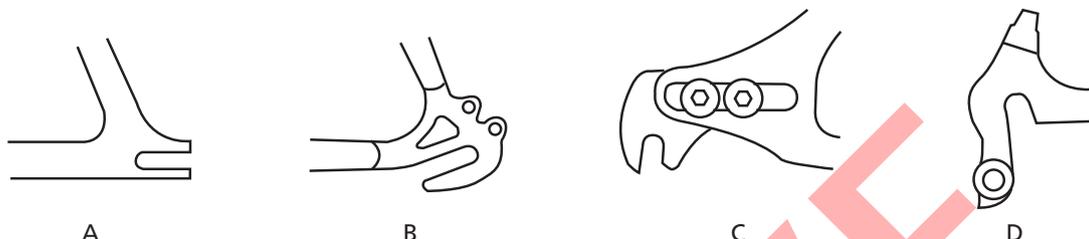
	Cartridge shoe	M-system	Length (mm)	Brake shoe characteristics
R55C4	X	—	55	Performs well in wet conditions. Compatible with BR-9010 cartridge
R55C4 for Carbon rim	X	—	55	For Carbon rim (21mm-24mm) Compatible with BR-9010 cartridge
R55C4-1 for Carbon rim	X	—	55	For Carbon wide width rim (24mm-28mm) Compatible with BR-9010 cartridge
R55C3	X	—	55	Performs well in dry and wet conditions.
R55C3 for Carbon rim	X	—	55	For Carbon rim
R55C for Carbon rim	X	—	55	For Carbon rim
R55C for Ceramic rim	X	X	55	For Ceramic rim only
R55C + 1	X	—	55	For BR-CX70
M50T	—	X	50	Performs well in wet conditions. But faster rim wear.
R50T	—	—	50	Performs well in dry conditions and tends to be low noise. Wears in rainy conditions.
R50T4	—	X	50	Only for side wall machined rims. Performs especially well in wet conditions and may pass EN standard. Tend to be low noise, low rim wear and fade.
R50T2	—	—	50	Performs well in dry conditions and tends to be low noise. Wears in rainy conditions. Toe-in adjust design.

X: Yes

# Comfort components

## Interchangeability for comfort bike components

### 1. Combinations of the rear gear, cassette sprocket, and crankset for designing the frame



Dropout design	Compatibility	FC	CN
A: Reversed (Track end, w/o RD mount) B: Standard (w/o RD mount) C: Adjustable Disc brake mount / Eccentric BB D: Vertical dropout (Road bike type, w/ RD mount)	NR : Not recommend	E: FC-NX75 F: FC-S501 / S400 : Double guard spec G: FC-S501 / S400 : Single guard spec	H: CN-NX10(1 / 2" x 1 / 8") or HG 8S(1 / 2" x 3 / 32") I: Super Narrow HG 9S J: HG 8S(1 / 2" x 3 / 32")

Series	Speed	Brake type	Dropout design	Compatibility	CT use	CS / SM -GEAR	FC	CN	additional condition
ALFINE	115 / 85	Disc use	A	NR	-	-	-	-	*1
			B	NR	-	-	-	-	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
		V-BR use	A	OK	-	SM-GEAR	G	J	
			B	OK	-	SM-GEAR	G	J	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
Nexus	85 / 75 / 35 (except 3D)	HRB / V-BR	A	OK	-	SM-GEAR	E G	H J	
			B	OK	-	SM-GEAR	E G	H J	
			C	OK	-	SM-GEAR	E G	H J	
			D	NR OK	CT-S500 CT-S510	CS-S500 SM-GEAR	F G	I J	*2
		Coaster	A	OK	-	SM-GEAR	E G	H J	
			B	OK	-	SM-GEAR	E G	H J	
			C	OK	-	SM-GEAR	E G	H J	
			D	NR NR	CT-S500 CT-S510	- -	- -	- -	- -
	3D	Disc use	A	NR	-	-	-	-	*1
			B	NR	-	-	-	-	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
		V-BR use	A	OK	-	SM-GEAR	G	J	
			B	OK	-	SM-GEAR	G	J	
			C	OK	-	SM-GEAR	G	J	
			D	OK	CT-S500	CS-S500	F	I	
			D	OK	CT-S510	SM-GEAR	G	J	

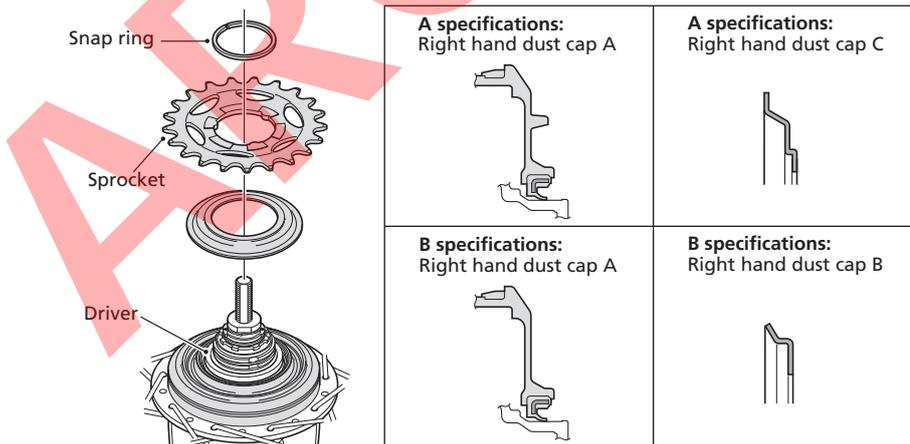
- \*1: Special disc brake mount design is needed.
- \*2: without chain guard for hub gear side.
- \*3: Structure of CT-S500 can't transfer chain tension by back pedalling.
- \*4: Not enough force of fixation against back pedalling power.

## 2. Dustcap information and sprocket interchangeability

Series	Speeds	Model No.	Hub Body (Dust Cap XX)	Right hand dust cap Variation	SM-GEAR																		CS-S500				Sealing performance	
					Inward assembly									Outward assembly									Inward		Outward			
					14	15	16	17	18	19	20	21	22	23	14	15	16	17	18	19	20	21	22	23	18	20		18
ALFINE	11	SG-S705	Right hand dust cap A w / Seal for SGS700	Right hand dust cap D	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	X*	-	-	2.9	
	11	SG-S700	Right hand dust cap A w / Seal for SGS700	Right hand dust cap D	-	-	-	-	-	X	X	X	X	-	-	-	-	X	X	X	X	X	X	X	X	-	2.9	
	8	SG-S505	Right hand dust cap A w / Seal for SGS501	Right hand dust cap B for INTER-8	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	X*	X*	-	1		
	8	SG-S501	Right hand dust cap A w / Seal for SGS501	Right hand dust cap B for INTER-8	-	-	-	X	X	X	X	X	X	-	X	-	X	X	X	X	X	X	X	X	X	-	1	
Nexus	8	Standard Spec SG-8R31 SG-8R36 SG-8C31	Right hand dust cap A (Y-37G 98080)	Right hand dust cap C for INTER-8	-	-	-	-	-	X	X	X	X	-	X	-	X	X	X	X	X	X	-	-	-	2.9		
		w / 8R20TYPE R.H. DUST CAP A SG-8R31 SG-8R36 SG-8C31	Right hand dust cap A (Y-34R 98110)	Right hand dust cap B for INTER-8	-	X	-	X	X	X	X	X	X	-	X	-	X	X	X	X	X	X	X	-	-	-	1	
	7	SG-7R50	Right hand dust cap B for INTER-7 roller brake spec	Right hand dust cap C for INTER-7	-	-	-	X	X	X	X	X	X	-	X	-	X	X	X	X	X	X	X	-	-	-	2.9	
		SG-7C30	Right hand dust cap B for INTER-7 coaster brake spec		-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	X	X	X	X	X	-	-	-	2.9
	5	SG-5R35 SG-5R30	Right hand dust cap A	Right hand dust cap D	-	X	-	X	X	X	X	X	X	-	X	-	X	X	X	X	X	X	X	-	-	-	2.9	
3 (Export)	3	SG-3D55	Right hand dust cap A for INTER-3 Disc brake spec	Right hand dust cap B for INTER-3	-	-	-	X	X	X	X	X	X	-	X	X	-	X	X	X	X	X	X	X	X	-	1	
		SG-3R40 SG-3C41	Right hand dust cap A for INTER-3 roller / coaster brake		-	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	-	-	-	1
	3 (JPN)	SG-3R42 SG-3R40 SG-3S40	Right hand dust cap A for INTER-3 roller / coaster brake		-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	1
		3 (JPN, Assist)	SG-3R75		Right hand dust cap B for INTER-7 roller brake spec	Right hand dust cap C for INTER-7	-	-	-	-	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	-	-	-

X : Yes  
\*: Only spec without guard can be used

### In case of INTER-8, 2 variations available



### 3. Interchangeability between hubs and roller brakes

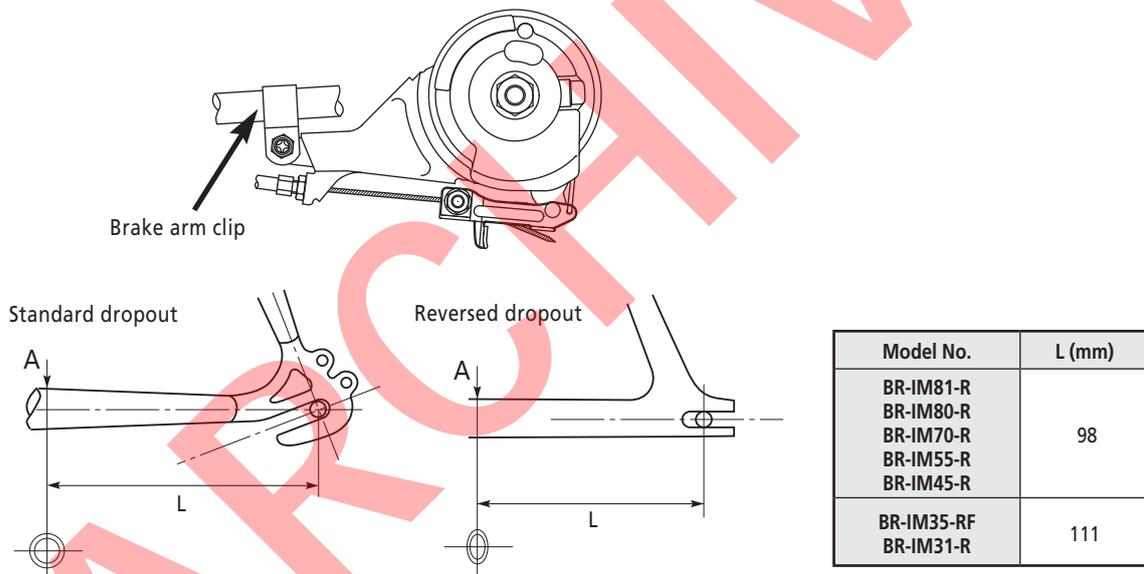
Sales Area	Model No.	Hub		Hub Dynamo						
		HB-IM70	HB-IM40	DH-3R35-A				DH-2R35E		DH-2R30J
		Hyper	Normal	Hyper		Normal		Hyper	Normal	Normal
Hub type	QR	NUT	QR	NUT	QR	NUT	NUT		NUT	
All	BR-IM86-F BR-IM81-F BR-IM80-F	◎	○	◎	◎	○	○	◎	○	○
	BR-IM55-F	not good	◎	not good	not good	◎	◎	not good	◎	◎
	BR-IM45-F BR-IM41-F	not good	◎	not good	not good	◎	◎	not good	◎	◎
JPN	BR-IM31-F	not good	◎	-						◎
	BR-IM35-F	not good	◎							◎

◎ : Recommended combination

○ : Usable

### 4. Chainstay dimensions for securing rear brake arm clip

The positions of the rear brake arm clip for the INTER-M Brake and the Chainstay sizes which are compatible with the brake arm clip are shown below.



The following are the available sizes and variations for the brake arm clip at position A.

SIZE	Standard	Coating spec.	Stainless spec.	Black Coating spec.
ø3 / 4	X	X	X	-
ø5 / 8	X	X	X	X
ø11 / 16	-	X	X	X
ø15mm	-	X	X	-
ø19mm	X	-	-	-
ø22mm	X	X	X	X
Small	X	-	-	-
Large	X	-	-	-
Oval	X	-	-	-

X: Yes

# MTB and ROAD components

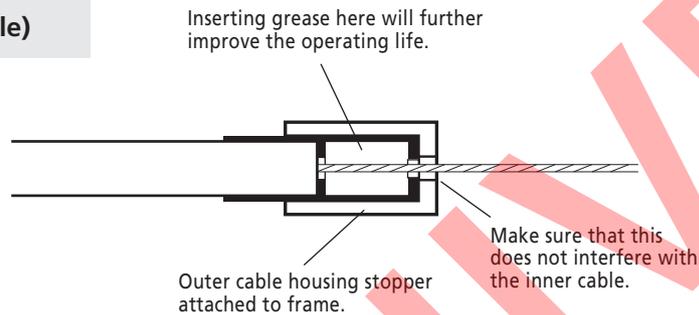
## Shimano Cable System

In order to take full advantage of high performance of Shimano components, the Shimano cable system is designed to be highly efficient and durable. When using Shimano cable systems, take the following points into account.

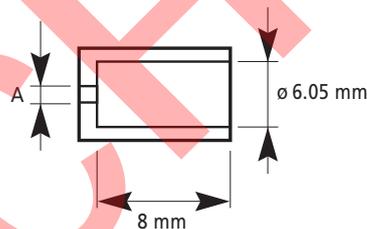
### 1. Brake cable system

To improve efficiency and prolong the life of the brake cables, use a cable housing of the construction shown below. When designing the outer cable housing stop, make sure that the diameter of the hole for the inner cable (A) is of the correct dimension so that it does not interfere with the inner cable.

(W-type brake cable)



Recommended dimensions for outer cable housing stop at frame



BC-9000 / NEW BC-R680

Outer cap with tongue type

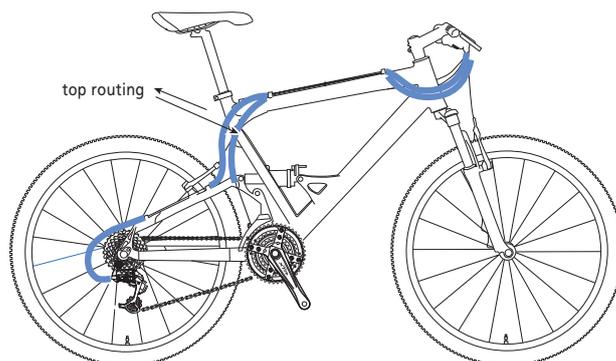
1.  $\phi 2.5 \leq A \leq \phi 2.7$
2.  $\phi 6.05 \pm 0.05$

$$\phi 2.1 \text{ mm} \leq A \leq \phi 2.6 \text{ mm}$$

### 2. Shifting cable system

#### 2-1. Cable routing for MTB

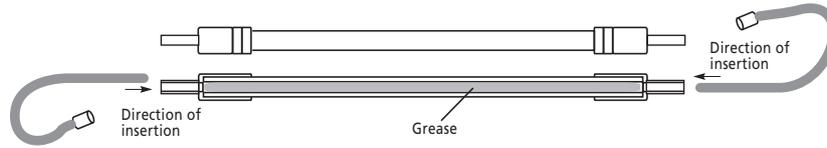
For best performance of Shimano mountain bike components, we recommend top routing for rear and front both side.



## 2-2. Cable system assembly (inner cable direction)

### For SIS-SP41 Outer cable

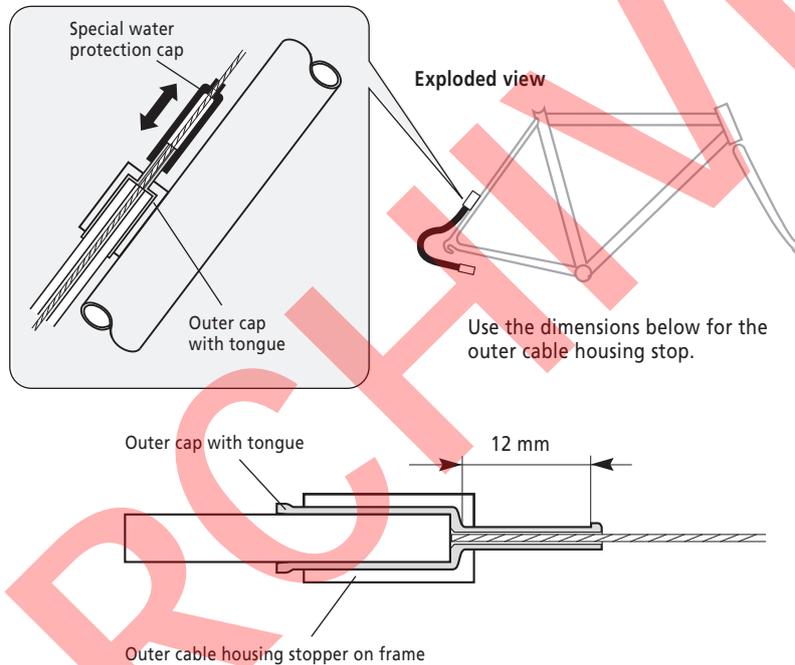
- SP41, grease is injected into the outer cable all the way as shown below. There is no need to take care of the direction of insertion of the inner cable.



## 2-3. Cable system assembly (for top route)

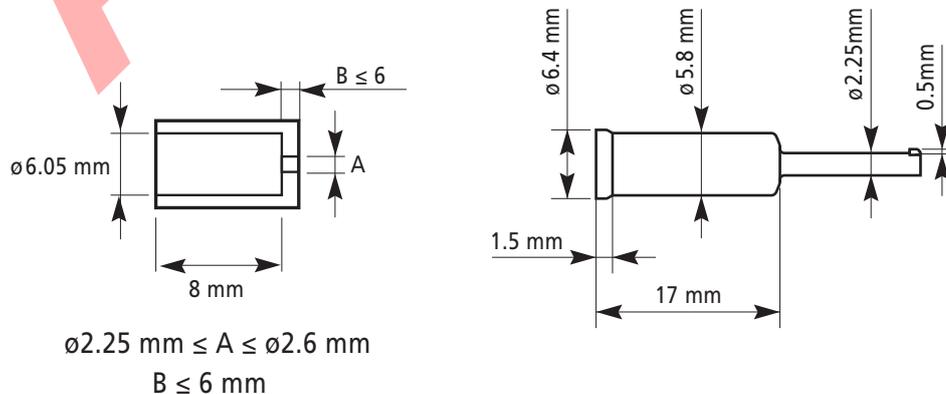
- In the case of top routing for the rear cable, there is a chance that rainwater or mud may get inside the cable. To prevent this, install outer cap with tongue and a special water protection cap as shown below.

This special water protection cap is in the line-up for XTR, DEORE-XT, LX, DEORE components.



### Outer cable housing stop dimensions

- Set the A dimension for the outer cable housing stop for the shifting cable to between 2.25 mm and 2.6 mm. The hole "A" must be concentric with the  $\phi 6.05$  mm hole.



#### Note:

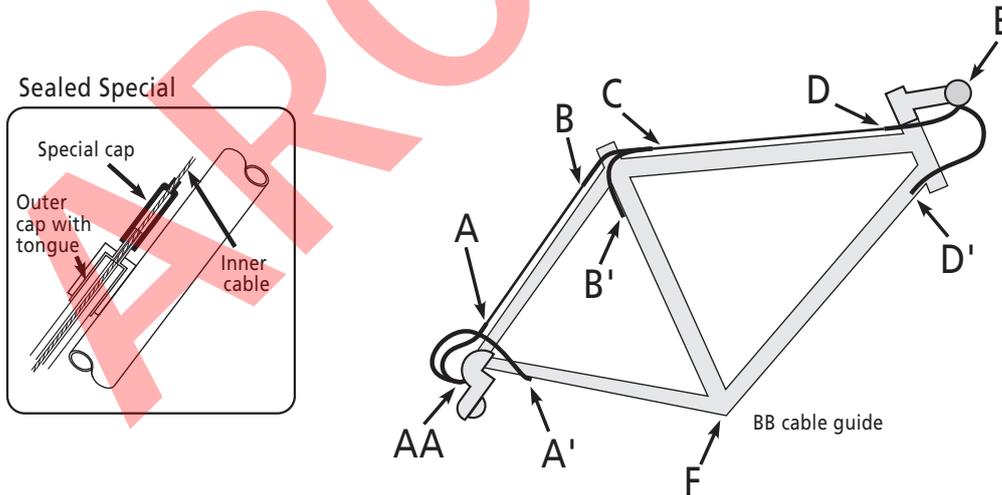
Diameter "A" can be enlarged if there is insufficient clearance. The cable outer cap with tongue may not be gripped securely if "B" is too thick.

## 2-4. Shifting cable combination

Category	Series	Outer casing	Inner cable Material	Cable cap									BB cable guide
				AA	A	A'	B	B'	C	D	D'	E	
MTB	XTR	OT-SP41	SIL-TEC	Sealed*	Sealed Special	Sealed Special			Sealed Special		Sealed	SM-SP17 (Durable)	
	SAINT		Stainless	Sealed*	Sealed Special	Sealed	Sealed	Sealed	Sealed				
	DEORE XT												
	SLX												
	DEORE LX												
	DEORE												
	ZEE	OT-SP41	Stainless	Sealed*	Sealed Special	Sealed	Sealed	Sealed	Sealed	Sealed	SM-SP17 (Durable)		
	Alivio	OT-SP40	Steel	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	SM-SP18	
	Acera												
Altus													
others													
Tourney	OT-SIS40												
Road	DURA-ACE (9000 series)	OT-SP41	Polymer-coated inner cable	AL Sealed	Outer cap with long tongue *1						Outer cap with short tongue *2	SM-SP17 (Durable)	
	ULTEGRA (6800 series)				SIL-TEC	Sealed	Sealed**	Normal	Normal	Normal			
	105												
	TIAGRA	OT-SIS40	Steel	Normal	Normal	Normal	Normal	Normal	Normal	Normal	SM-SP18		
	SORA												
	Claris												
	Tourney (A070 / A050)												
OTHERS	Capreo	OT-SP41	Stainless	Sealed*	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	SM-SP17 (Durable)		

Recommend to use outer cap with tongue (\*1, \*2) for Polymer-coated inner cable.

- \* If the rear derailleur moves to a large degree, such as in bicycles with rear suspension, it is recommended that you replace the cap with the accessory aluminum cap. The end of the outer casing which has the aluminum cap should be at the derailleur side.
- \*\* According to frame design, sometimes need to choose suitable cap. Sealed special type is recommended in muddy conditions.



### Dura-Ace 9000 series / ULTEGRA 6800 series

New outer cap with long or short tongue is required for assembly.

\*1 Outer cap with long tongue

\*2 Outer cap with short tongue

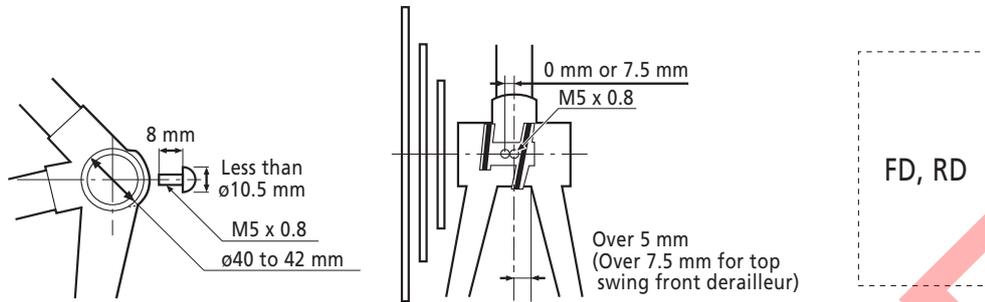


## 2-5. Bottom bracket cable guide installation

And to keep this performance,

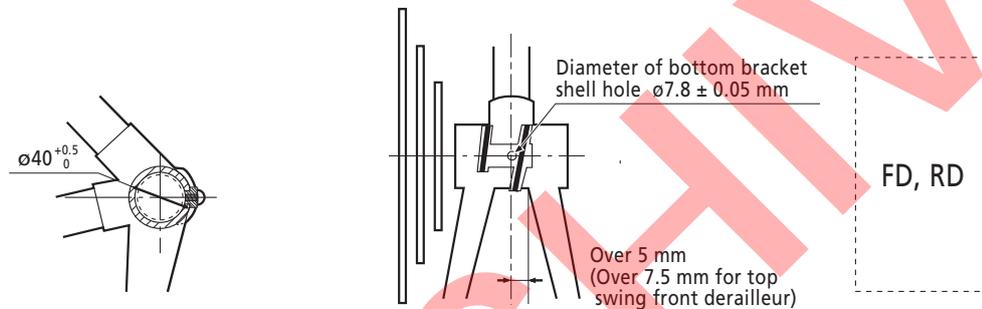
- Assemble BB guide on frame with no clearance.
- Don't make inner cable touch with frame.

### SM-SP17M, SP18M (screw on type)

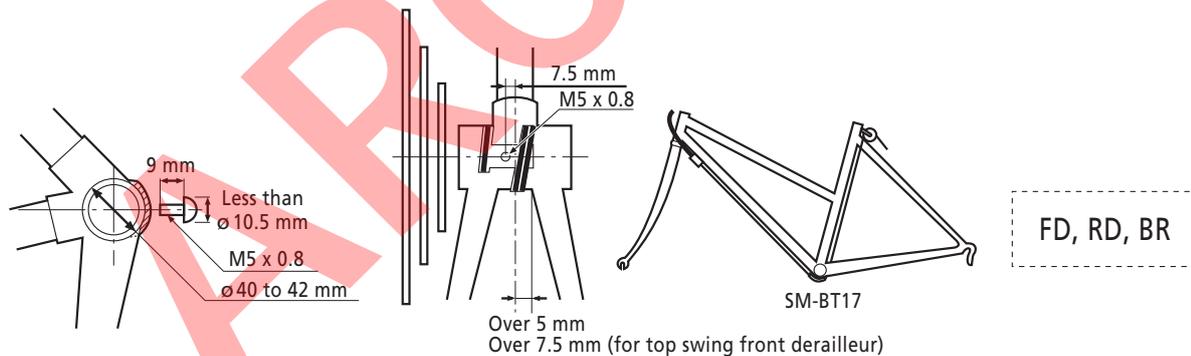


### SM-SP17, SP18T (snap on type)

(Requires  $\varnothing 7.8$  mm hole in BB shell.)



### SM-BT17, BT18 (screw on type for mixte frames)



## 3. Cables

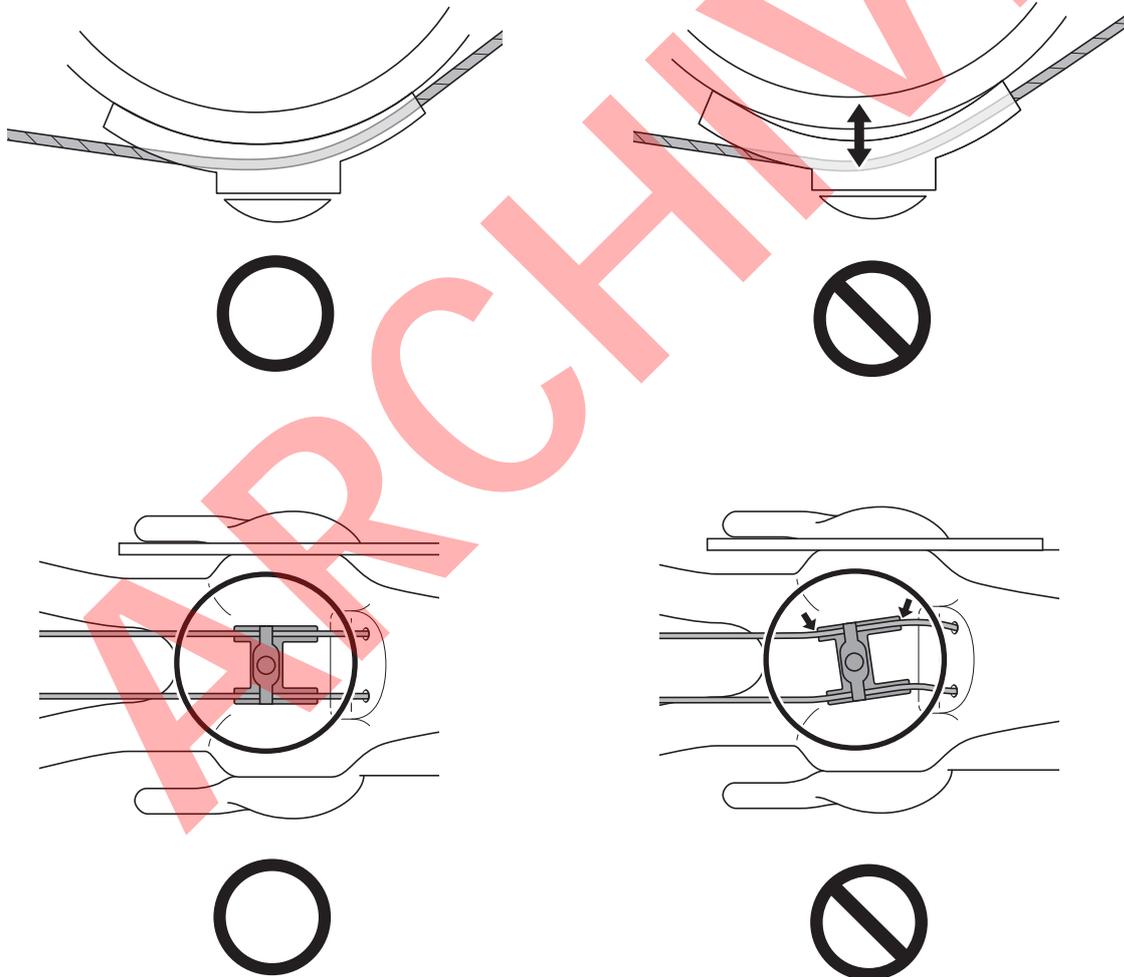
### 3-1. When using full outer casing

When using a full outer casing as the outer casing, the following factors may affect the gear shifting performance, so make sure that you check the proper gear shifting performance can be obtained before normal use. In addition, check to be sure that the outer casing does not touch moving parts such as the tires and crank arms during riding.

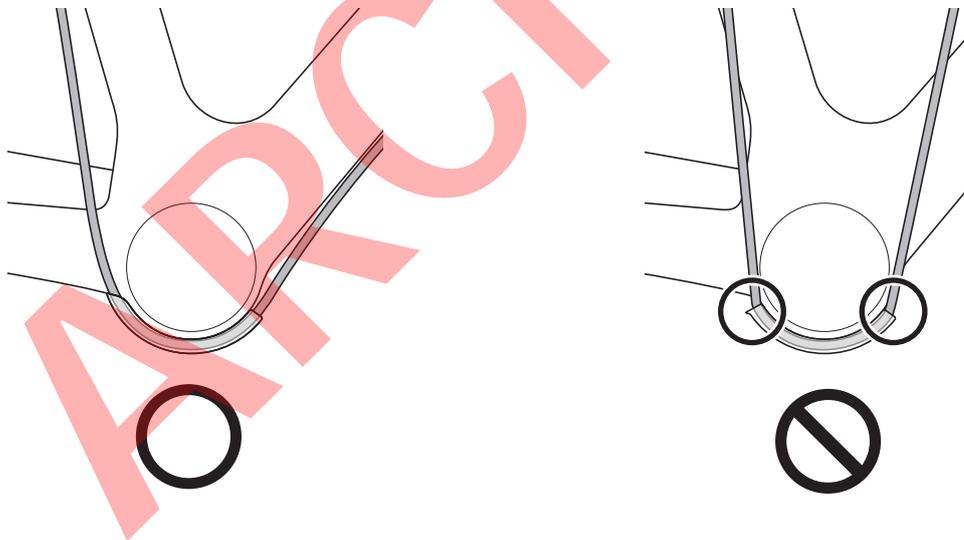
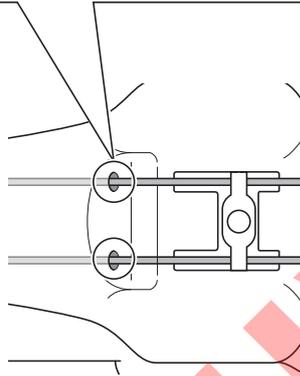
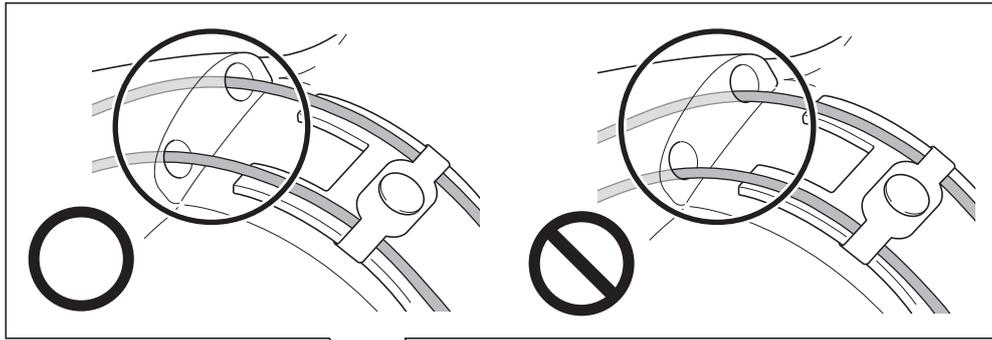
- 1) Cable routing method.
  - \*Curvature
  - \*Enough slack for suspension and handlebar operation
- 2) Method of securing the cable to the frame.
- 3) Relationship between the length of cable from the rear derailleur to the securing location and the cable securing position.
  - \*If the values are greatly different from those which are recommended, problems with gear shifting performance may occur.

### 3-2. Fixing of cable guide

Gap between hanger shell and cable guide

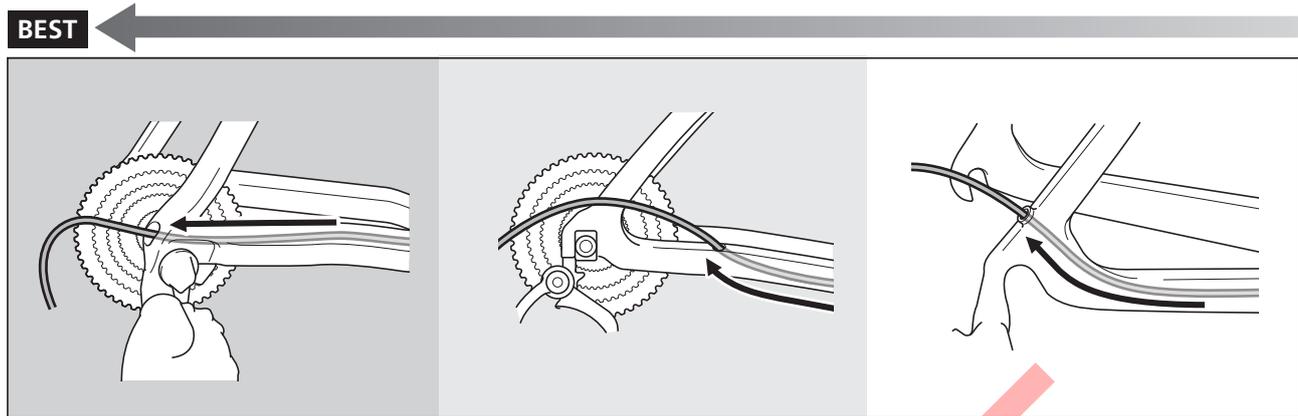


### 3-3. Interference with frame



### 3-4. Angle of outer casing

The route of the cable should be as straight as possible as shown in the diagram.



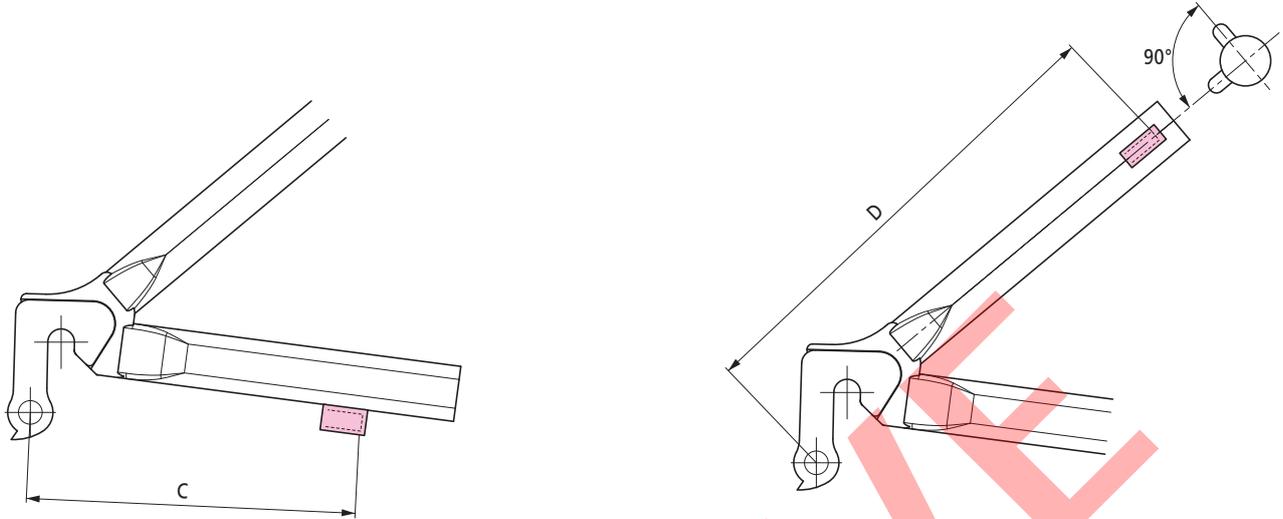
### 3-5. Polymer-coated brake cable (BC-9000 / BC-R680) compatible chart

Series	Brake with New cable	
DURA-ACE	BR-9000	X
	BR-9010	
DURA-ACE	BR-7900	-
ULTEGRA	BR-6800	X
	BR-6810	
ULTEGRA	BR-6700	-
Shimano	BR-CX77	X
105	BR-5710	X
105	BR-5700	-

X: Yes

# 4. Outer cable length

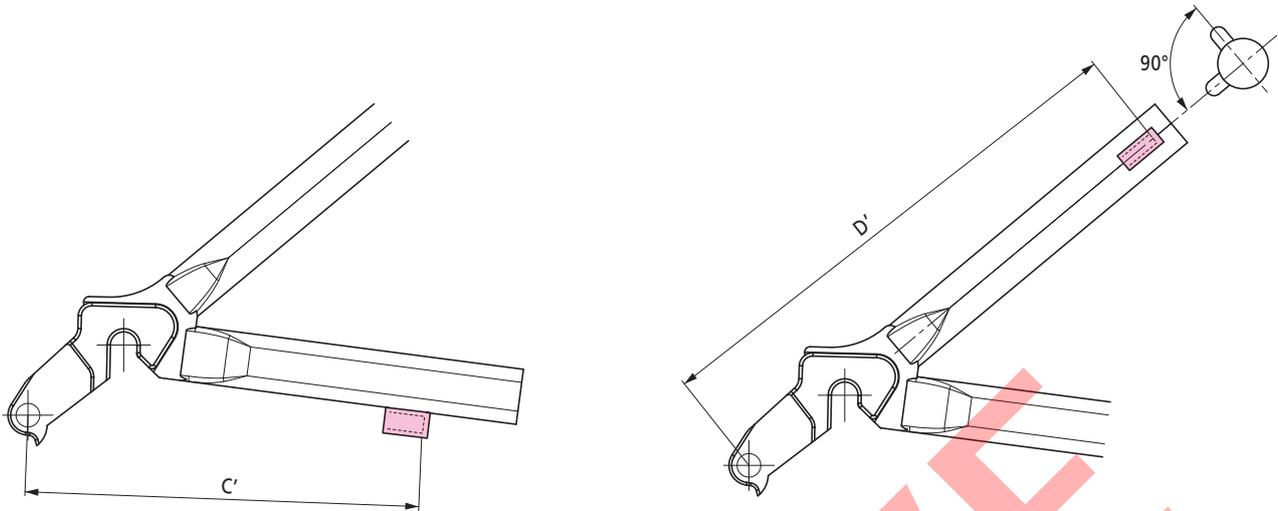
## 4-1. Rear dropouts (with derailleur hanger)



		Dimension C				
		100 mm	110 mm	120 mm	130 mm	140 mm
Outer Cable Length (mm)	RD-M986					
	RD-M981					
	RD-M820 (FR mode, DH mode)					
	RD-M786					
	RD-M781					
	RD-M675	200	210	220	-	-
	RD-M670					
	RD-M640 (FR spec, DH spec)					
	<b>NEW</b> RD-M610					
	<b>NEW</b> RD-M615					
	RD-F800					
	<b>NEW</b> RD-T780 RD-T610	290	310	330	-	-
	RD-M772 / M662					
	RD-M592	180	190	200	-	-
	Other models (w / o Roller Guide RD)	280	300	320	-	-
	RD-TX75 RD-TX55	180	190	200	-	-
	<b>NEW</b> RD-FT35 <b>NEW</b> RD-FT55	250	270	290	-	-
	RD-TY21	280	300	320	-	-

		Dimension D		
		150 mm	165 mm	180 mm
Outer Cable Length (mm)	RD-M986			
	RD-M981			
	RD-M820(FR mode)			
	RD-M786			
	RD-M781			
	RD-M675	210	220	240
	RD-M670			
	RD-M640 (FR spec)			
	<b>NEW</b> RD-M610			
	<b>NEW</b> RD-M615			
	RD-F800	220	230	250
	<b>NEW</b> RD-T780 RD-T610	290	310	330
	RD-M820 (DH mode)	220	230	250
	RD-M640 (DH spec)			
	RD-M772 / M662	200	210	230
	RD-M592			
	Other models (w / o Roller Guide RD)	280	300	320
	RD-C505	190	205	220
	RD-TX75	190	200	210
	RD-TX55			
RD-TX35 / RD-M280	280	310	340	
<b>NEW</b> RD-FT35 <b>NEW</b> RD-FT55	250	270	310	
RD-TY21	280	300	320	

## 4-1-A. Rear dropouts (Direct mount)

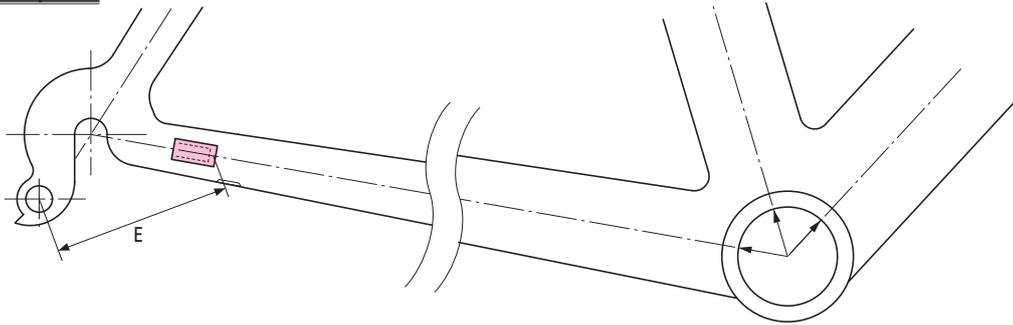


### Direct mount rear derailleur

		Dimension C'					Dimension D'				
		125 mm	135 mm	145 mm	155 mm	165 mm	162 mm	172 mm	177 mm	182 mm	192 mm
Outer Cable Length (mm)	RD-M986	200	210	220	-	-	210	-	220	-	240
	RD-M981										
	RD-M820 (FR mode, DH mode)										
	RD-M786										
	RD-M781										
	RD-M675										
	RD-M670										
	RD-M640 (FR spec, DH spec)										
	<b>NEW</b> RD-M615										
	<b>NEW</b> RD-M610										
Outer Cable Length (mm)	RD-M986	220	-	230	-	250	220	-	230	-	250
	RD-M981										
	RD-M820 (FR mode)										
	RD-M786										
	RD-M781										
	RD-M675										
	RD-M670										
	RD-M640 (FR spec)										
<b>NEW</b> RD-M615											
<b>NEW</b> RD-M610											
	RD-M820 (DH mode)										
	RD-M640 (DH spec)										

## 4-2. Built-in wire routing

For Road 11-speed



		Dimension E		
		40 mm	50 mm	60 mm
Outer Cable Length (mm)	built-in wire routing for Road 11-speed	220	240	260

## 4-3. Rear dropouts (without derailleur hanger)



		Dimension A			Dimension B		
		90 mm	100 mm	110 mm	115 mm	130 mm	145 mm
Outer Cable Length (mm)	Standard	280	300	320	280	300	320
	RD-TX35	280	300	320	280	300	320
	RD-TX55 RD-TX75	180	190	200	175	190	205
	RD-TY21 RD-TZ31	280	300	320	280	300	320
	RD-TZ20 RD-TZ40 RD-TZ50	280	300	320	280	300	320
	RD-FT35 RD-FT55	140	160	180	140	160	180

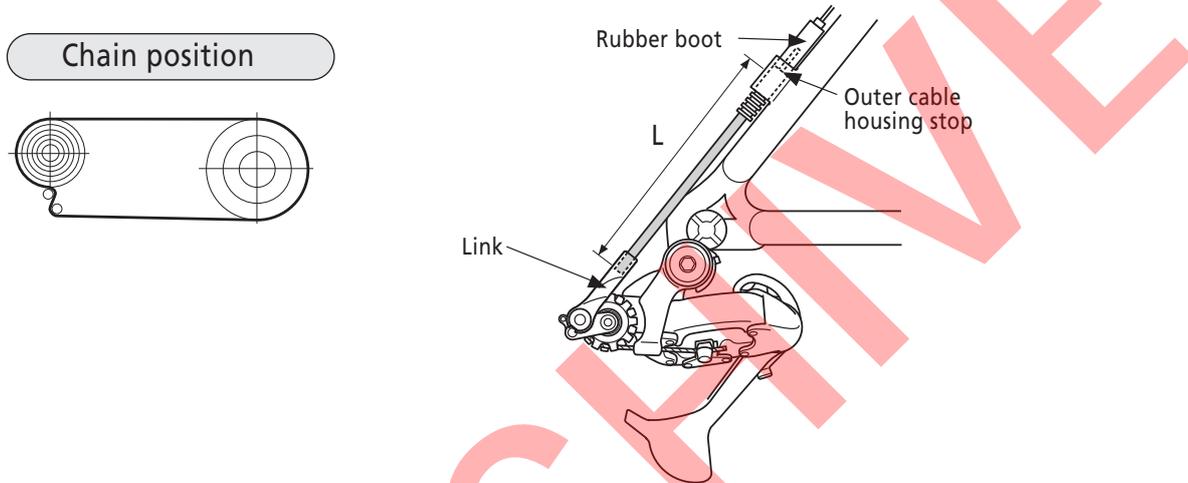
## 4-4. Forged rear dropouts with roller guide rear derailleur (with derailleur hanger)

- When using a RD-TX75, RD-TX55 NEW RD-FT35 and NEW RD-FT55 roller guide rear derailleur, take the following precautions.
- Make sure that the outer cable does not hit the carrier rack or mud guard stays. Doing so may affect the shifting performance.
- Have the outer cable length as given in the diagrams below.

### Top route

(The chain is on the largest gear for both the front and rear sprockets)

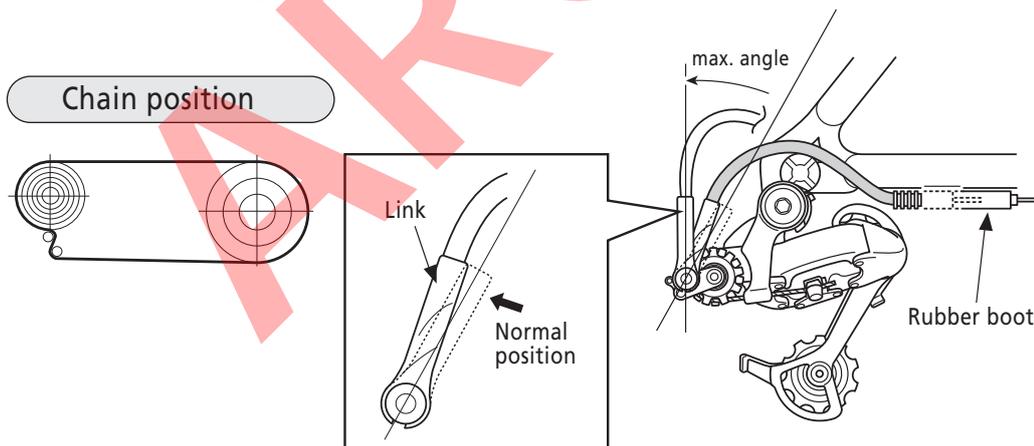
As shown in the diagram, add 5 mm (10 mm for RD-TX75 / RD-TX55 / NEW RD-FT35 and NEW RD-FT55) to the distance from outer cable housing stop to the link for the length of the outer cable.



### Bottom route

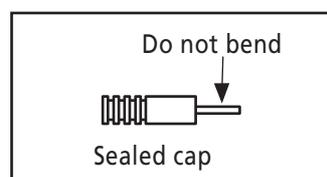
(The chain is on the largest gear for both the front and rear sprockets)

Set the link position slightly before its normal position.



### Regarding the sealed cap and rubber boot

Install the sealed cap and rubber boot to the outer cable housing stop on the frame.



## 5. Cable stop position for top routed cable

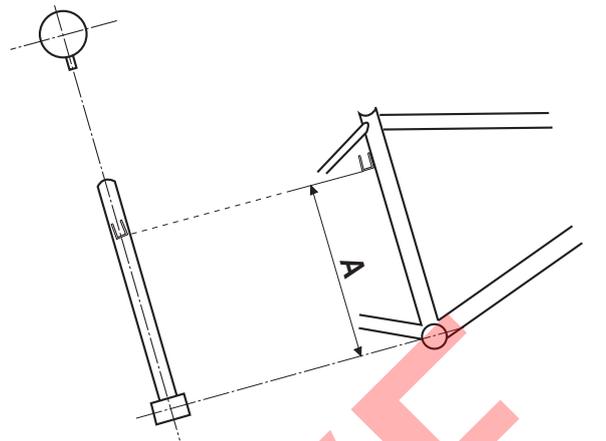
The following dimensions are important for maintaining optimum performance.

### CABLE STOP PLACEMENT

A = 300 – 350 mm

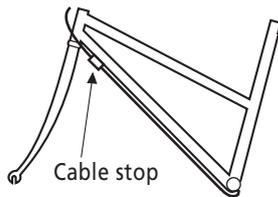
**FD-CX70-T**

A = 280 – 440 mm



## 6. Down cable routing

For best performance, route the front derailleur cable through the left side cable stop and the rear derailleur cable through the right side cable stop.



**Note:**

Shifting performance is dependant on cable routing and the type of cable guide used.

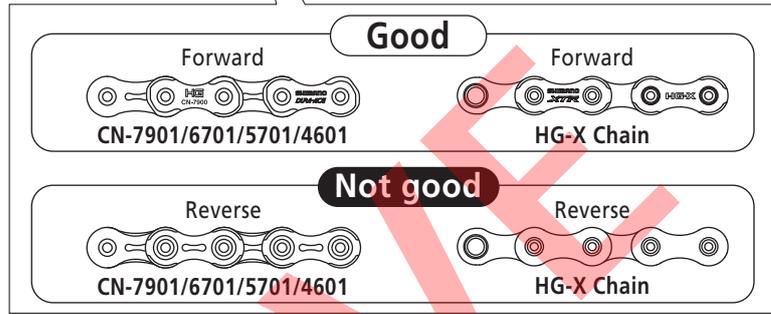
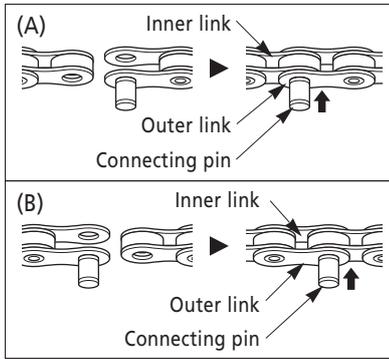
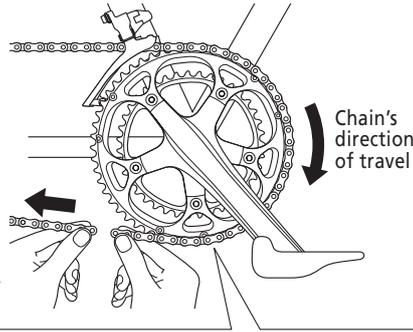
Please check the cable action and efficiency before finalizing specifications.

# HG-EV / HG-X / HG chain

## 1. How to connect chain

**NOTE:**

As illustrated in Fig (A), we strongly recommend to set the connecting pin in the hole of the outer link on the front side in the direction of travel. The chain's level of strength is enhanced compared to the method in Fig (B).



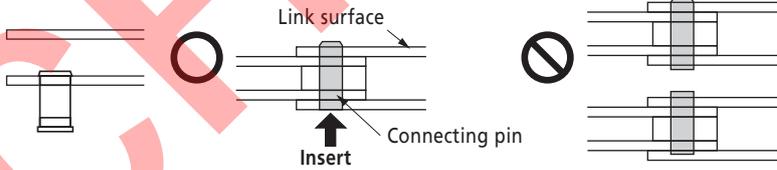
**Note:**

In order to obtain good gear shifting performance, the chain CN-7901 / CN-6701 / CN-5701 / CN-4601 / CN-M981 / CN-HG95 / CN-HG75 / CN-HG54 has a forward side and a reverse side, and the sides are marked so that the chain will face the correct way when installed.

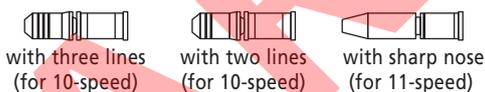
**Note on the connecting**

**11, 10-speed chain (end pin type)**

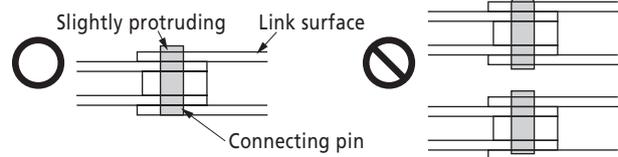
- Make sure that the connecting pin is aligned with the outer link surface from the side that the pin is inserted. It should feel smooth and flush when you run your finger over it. The pin will protrude slightly on the backside after the break off pin is removed.



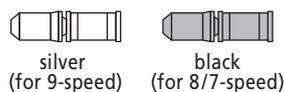
**11, 10-speed chain (ampoule pin type)**



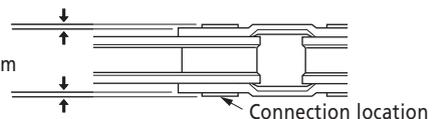
- Make sure that the connecting pin is aligned with the outer link surface from the side that the pin is inserted. It should feel smooth and flush when you run your finger over it. The pin will protrude slightly on the backside after the break off pin is removed.
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin.
- When readjusting the length of the chain, be sure to insert the reinforced connecting pin from the same side as the chain cutter was inserted (the same direction as when the chain was cut).



**9, 8, 7-speed**



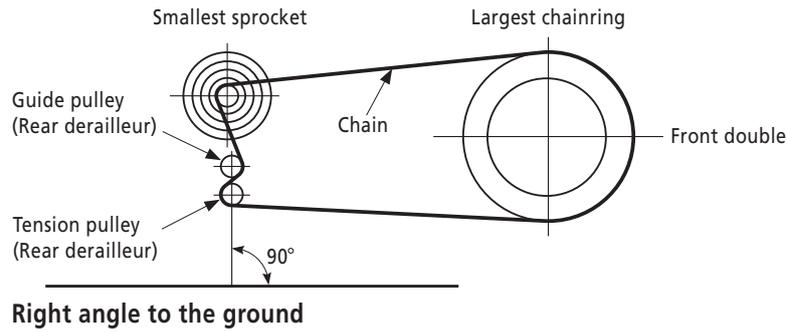
\* Should be uniform



- Be sure to check that the connecting pin protrudes uniformly from both sides of the chain after the chain has been joined.
- If it is necessary to adjust the length of the chain due to a change in the number of sprocket teeth, make the cut at some other place than the place where the chain has been joined using a reinforced connecting pin. The chain will be damaged if it is cut at a place where it has been joined with a reinforced connecting pin.
- When readjusting the length of the chain, be sure to insert the reinforced connecting pin from the same side as the chain cutter was inserted (the same direction as when the chain was cut).

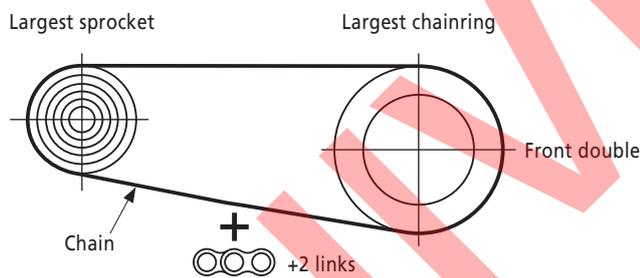
## 2. Chain length

### Assemble with sprocket max. 27T and smaller

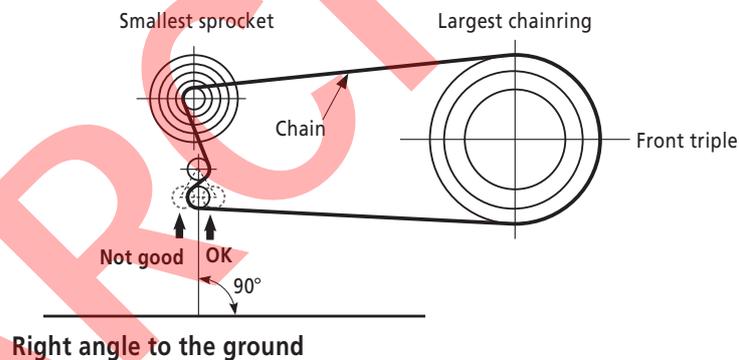


### Assemble with sprocket max. 28T or more

Add 2 links (with the chain on both the largest sprocket and the largest chainring)

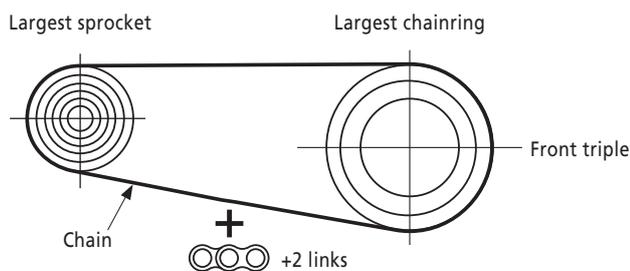


### For front triple, assemble with sprocket max. 30T and smaller



### For front triple, assemble with sprocket max. 32T or more

Add 2 links (with the chain on both the largest sprocket and the largest chainring)



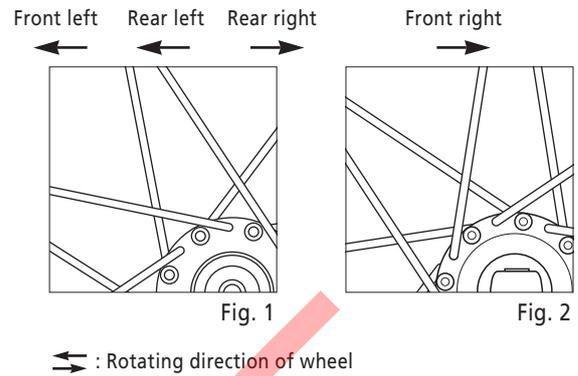
# Wheel

## 1. Wheel spoke lacing for hub brake

Check that the spokes have been laced as shown in the illustration on hub brake (Disc brake, Roller brake, Coaster brake).

A radial assembly cannot be used.

Lace the spokes as shown in Figure 1 below for the left side of the front wheel (the side where the rotor is installed), and the left and right sides of the rear wheel, and as shown in Figure 2 below for the right side of the front wheel.



## 2. Radial lacing

### 2-1. Notes with regard to radial lacing and wheels

The way the spokes are installed and the tension applied to the spokes has a great effect on the strength of the wheel and also on the force applied to the area around the spoke holes in the flanges of the hub.

The tension applied to the spokes is particularly high for radial lacing, so that the possibility of deformation or damage to the spoke holes in the hub is greater.

#### CAUTION:

Hubs manufactured by Shimano other than the hubs mentioned below are not suitable for radial lacing. Shimano is not obliged to carry out any repairs or replacements which are necessary as a result of damage or deformation to spoke holes of hubs caused by the use of radial lacing.

Model number	No. of spoke holes	
HB-9000	Aero(18H / 24H) / 18H, 24H, 28H, 32H, 36H	
<b>NEW</b> HB-6800	32H, 36H	
HB-5700		
HB-4600		
HB-3500		
<b>NEW</b> HB-2400		
HB-T780		
HB-T670		
HB-T610		
HB-M430		
HB-RM70		
HB-MX71		
HB-MX70		
HB-F700		24H, 32H, 36H

#### Note:

Shimano does not accept responsibility for problems occurring as a result of damage to the wheels or loosening of the spokes. We strongly advise that you use rims with sufficient rigidity and carry out daily maintenance of the bicycle wheels.

ARCHIVE

SHIMANO