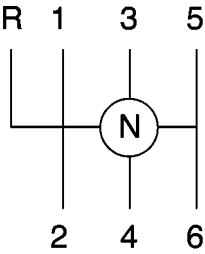
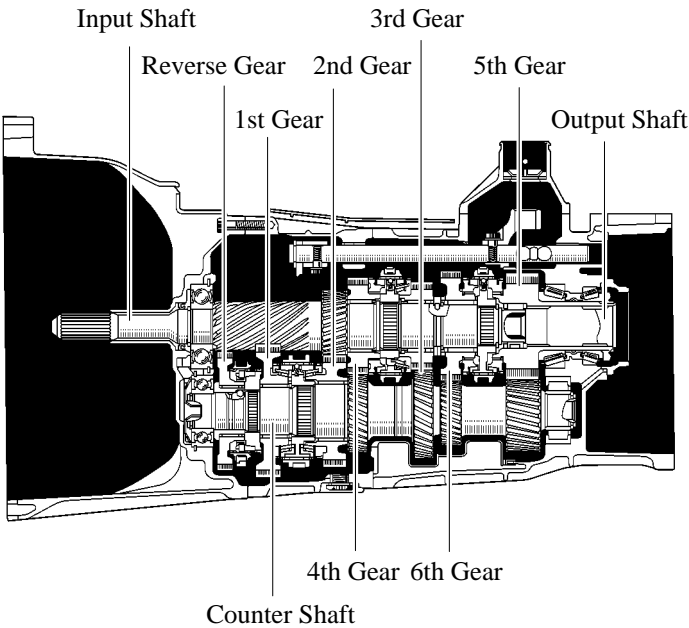


RA61F MANUAL TRANSMISSION

DESCRIPTION

The RA61F manual transmission is a 6-speed manual transmission. This manual transmission has the following features:

Item	Feature
Gear Train	An output reduction method is used to achieve a compact construction.
Gear Engagement	All forward gears and reverse gear are constant mesh type gears. They are used to achieve an excellent shift feel.
Synchromesh Mechanism	A triple-cone type synchromesh mechanism is used for 1st, 2nd and 3rd gears to achieve an excellent shift feel.
Shift Mechanism	The shift mechanism uses four shift forks and sliding-shafts.
Transmission Case and Cover	<ul style="list-style-type: none">• The transmission front, center and rear cases and control shift lever retainer are made of aluminum alloy for weight reduction.• A transmission cover is used to restrain the transfer of the internal sound of the transmission to the cabin.
Oil Separator	An oil separator is used to reduce parasitic losses due to transmission oil churning.



Shift Pattern

► Specification ◀

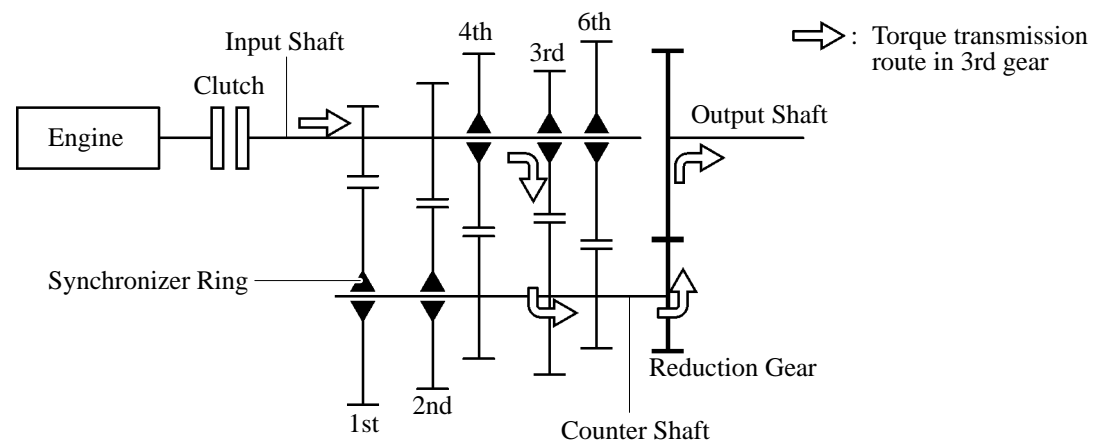
Type		RA61F
Gear Ratio	1st	4.171
	2nd	2.190
	3rd	1.488
	4th	1.193
	5th	1.000
	6th	0.799
	Reverse	3.607
Oil Capacity Liters (US qts, Imp.qts)		1.8 (1.9, 1.6)
Oil Viscosity		SAE 75W-90
Oil Grade		API GL-4 or GL-5
Weight (Reference)* kg (lb)		57.7 (127.2)

*: The figure shown is the weight of the part including the oil.

■ GEAR TRAIN

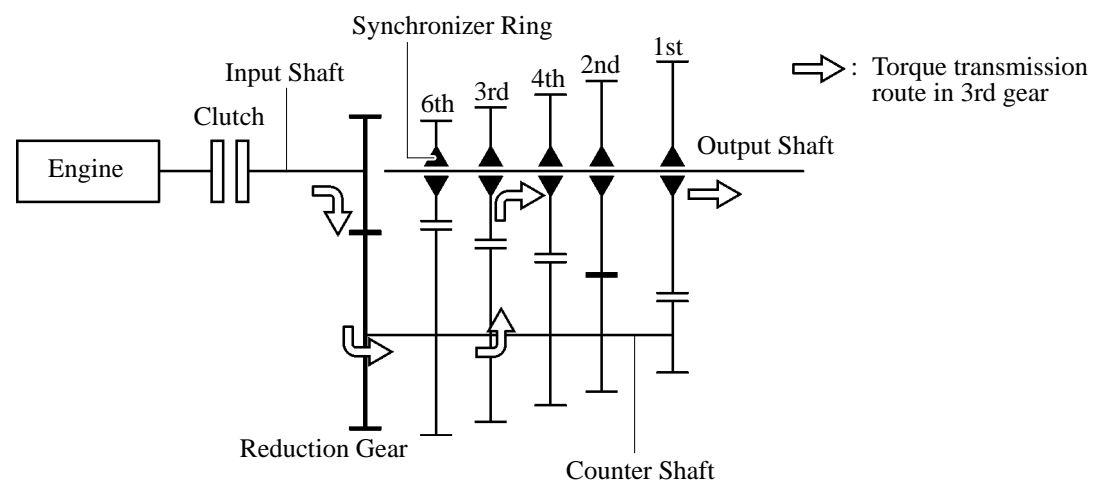
The gear train uses the output reduction method, that is, the output shaft is equipped with a reduction gear. When compared with the input reduction method, the output reduction method has the following features:

- In a transmission that uses the input reduction method, input torque from the engine is increased by the reduction gears before the input torque acts on each drive and driven gear. In this case, the width of the teeth on each gear needs to be large. On the other hand, in a transmission that uses the output reduction method, input torque from the engine is increased by the reduction gears after the input torque acts on each drive and driven gear. This reduces the width of the teeth needed on each gear, allowing a smaller and lighter gear train to be produced.
- In the configuration of a gear train that uses the input reduction method, the drive and driven gears are located behind the reduction gear. Because of this, the moment of inertia of the input shaft and counter shaft acts on these two gears. In contrast, in the configuration of a gear train that uses the output reduction method, the drive and driven gears are located in front of the reduction gear. This causes the moment of inertia of the input shaft only to act on the gears, reducing shifting effort.



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Output Reduction Method



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Input Reduction Method

■ SYNCHROMESH MECHANISM

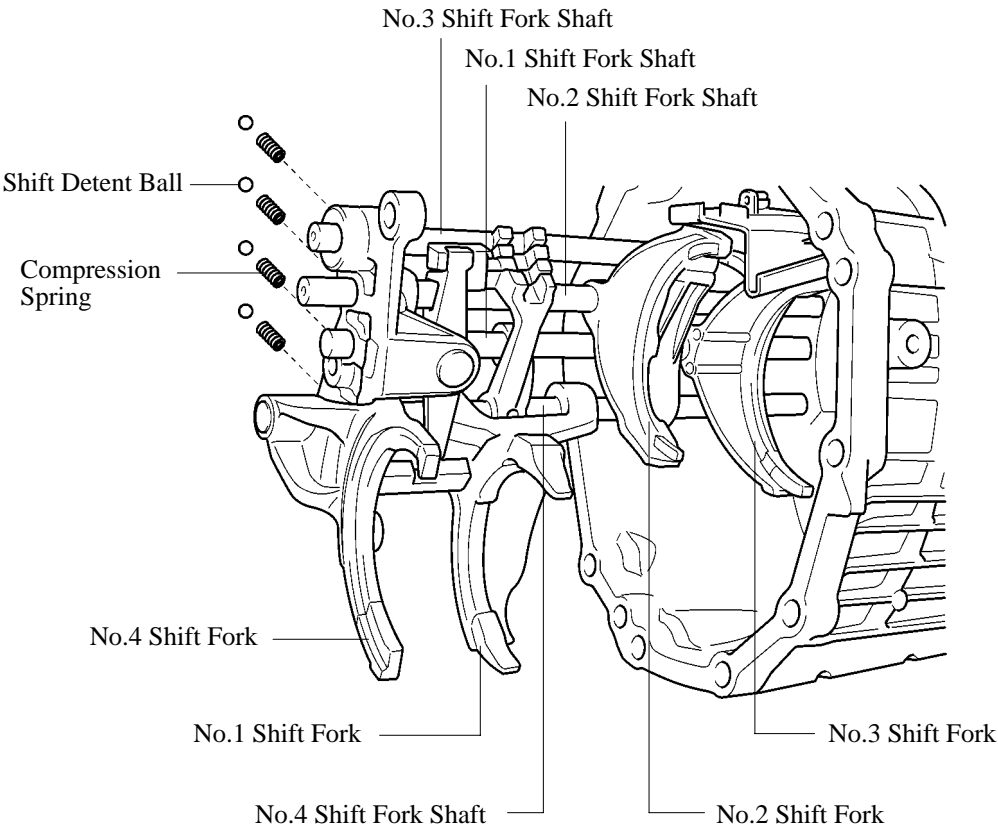
The synchromesh mechanism for each gear is as follows:

Gear	1st, 2nd, and 3rd	4th, 5th and 6th	Reverse
Synchromesh Mechanism Type	Triple-cone	Single-cone	Lever

■ SHIFT MECHANISM

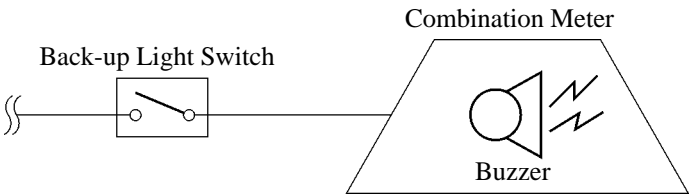
The shift mechanism has four shift forks, four shift fork shafts, four shift detent balls, and four compression springs.

- The four shift detent balls and four compression springs are used for the shift detent mechanism. The shift detent mechanism is provided to prevent engaging two gears at one time, and to prevent accidental shifting into reverse gear.



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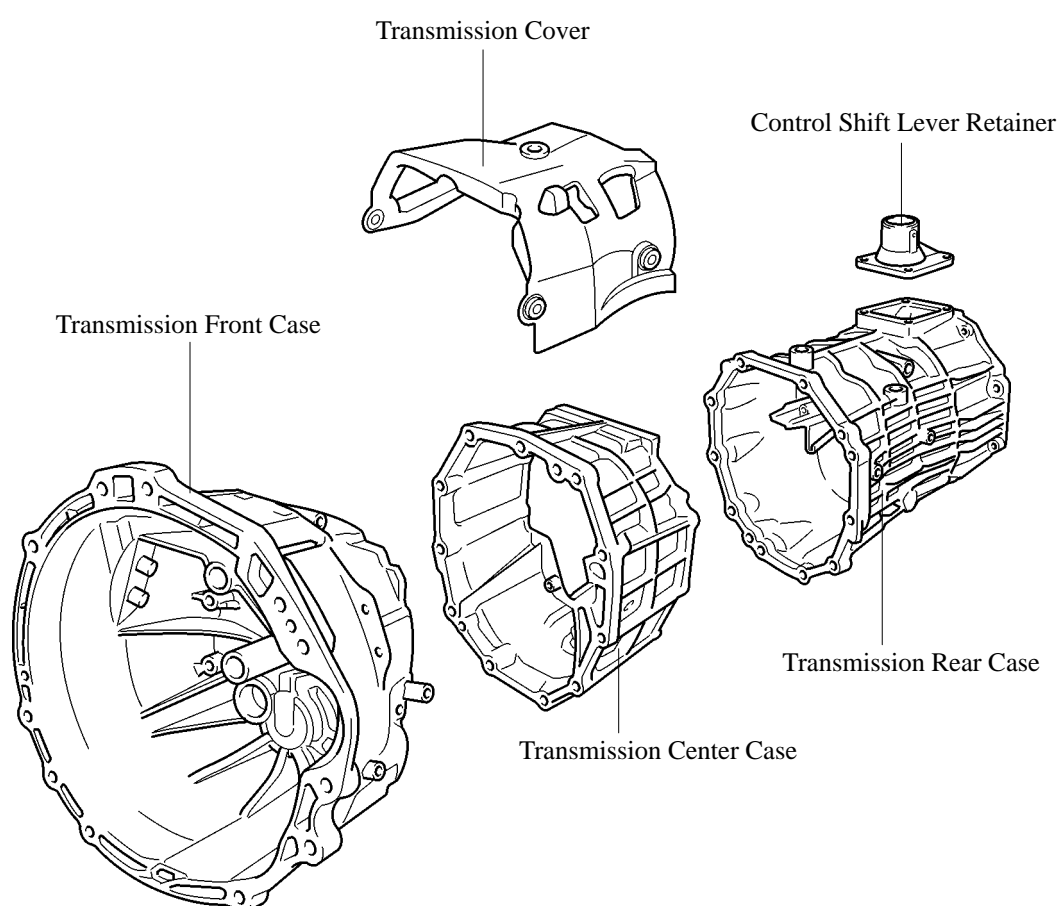
- To prevent unintended operation, a buzzer in the combination meter sounds once after the transmission has been shifted to reverse in order to alert the driver of the shift lever position.



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■ TRANSMISSION CASE AND COVER

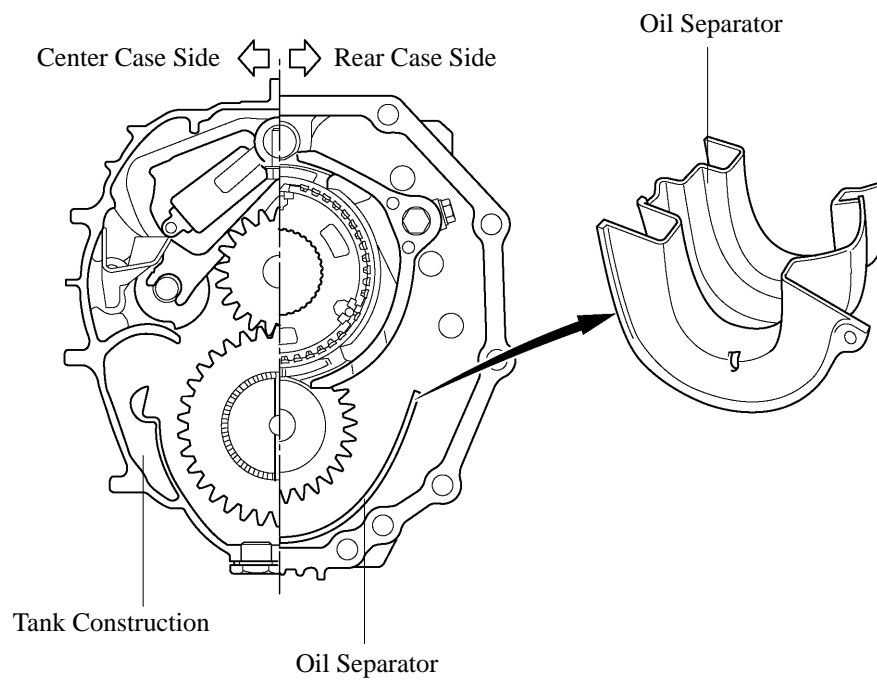
- The transmission front, center and rear cases and control shift lever retainer are made of aluminum alloy for weight savings. These cases realize the high strength and durability due to their cylindrical shape and optimal arrangement of strengthening ribs.
- A transmission cover is use to reduce the transfer of transmission noise to the cabin.



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■ OIL SEPARATOR

An oil separator made of aluminum alloy is provided at the bottom of the transmission rear case. This construction prevents the oil in the sump from being directly mixed by the counter shaft. Combined with the transmission center case, which is constructed to act as a tank, energy losses due to oil mixing have been reduced.



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