

1969-73 RENAULT R-12, R-15, R-16 & R-17

R-12 (1971-73)
 R-15 (1972-73)
 R-16 (1969-72)
 R-17 (1972-73)

DESCRIPTION

All models have disc brakes in front and drum brakes in rear, except some R-17 models which have an option of four wheel disc brakes. A rear brake pressure limiter is used on vehicles with rear drum brakes. Power servo units are used on all models (as an option) except on R-12. Single and tandem master cylinders are used on all models.

ADJUSTMENT

DISC BRAKES

Disc Brakes are self-adjusting, therefore no in service adjustment is required.

DRUM BRAKES

Self-Adjusting — No adjustment is required.

Bendix — Tighten leading shoe adjuster bolt while rotating wheel. When wheel locks, loosen adjuster until wheel turns freely. Repeat procedure for trailing shoe on same wheel.

Girling — Tighten single adjuster bolt until shoes contact drum and wheel can no longer be turned by hand. Back off adjuster until wheel can again be turned by hand.

PARKING BRAKE

With service brakes properly adjusted, raise and support vehicle. Release parking brake lever and tighten cable adjuster until brake linings contact brake drum surface. Tighten adjuster lock nut.

BLEEDING SYSTEM

Pressure Bleeding — *NOTE* — Release vacuum from servo unit before bleeding brakes. Do not exceed 30 psi with pressure bleeder. Fill brake reservoir and connect pressure bleeder. Check each bleeder screw for fluid flow. Open bleed screw nearest master cylinder and operate the brake pedal to clear master cylinder of trapped air. Close bleed screw when air is cleared from master cylinder. Bleed each remaining line, but do not operate brake pedal. Remove pressure bleeder, check reservoir fluid level and brake operation.

REMOVAL & INSTALLATION

LINING REPLACEMENT (DISC BRAKE)

Removal (Bendix Type II & III AS) — *NOTE* — Pads on any one axle must be changed at same time. Do not interchange old pads, different manufacturers or different grades of pads. Remove caliper bracket. On Type III, pull out pads from side and on Type II, pull upward on pads to remove. If necessary, disconnect pad wear warning light wire. Remove pad thrust springs and check their condition.

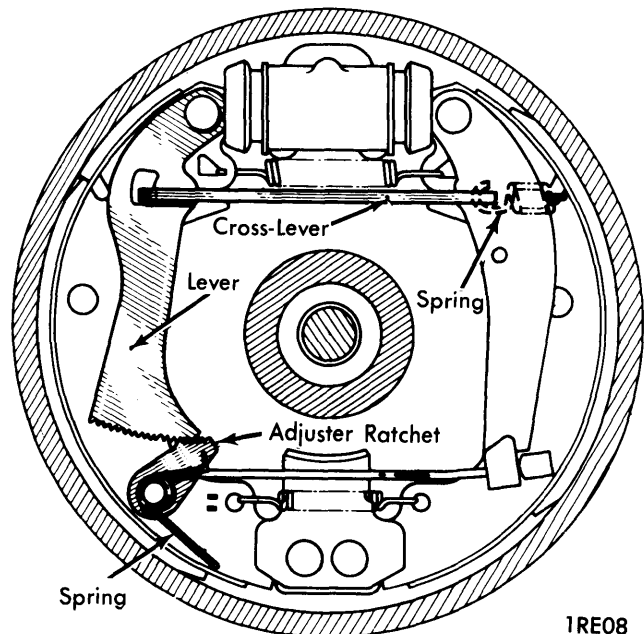
Installation — Reverse removal procedure and note following: On Type III AS, install long spring outside and short spring inside. On Type II, fit flat spring inside and curved spring outside.

Removal (Girling Type) — Remove center flat clip and wire clip from both pins. Pull out pins and remove pads.

Installation — Clean caliper before installing pads. Push back pistons and install pads in reverse order as removed.

Removal (R-12, 15 & 17) — Remove four spring clips, tap out key with pin punch and slide out second key. Remove pads and springs under pads.

Installation — Install pad springs and place one end of pad between spring clip and groove on caliper. Use a screwdriver to lever pad and compress spring clips while installing keys in keyways. Secure with new stop pins.



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SELF-ADJUSTING DRUM BRAKE

LINING REPLACEMENT (DRUM BRAKE)

Removal (Manually Adjusted Brakes) — Remove brake drum. See *Brake Drum Removal & Installation* in this article. Install wheel cylinder clamp and remove top return spring. Disconnect hand brake cable, remove shoe clips, pull shoes out and disengage cross lever. Remove brake shoes and return spring. Remove hand brake operating lever.

Installation — To install, reverse removal procedures and adjust brakes.

Removal (Self-Adjusting Brake) — Remove brake drum. See *Brake Drum Removal & Installation* in this article. Install wheel cylinder clamp, remove top shoe return spring and disconnect hand brake cable. Unhook shoe steady springs and tilt long self-adjuster lever toward stub axle. Ease leading shoe away from backing plate and pull cross lever from shoe. Turn leading shoe at a right angle to backing plate and remove bottom return spring with a screwdriver. Remove both shoes.

Installation — To install, reverse removal procedure and adjust brake shoes.

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BRAKE CALIPER

Removal & Installation (All Models) — Drain brake fluid reservoir or block off fluid outlet. Unscrew brake line fitting from flexible hose and remove clip. With rear disc brake, disconnect hand brake cable. Remove caliper from mount and unscrew hose from caliper. To install, reverse procedure and bleed brakes.

DISC BRAKE ROTOR (FRONT)

Removal Front (R-12, 15,17) — Remove caliper as previously outlined and bracket without disconnecting flexible line. Unscrew the three rotor securing bolts. Install a suitable hub pulling tool (Rou. 436-01) to wheel studs and screw three bolts into hub. Progressively screw in each bolt to remove hub and rotor assembly. Separate rotor from hub.

Removal Front (R-16) — Remove caliper as previously outlined and deflector. Remove hub nut and washer. Install a suitable hub puller (T.Av. 235) onto lug nuts. Install suitable extractor (Rou. 378) against stub axle. Pull hub and rotor assembly from spindle and separate assembly.

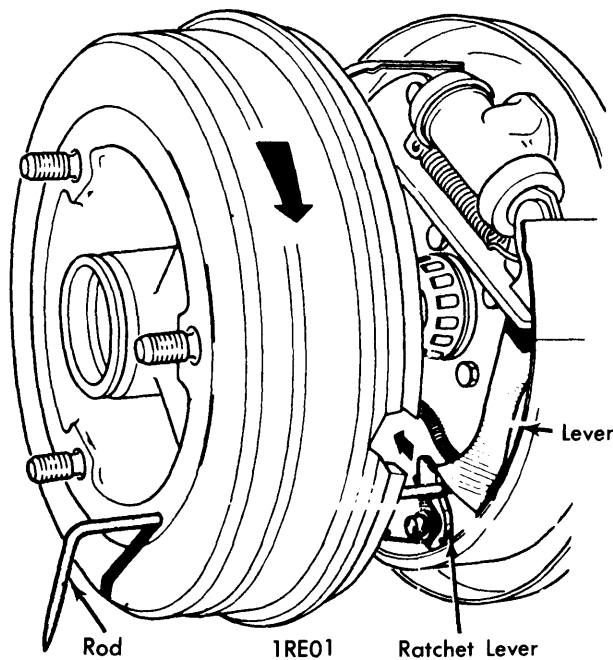
Installation (All Models) — Install hub and rotor assembly with suitable press (T.Av. 236) and tighten spindle nut to 115 ft. lbs.

DISC BRAKE ROTOR (REAR)

Remove caliper assembly and caliper mounting bracket. Remove grease retainer from hub. Remove bearing adjusting nut, nut lock plate and thrust washer. Remove rotor assembly, then remove bearing from hub. Separate hub and disc assembly. To install reverse removal procedure and bleed hydraulic system.

BRAKE DRUM

Removal (All Models) — Remove hub grease cup and hub fasteners. Back off brake shoe adjuster. *NOTE* — For self-adjusting brake, proceed as follows: To back off (release) shoe adjuster, remove sealing plug in drum and insert a 3/16" (5 mm) diameter rod in hole to release adjuster ratchet (see illustration). Remove drum with a suitable puller (T.Av. 235).



RELEASING SELF-ADJUSTER (R-15 SHOWN)

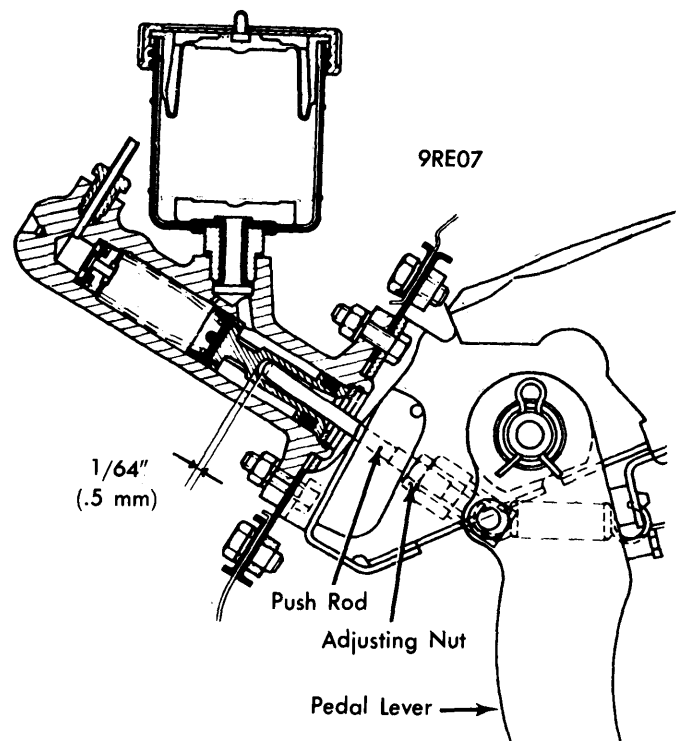
Installation — Apply suitable grease to hub and bearings and adjust axle nut as follows: Tighten nut to 20 ft. lbs. while revolving drum. Unscrew nut 1/4 turn, connect a dial indicator to wheel stud and measure hub end play. Adjust as required. Secure hub fasteners, fill grease cap 3/4 full and reinstall. Adjust brake shoes. On self-adjusting brakes, step on brake pedal once to reset shoe adjuster ratchet.

WHEEL CYLINDER (DRUM BRAKE)

Removal & Installation — Remove brake drum and shoes as previously outlined. Disconnect brake line from cylinder. Remove two bolts securing cylinder to backing plate and remove cylinder. Reverse procedure to reinstall cylinder.

MASTER CYLINDER

Removal & Installation — Remove fluid from reservoir(s) and disconnect outlet lines. Remove pressure loss indicator valve bolt if equipped. Unscrew cylinder securing bolts and remove cylinder. Reverse procedure to reinstall master cylinder and check push rod clearance. On models with vacuum servos, see Vacuum Servo Removal and Installation for push rod adjustment in this article. On R-12 and 16 models, adjust push rod clearance by turning push rod. When specification is correct, tighten lock nut.



MASTER CYLINDER PUSH ROD CLEARANCE (R-16 SHOWN)

POWER BRAKE UNIT

NOTE — Servo unit is not serviceable, only the air filter and check valve can be serviced.

Removal — Disconnect battery, remove fluid from reservoir(s) and remove air filter if necessary. Disconnect lines from master cylinder and remove bolt from pressure loss indicator valve, if equipped. Disconnect vacuum hose and remove clevis from brake pedal. Remove servo securing nuts from pedal side of bulkhead and remove servo with master cylinder. Separate master cylinder from servo.

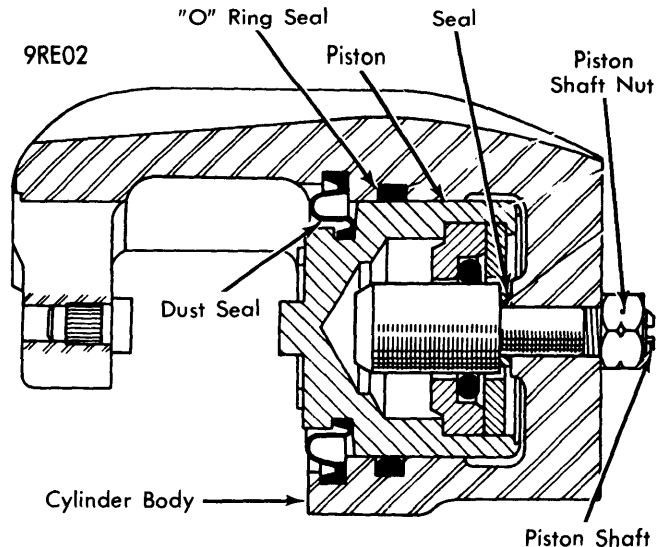
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Installation — On R-16 models, check push rod clearance between push rod end fitting and servo-to-master cylinder mounting flange. Adjust to specification by turning push rod. On R-15 and R-17 models, measure push rod-to-master cylinder clearance between push rod end and master cylinder mounting flange. Adjust by turning push rod nut. Reverse removal procedures to reinstall servo and master cylinder.

OVERHAUL

BRAKE CALIPER

Disassembly (R-16) — Remove caliper as previously outlined. Remove dust seal, unscrew nut from piston shaft holding shaft with screwdriver. Push out piston by pressing on shaft and remove cylinder seal. **NOTE** — Do not disassembly pad wear take-up system inside piston. Both parts form a non-serviceable unit.

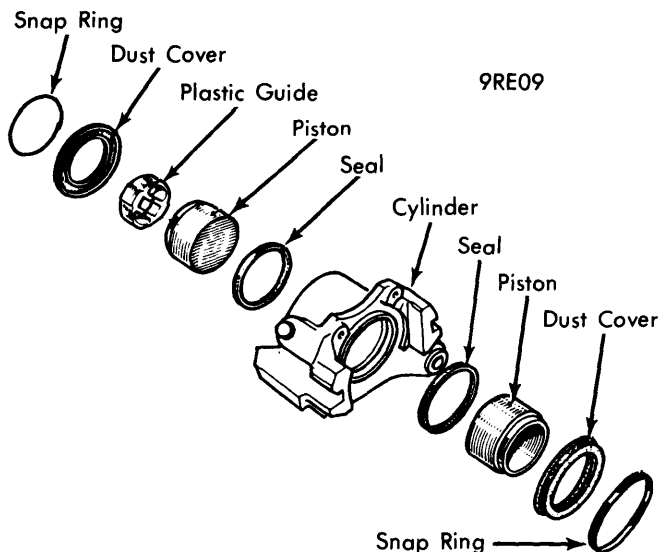


BENDIX CALIPER ASSEMBLY

Disassembly (R-12, 15, 17) — Remove caliper as previously outlined. Remove piston dust cover and use compressed air to remove piston. Protect piston with a wood block. Remove piston seal from cylinder. If cylinder is worn and needs replacing, remove it from caliper bracket as follows: Use a suitable wedge and spread bracket legs a small amount. Use a suitable pin punch (B.Vi. 39) to press in on peg stop. Cylinder housing should slide from bracket.

Cleaning & Inspection — Clean parts in alcohol and inspect for piston and cylinder wear. Replace all worn parts.

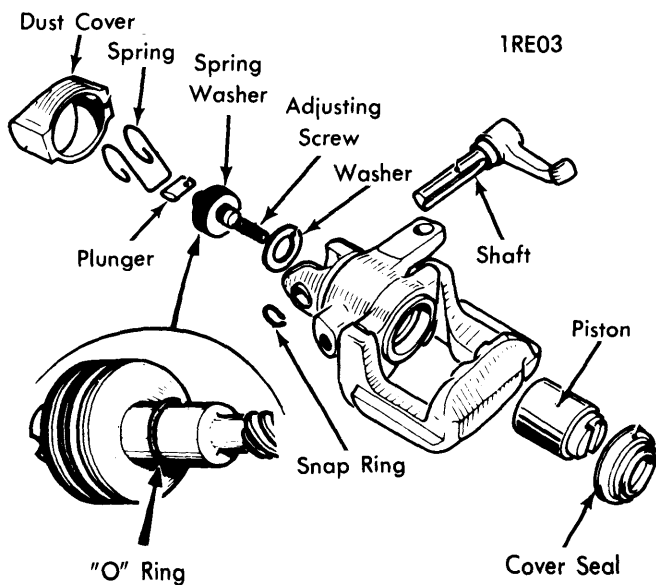
Reassembly — Reverse disassembly procedure to assemble caliper. Lubricate cylinder and piston with brake fluid when assembling components.



GIRLING CALIPER ASSEMBLY

Cleaning & Inspection — Clean parts in alcohol and inspect piston for scoring, corrosion or rough surface areas. Replace pistons with surface defects. Inspect caliper for corrosion in seal groove. Replace entire caliper if cylinder defects are found.

Reassembly — Lubricate parts with brake fluid and install piston in cylinder by hand. Do not tap or force piston into cylinder. Reinstall nut on piston shaft and torque to 10 ft. lbs. Guide automatic adjustment shaft into hole by means of a small screwdriver. Turn piston within cylinder until punch mark or an electro scribe mark is on bleed screw side. Apply a suitable grease around piston and cylinder and install a new dust seal. To make bleeding easier, remove bleeder screw, fill caliper with brake fluid before reinstalling caliper on mount.



REAR CALIPER ASSEMBLY

1969-73 RENAULT R-12, R-15, R-16 & R-17 (Cont.)

MASTER CYLINDER

Disassembly (Single Piston Type) – Remove master cylinder as previously outlined. Remove snap ring, piston assembly and cylinder components.

Cleaning & Inspection – Clean parts in alcohol and inspect for worn parts. Replace all parts contained in service repair kit.

Reassembly – Dip all parts in brake fluid, reverse disassembly procedure to reassemble unit. Make sure that piston assembly slides freely within cylinder bore.

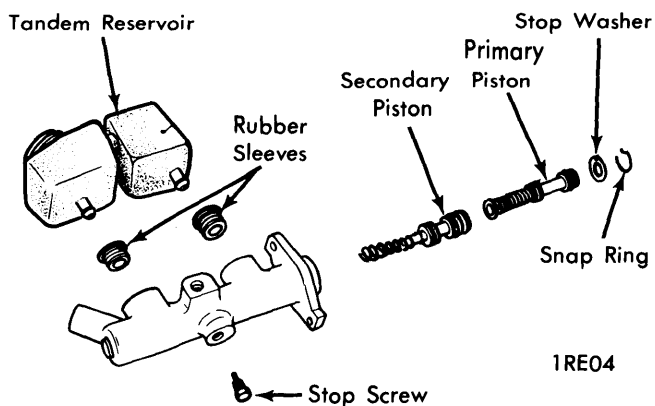
Disassembly (Tandem Piston Unit) – *NOTE* – On R-12 vehicles, parts which make up primary and secondary pistons must not be disassembled. If any one of the parts are worn, replace piston assembly as a unit. Hold master cylinder in soft jaws of a vice and remove reservoirs. Use a wood dowel, press piston down bore about .197" (5 mm) and remove stop screw. With R-12 vehicles, compress piston and remove snap ring. On R-16 vehicles, remove end plug. Carefully remove components noting how parts are positioned

Cleaning & Inspection – Clean parts in alcohol and check pistons and cylinder bore for wear.

Reassembly – Lubricate parts in brake fluid and reverse disassembly procedure to reassemble unit. On R-16 models, torque end plug to 75 ft. lbs.

WHEEL CYLINDER (DRUM BRAKE)

Disassembly – Remove wheel cylinder as previously outlined and disassemble components.



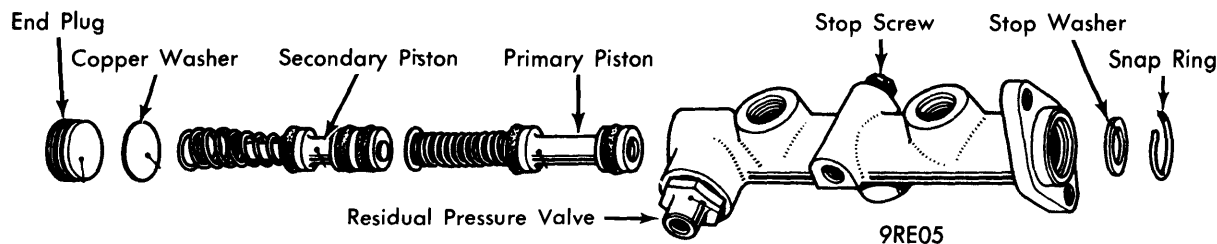
TANDEM PISTON MASTER CYLINDER (R-12 SHOWN)

Cleaning & Inspection – Clean parts in alcohol and examine for wear on piston and cylinder surfaces.

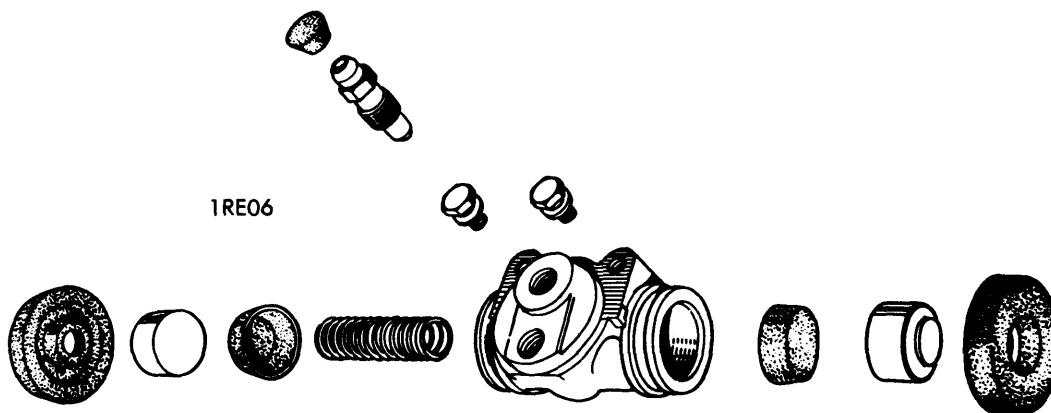
Reassembly – Lubricate parts in clean brake fluid. Install spring, cups, pistons and dust covers. Reinstall cylinder and bleed brakes.

BRAKE PRESSURE LIMITER

NOTE – Limiter valves are not servicable, if a unit leaks fluid or cannot be adjusted, replace valve assembly.



TANDEM PISTON MASTER CYLINDER (R-16 SHOWN)



WHEEL CYLINDER (TYPICAL)

Brakes

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TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Flex Hose-to-Caliper	15 (2.0)
Flex Hose-to-Brake Line.....	9 (1.2)
Union Nut-to-Brake Line	10 (1.3)
Bleed Screw.....	7 (0.9)
Caliper Bracket	50 (6.9)
Rotor-to-Hub	20 (2.7)
Wheel Nut.....	50 (6.9)

BRAKE SYSTEM SPECIFICATIONS

Application	Drum Diam. In. (mm)	Wheel Cylinder Diameter		Master Cylinder Diameter In. (mm)
		Front In. (mm)	Rear In. (mm)	
R-12 & R-16	② 9.0 (228.6)	1.89 (48.0)	.867 (22.0)	.748 (19.0)
R-15 & R-17	9.0 (228.6)	2.12 (53.8)	① .867 (22.0)	.812 (20.6)

① — Rear cylinder diameter for R-17 w/disc brakes (rear) is — 1.42" (36.0 mm).

② — Early models R-12 (Sedan) has drum diameter of 7.0" (177.8 mm), with max. oversize of 7.136" (181.3 mm).

BRAKE DRUM SPECIFICATIONS

Application	Drum Diameter In. (mm)	Original Diameter In. (mm)	Maximum Refinish Diameter In. (mm)	Discard Diameter In. (mm)
All Models ①	9.0 (228.6)	9.0 (228.6)	9.040 (229.6)	②

① — Early models R-12 (Sedan) had 7.0" (177.8 mm) diameter brake drum with max. oversize of 7.136" (181.3 mm).

② — More than Maximum Refinish Diameter.

DISC BRAKE ROTOR SPECIFICATIONS

Application	Disc Diameter In. (mm)	Lateral Runout In. (mm)	Parallelism In. (mm)	Original Thickness In. (mm)	Minimum Refinish Thickness In. (mm)	Discard Thickness In. (mm)
R-12 (Front)	9.0 (228.6)	.004 (.10)	....	.394 (10.0)	.355 (9.0)	① ...
R-15 (Front)	9.0 (228.6)	.004 (.10)	....	.788 (20.0)	.748 (19.0)	① ...
R-16 (Front)	9.0 (228.6)	.004 (.10)	....	.472 (12.0)	.432 (11.0)	① ...
R-17 (Front)	9.0 (228.6)	.004 (.10)	....	.788 (20.0)	.748 (19.0)	① ...
R-17 (Rear)	9.0 (228.6)	.008 (.20)	....	.394 (10.0)	.355 (9.0)	①

① — Less than Minimum Refinish Thickness.