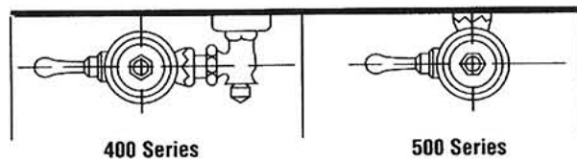


Delany Rex

Genuine Renewal Parts

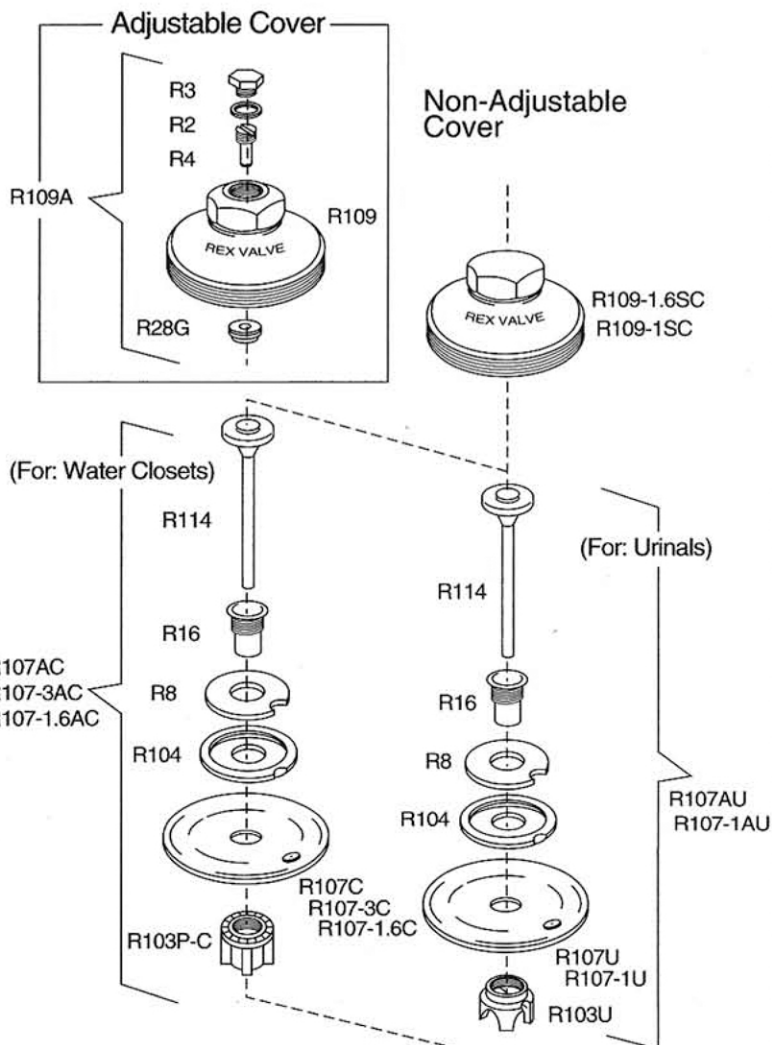
Valve Bodies Available



400 Series

500 Series

HOW TO SPECIFY Per drawings above, valve bodies are identified as R400B-AR-1-NB, or R500B-AR-1-NB depending upon relationship of handle, or push button to inlet of body casting. If body bumper lugs are required, substitute "WB" or "NB."



Partial Assemblies**

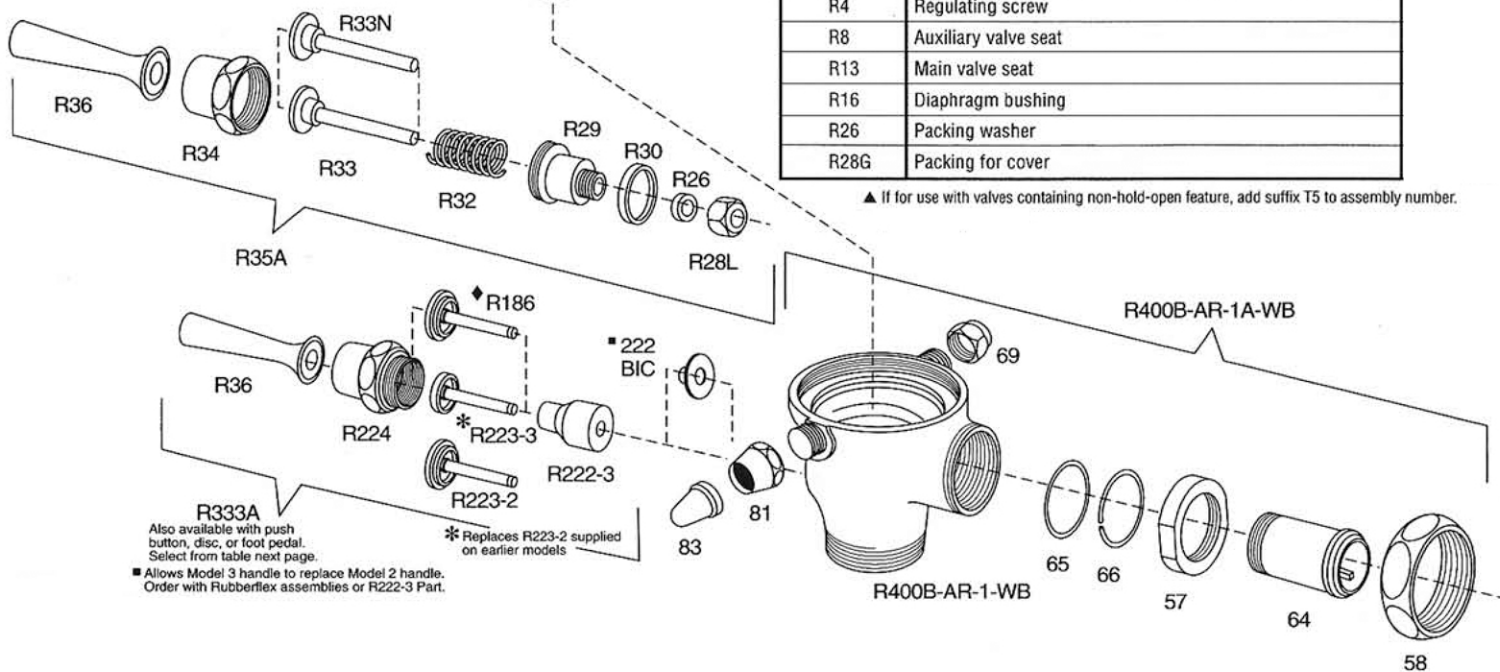
* R35A	Spring loaded handle assembly
* R35A-B	Spring loaded 1/2" push button assembly
▲ R107AC	Diaphragm operating assembly (for valves with 1" supply or larger)
▲ R107-3AC	Diaphragm operating assembly (for valves with 3.5GPF equipment)
▲ R107-1.6AC	Diaphragm operating assembly (for valves with 1.6GPF equipment)
▲ R107AU	Diaphragm operating assembly (for valves with 3/4" supply or smaller)
▲ R107-1AU	Diaphragm operating assembly (for valves with 1.0GPF equipment)
R107KC	Renewal kit (for valves with 1" supply or larger. Contains R107C and R8 parts)
R107-3KC	Renewal kit (for valves with 3.5GPF equipment). Contains R107-3C and R8 parts
R107-1.6KC	Renewal kit (for valves with 1.6GPF equipment). Contains R107-1.6C and R8 parts
R107KU	Renewal kit (for valves with 3/4" supply or smaller. Contains R107U and R8 parts)
R107-1KU	Renewal kit (for valves with 1.0GPF equipment). Contains R107-1U and R8 parts
R109A	Cover assembly
R109-3A	Cover assembly, complete (for valves with 3.5GPF equipment)
R109-1.6A	Cover assembly, complete (for valves with 1.6GPF equipment)
R109-1A	Cover assembly, complete (for valves with 1.0GPF equipment)
†† R333A	Rubberflex handle assembly
†† R333A-B	Rubberflex 1/2" push button assembly
** R400B-AR-1A-NB KwikFit valve body assembly (standard length No. 64 part)	
** R400B-AR-1A-WB KwikFit valve body assembly (standard length No. 64 part)	

Individual Parts

R2	Washer for cover screw
R3	Cover screw
R4	Regulating screw
R8	Auxiliary valve seat
R13	Main valve seat
R16	Diaphragm bushing
R26	Packing washer
R28G	Packing for cover

▲ If for use with valves containing non-hold-open feature, add suffix T5 to assembly number.

Old Style Spring Loaded Handle



Individual Parts Listing

R 28L	Packing nut	
R 29	Spring housing	
R 30	Coupling washer	
R 32	Spring	
R 33	Operating stem (overall length 1 29/32")	
R 33N	Operating stem (for valves with non-hold-open feature)	
R 34	Handle nut	
R 36	Handle	
57	Clamping nut	
58	Union nut	
★ 64	KwikFit union tailpiece, 2" standard length overall (allows 4 1/2" to 5 1/2" centers. Supplied complete with No. 65 and No. 66 parts)	
65	"O" ring	
66	Clamping ring	
69	Protecting cap	
81	Bumper holder	
83	Seat bumper	
R103P-C	Seat guide (for valves with 4.5 GPF, 3.5GPF or 1.6GPM equipment)	
R103U	Seat guide (for valves with 3/4" supply or smaller)	
R104	Auxiliary valve seat holder	
R107C	Diaphragm with bypass (for valves with 1" supply or larger)	Available in R107KC kit only. See partial assemblies.
R107-3C	Diaphragm with bypass (for valves with 3.5GPM equipment)	Available in R107-3KC kit only. See partial assemblies.
R107-1.6C	Diaphragm with bypass (for valves with 1.6GPM equipment)	Available in R107-1.6KC kit only. See partial assemblies.
R107U	Diaphragm with bypass (for valves with 3/4" supply or smaller)	Available in R107KU kit only. See partial assemblies.
R107-1U	Diaphragm with bypass (for valves with 1.0GPM equipment)	Available in R107-1KU kit only. See partial assemblies.
R109	Cover	
R109-3	Cover, only (for valves with 3.5GPF equipment)	
R109-1.6	Cover, only (for valves with 1.6PF equipment)	
R109-1.6SC	Cover, only, non-adjustable (for valves with 1.6GPF equipment)	
R109-1	Cover, only (for valves with 1.0GPF equipment)	
R109-TSC	Cover, only, non-adjustable (for valves with 1.0GPF equipment)	
R114	Auxiliary valve	
R180	Auxiliary valve (for valves with non-hold-open feature)	
R186	Operating stem (for valves with non-hold-open feature. Overall length 1 9/16")	
222BIC	Brass Insert Converter	
R222-3	Flexer	
R223-2	Operating stem (overall length 1 7/8")	
R223-3	Operating stem (overall length 1 7/8")	
R224	Handle nut (stamped Model 2 or Model 3)	
225	1/2" push button	
R400B-AR-1-NB	KwikFit valve body with No. 13 part	
R400B-AR-1-WB	KwikFit valve body with No. 13 part	

★★ KwikFit Union Tailpieces

Special lengths available as follows:

64-1	KwikFit union tailpiece, 3" overall length (allows 5 1/2" to 6 1/2" centers. Complete with No. 65 and No. 66 parts)
64-2	KwikFit union tailpiece, 4" overall length (allows 6 1/2" to 7 1/2" centers. Complete with No. 65 and No. 66 parts)
64-3	KwikFit union tailpiece, 5" overall length (allows 7 1/2" to 8 1/2" centers. Complete with No. 65 and No. 66 parts)

* If for use with valves containing non-hold-open feature, add suffix T5 to assembly number.

† Model 3 stamped in R224 part.

* For diaphragm assemblies and renewal kit requiring low pressure equipment, add suffix T98 to the assembly number.

* For diaphragm assemblies and renewal kit requiring non-siphon equipment, add suffix T37 to the assembly number.

Service Procedures

HOW TO SERVICE VALVE

- 1) Shut off water at control stop. Remove cover assembly by turning counterclockwise, using Delany No. 748 cover wrench, standard 1 1/4 hex box wrench, or taped flat jawed adjustable wrench. Inspect cover parts for possible replacement.
- 2) Place fingers on both sides of auxiliary valve seat holder and lift vertically to remove entire diaphragm operating assembly, except for main valve seat. Inspect for possible replacement of individual parts or entire assembly.
- 3) Inspect condition of main valve seat. If replacement is required, remove by turning

counterclockwise with Delany No. 745 1 7/16" 12 point socket wrench. Make sure replacement seat is wrench tight.

- 4) If diaphragm with bypass is to be replaced as an individual part, hold diaphragm operating assembly in one hand and unscrew the seat guide from the bottom with the other hand. The diaphragm will then slip off the No. 16 diaphragm bushing. Take care to install the new diaphragm with the pinhole of the bypass on the under side. Also, take care to replace the seat guide hand tight, but firmly. Good preventive maintenance calls for simultaneous replacement of No. 8 auxiliary valve seat washer, supplied in same kit as the replacement diaphragm.
- 5) To assembly valve, reverse all procedures above. After diaphragm operating assembly has been dropped into valve, run thumb around edge of diaphragm to insure it is tamped flat on shoulder at base of thread for cover.

HOW TO SERVICE CONTROL STOP

See Renewal Parts & Service Folder SVB-3 for detailed parts information.

- 1) Shut off water supply at branch to toilet room or at cellar main, if necessary. Make sure entire line above elevation of stop is drained.
- 2) If problem is leakage at shut off stem, and previous tightening of packing nut failed to correct leakage, remove packing nut. Remove old No. 49 packing, using sharp pointed tool if necessary. Insert new packing.
- 3) Reverse above procedure to put stop back in service.
- 4) For renewal of internal parts, place flat jawed adjustable wrench on large hex bonnet. To protect chrome finish, taped jaws are recommended. Turn counterclockwise to remove bonnet assembly for inspection. Replace bonnet assembly, shut off stem assembly, or individual parts as required. Before installing assemblies, back off shut off stem by turning counterclockwise with screwdriver.
- 5) Reverse above procedure to put stop back into service.

Note: Earlier production stops were supplied with fibre bonnet washer. Most current production uses metal-to-metal joint only. If fibre bonnet washer is present, it should be replaced each time bonnet is removed.

HOW TO SERVICE VACUUM BREAKER

See Renewal Parts & Service Folder SVB-3 for detailed parts information.

- 1) Shut off water at control stop. Using taped flat jawed adjustable wrench, loosen No. 58 union nut. Loosen No. 426 cowl nut at vacuum breaker and slip down flush connection. Lift valve assembly clear and set aside.
- 2) Lift out No. 427A rubber sleeve for inspection and possible replacement.
- 3) To reassemble, reverse procedure. Be sure to make up No. 426 cowl nut hand tight only, or use quarter turn of wrench at most.

Note: Earlier production vacuum breakers were supplied with fibre washer on top of No. 427A sleeve. Discard before reassembly.

HOW TO SERVICE HANDLES OR PUSH BUTTONS

- 1) Shut off water at control stop. Using taped flat jawed adjustable wrench, unscrew handle nut and remove assembly.
- 2) If handle is old style spring loaded type, remove No. 28L packing nut and replace No. 26 packing washer. Also replace No. 30 coupling washer. If operating stem shows signs of wear, it is recommended that entire handle assembly be replaced.

If handle is Rubberflex type, inspect operating stem and No. 222-3 flexer for wear. Good preventive maintenance calls for replacement of both parts.
- 3) To reassemble, reverse above procedures. Note that No. 28L packing nut must be tight enough to prevent leakage but loose enough to prevent binding.

HOW TO REGULATE LENGTH OF FLUSH

The length of flush and consequently the amount of water consumed per flush can be readily varied by the No. 4 regulating screw in the valve cover. Remove the No. 3 cover screw and engage No. 4 regulating screw with screwdriver. Turn clockwise to lower the screw and shorten flush and counterclockwise to raise the screw and increase flushing cycle. Water consumption requirements of different fixtures vary widely. The flexibility built into Delany Valve regulation permits proper flushing action without waste of water. If valve is equipped with non-hold-open feature, or equipped with a "solid cover", no regulation is possible by means of the No. 4 part. For such valves, regulation is achieved by substitution of different sized bypasses on a trial and error basis.

HOW TO ADJUST TURN-TO-SILENCE STOP

If valve is equipped with Turn-to-Silence equipment, the stop should be checked for proper adjustment after the building has been put into service. Unless pressure at the valve changes radically, the setting is permanent.

To set for minimum flushing noise, open Turn-to-Silence wide by turning counterclockwise with screwdriver or wheel handle. Trip the valve and note noise level. While valve is running, begin to close stop and slowly Turn-to-Silence. Depending on inlet pressure at any given fixture, there is one setting of the stop at which water noise will be hushed. If pressure is low, this optimum setting will be near the wide open stop position. If pressure is high, the setting will be near the closed position.

The gallonage demands of the fixture must also be satisfied. Adjustment of the No. 4 regulating screw in the valve cover may be helpful in this regard.

HOW TO CARE FOR CHROMIUM PLATING

Chrome finishes on Delany material are of the highest quality obtainable. Each part is coated with a thick deposit of nickel, and finally chrome plated for lasting brilliance.

The life of chrome plate depends directly on the amount and type of maintenance provided. All chrome parts should be washed with a liberal amount of clear water and wiped dry with a clean cloth at least once a week. Valves subject to heavy traffic or aggressive atmospheres will benefit from more frequent cleaning. Uric acid and its fumes are harmful and will blacken and destroy chrome plate if left undisturbed.

Caution should be taken to insure that no past or powder cleaners are applied to chrome. Under no circumstances should bowl and urinal cleaners, most of which are acid solutions, be allowed to contact or spatter chrome plate. Such solutions can blacken and eat through chrome in a matter of hours.

Delany Flush Valves

Trouble Shooting Chart

WHEN	THEN	AND YOU SHOULD
VALVE WILL NOT START TO FLUSH	<ol style="list-style-type: none"> 1) Control stop is shut. 2) Tip of operating stem is worn. 3) Operating stem is too short. 	<ol style="list-style-type: none"> 1) Open control stop. 2) Replace operating stem, now supplied with nylon tip. 3) Install correct length stem as indicated in parts listings.
VALVE STARTS FLUSHING BUT CLOSSES IMMEDIATELY	<ol style="list-style-type: none"> 1) Diaphragm is ruptured. 2) Valve contains an oversized bypass orifice (pinhole). 3) Tip of operating stem is worn. 4) Seat guide is loose. 	<ol style="list-style-type: none"> 1) Replace diaphragm. Good preventive maintenance includes simultaneous replacement of No. 8 auxiliary seat supplied in same kit. 2) Install diaphragm with correct bypass size from proper kit indicated in parts listing. Valves with $\frac{3}{4}$" supply or smaller use larger orifice sizes than valves with 1" supply or larger. Replace No. 8 auxiliary valve seat at the same time. 3) Replace operating stem. 4) Tighten.
VALVE GIVES TOO SHORT A FLUSH OR TOO LONG A FLUSH	<ol style="list-style-type: none"> 1) Valve needs regulation. 2) Valve contains an oversized bypass orifice. (Flush too short.) 3) Bypass orifice is partially blocked. (Flush too long.) 4) Tip of operating stem is worn. 	<ol style="list-style-type: none"> 1) Remove No. 3 cover screw. Insert screwdriver and turn No. 4 regulating screw counterclockwise for longer flush or clockwise for shorter flush. If valve is equipped with non hold open feature, timing must be changed by trial and error of different bypass orifices. 2) Install diaphragm with correct bypass size from proper kit. Replace No. 8 auxiliary valve seat at same time. Step (1) above should be tried first. 3) Clean monel bypass. Hold pinhole up to light. If blocked, pinhole may be cleaned with pin, air hose, or acid solution. 4) Replace operating stem.
VALVE CONTINUES TO RUN FULL FORCE OR CONTINUES TO RUN BUT ONLY SLIGHTLY	<ol style="list-style-type: none"> 1) Bypass blocked. 2) Foreign object is blocking closing action. 3) Leakage is occurring at the No. 8 auxiliary valve seat due to foreign objects or wearing and pitting of the auxiliary valve. 4) Water pressure and/or volume is insufficient to fill upper chamber of valve and cause valve to close. 5) Auxiliary valve head has separated from rod allowing leakage. 6) Slight leakage is present at main valve seat due to minute foreign object embedded in diaphragm. 7) Main valve seat is loose. 	<ol style="list-style-type: none"> 1) Clean as indicated in (3) immediately above. 2) Remove foreign object. Smooth any indentations on under side of diaphragm. If diaphragm is mutilated, replace. 3) Remove any foreign objects from No. 8 auxiliary valve seat. Examine seating surface of auxiliary valve for pitting or cutting. Replace as needed with new auxiliary valve, now supplied by Delany with long lasting Delrin head. Replace No. 8 part at same time. 4) Increase pressure and/or volume. If several valves are running at one time, pressure may be built up by shutting off all control stops and then opening them again one by one. 5) Replace auxiliary valve and No. 8 auxiliary valve seat. Auxiliary valves are now produced with solid Delrin heads, eliminating this chance of leakage. 6) Remove any foreign objects. If diaphragm has been scarred at contact point with main valve seat, replace diaphragm. If main valve seat is scored or pitted, replace. All Delany Valves are equipped with renewable main valve seats, most now supplied in Delrin for extra durability. 7) Tighten.
WATER SPLASHES FROM BOWL	The pressure at the fixture is in excess of that set by the fixture manufacturer as an upper limit.	Install a pressure reducing valve in the supply line. Failing this, reduce the volume of water flowing through the flush valve by partially closing the control stop.
VALVE WILL NOT PASS ENOUGH WATER TO SATISFACTORILY SYPHON BOWL	<ol style="list-style-type: none"> 1) Control stop not completely open. 2) Seat guide for valves with $\frac{3}{4}$" supply or smaller has been installed in valve in error. 3) Insufficient volume of water is being supplied to valve due to low pressure or undersized piping, or both. 	<ol style="list-style-type: none"> 1) Open control stop wide. 2) Replace with seat guide for valves with 1" supply or larger. 3) Establish volume of water available by removing entire diaphragm operating assembly from flush valve, replacing cover, and flushing valve. This converts valve into a simple elbow. If adequate flush still cannot be obtained, water pressure or pipe sizes, or both, must be increased.
VALVE GOES OFF BY ITSELF	Water in upper chamber of valve has been syphoned out by demand from lower levels. When pressure is restored, valve flushes automatically.	Install diaphragm with non syphon bypass, available as special equipment for any Delany Valve. Consider increasing water pressure or replacing piping since system is in critical condition.
FLUSHING ACTION IS NOT QUIET ENOUGH	<ol style="list-style-type: none"> 1) High pressure is causing abnormal noise in water supply system. 2) Flush valve is not quiet type. 3) Turn-to-Silence equipment is not properly adjusted for maximum quietness. 4) Localized roaring noise of fixture may be contributing factor. 	<ol style="list-style-type: none"> 1) Install pressure reducing valve in water supply line. 2) Install Delany Valve with Turn-to-Silence equipment, standard at no extra cost. 3) See instructions for adjusting elsewhere in this literature. 4) Make quick test to isolate fixture noise from any valve noise. Place cardboard under toilet seat all but covering opening of bowl. Valve noise will then be readily identified. If fixture is noisy, install quiet action bowl.
VALVE LEAKS AT HANDLE	<ol style="list-style-type: none"> 1) No. 26 handle packing is worn, if valve is fitted with old style spring loaded handle. 2) No. 222-3 flexer has fatigued and ruptured. 	<ol style="list-style-type: none"> 1) Tighten No. 28L packing nut or replace No. 26 packing. For long range leakfree performance and economy, install Delany Valve with patented Rubberflex sealed handle unit, standard on almost all models. 2) Replace No. 222-3 part to regain new spring and sealing action. Good preventive maintenance includes simultaneous replacement of operating stem.
WATER LEAKS FROM AIR VENTS OF VACUUM BREAKER	<ol style="list-style-type: none"> 1) No. 427A rubber sleeve has ruptured from fatigue. 2) Vacuum breaker is being subjected to excessive back pressure by restrictive urinal or water closet. 	<ol style="list-style-type: none"> 1) Replace No. 427A part. Refer to "How To Service Vacuum Breaker" in the Marine Renewal Parts Folder, MV-3. 2) Open up flow control on urinal if such a device is provided. Also, flow rate through valve may be reduced at control stop. If condition persists, contact manufacturer of fixture for corrective action.