REBUILDER NEWS

Freudenberg NOK ™

Volume 1, Issue 2 / Third Quarter, 1993

from TransTec®

TransTec Teflon Sealing Rings Eliminate Seal Leaks in Mazda G4A-EL's

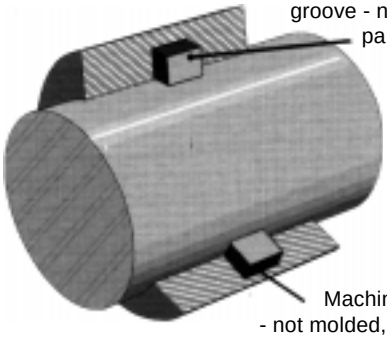
A Mazda G4A-EL comes back to you because the inner rotating sealing rings leak. You've installed them correctly, so what's the problem? Chances are, you've installed replacement seals that do not meet OEM specifications.

Most Teflon sealing rings are molded and intentionally designed to have a little play in them for controlled leakage. Molded sealing rings will have a tolerance of .005" at best. OEM specs for Mazda's G4A-EL transmission call for inner rotating sealing rings designed to fill the whole groove, not just part of it, and machined to a critical tolerance of .001". Specific applications include the four stator shaft sealing rings *(these are a chronic problem to rebuilders)*, TransTec #21232; output gear shaft ring, TransTec #21233; and forward clutch piston inner sealing ring, TransTec #21234.

If you're installing molded replacement seals, you're installing parts intentionally designed not to fill all the gaps they're intended to seal, and produced with far too sloppy a tolerance for these critical sealing applications. It's no wonder rebuilders have problems with these transmissions.

Teflon sealing rings installed as original equipment at Mazda's assembly plant are produced by NOK in Japan, a partner in Freudenberg-NOK, TransTec's parent company. TransTec packages the same OEM seals in its replacement kits and offers them ***exclusively*** to rebuilders.

No kit packager offers machine-cut seals for this application, and no kit packager has access to OEM parts like TransTec. Again, TransTec is first, leading the way in transmission technology.



Designed to fill the whole groove - not just part of it.

Machine cut - not molded, to an exacting .001" tolerance.

TransTec *Truth Squad*

In global politics, "misinformation" can be a useful tool in maintaining national security. In the transmission industry, however, incorrect technical information can be extremely costly.

In response to all the myths, false rumors, and incorrect information flying around the industry, we have formed the **TransTec *Truth Squad*** to dispel rumors, eliminate the "bull", and give you the cold, hard facts.

TransTec is the *only* kit packager who is also an OEM manufacturer, and whose parent companies spend $150,000,000 annually in worldwide R&D! The advantage of this is obvious - to assure that we have the right answers - to give you the right technical information. Whenever you see the Truth Squad *"No Bull"* symbol besides an article in ***Rebuilder News***, you can be assured that it's the truth; dispelling incorrect information given by non-credible sources.

A4LD Forward Clutch Cushion

In the A4LD, there is a cushion that goes inside the forward clutch piston. Some kit packagers refer to this as a "cushion seal". However, this rubber part is not really a seal, it is a cushion between the piston and clutch plates.

Potentially, with extended exposure to temperatures exceeding 350°, the rubber could harden, causing it to lose its ability to cushion, causing harsh drive engagement. It should therefore be replaced during a rebuild.

In 1990, there was a clutch plate change in the A4LD - they made the

Continued on page 2

Redesigned 4T60 Accumulator Seals Improve Sealing Effectiveness

As a result of field reports of accumulator seals wearing prematurely on the 4T60, TransTec has redesigned the seal to improve its sealing ability.

The wear problem had a number of causes, including soap film left by cleaning machines, piston pin wear, or accumulator bores being too smooth.

The OEM seals are much thinner than the groove in the piston, which caused the seal to wobble up and down. TransTec's newly designed seals are thicker to prevent wobble.

Also, the original seals were made out of a polyacrylate (poly) materials which was not very abrasion resistant.

The new seals are made out of Vamac™, which is a very abrasion-resistant rubber. The Vamac also swells slightly when exposed to transmission fluid, resulting in a better seal.

The new seals have been fully field tested, and will be included in all TransTec 4T60 kits with a date code of C93 or later.

Other suppliers have offered similar seals, but at an additional cost. TransTec is the first to include them as part of our basic gasket sets and overhaul kits.

Application	OEM #	Old #	New #
1-2 & 3-4 Shift	8635568	25041*	23000
Torque Converter Clutch	8658086	25050	23001
Input Clutch	8649773	25049	23002

Clutch Cushion...

clutch plates thinner, and added plates. This forced a design change in the cushion - it now had to be made thinner. So we have an early and a late design cushion.

The early cushion is TransTec **#25043** (OEM #D8ZZ-7B070-A) and the late cushion is TransTec **#25086** (OEM #F0TZ-7B070-A).

Other kit packagers supply only the early design cushion in their kits. But the problem is that if you put the early cushion in a late (1990-Up) transmission, there will not be enough clearance between the clutch plates and the piston, and therefore cause possible plate failure.

TransTec A4LD kits with a date code of F93 and later have appropriate cushions.

Kit Type	TransTec Kit #	Years	Includes Cushion(s)
Gasket & Seal with Cork & Rubber Pan Gasket	**1110**	**85-87**	**Early**
Gasket & Seal with Cork & Rubber Pan Gasket	**1193**	**88-Up**	**Both**
Gasket & Seal with Cork & Rubber Pan Gasket	**1206**	**85-Up**	**Both**
Gasket & Seal with German Gaskets, Viton™ Gov. Rings	**1254**	**85-Up**	**Both**
Overhaul with Cork & Rubber Pan Gasket	**2110**	**85-87**	**Early**
Overhaul with Cork & Rubber Pan Gasket	**2193**	**88-Up**	**Both**
Overhaul with Cork & Rubber Pan Gasket	**2206**	**85-Up**	**Both**
Overhaul with German Gaskets, Viton™ Gov. Rings	**2254**	**85-Up**	**Both**

TransTec NEW PRODUCT ANNOUNCEMENTS

For additional product announcement information, contact your local distributor.

6/93 *Extension Housing Seal for **Toyota A341E Transmission** used in **Lexus SC400 and LS400** TransTec **#29643** OEM #90311-42024*

7/93 ***Subaru 4-Speed 1988-Up** Overhaul Kit. Kits are in stock and ready for immediate shipment. TransTec **#2259***

7/93 *Axle Seals for **Jatco F3A** (3-speed) and **JF403E** (4-speed) transmissions used in **GM** and **Isuzu vehicles 1985-Up**. TransTec **#29641** OEM #97070182 (#90129860)*

7/93 *3L30 (TH 180C) kits for 87-Up **Post Office vehicles (LLV)** and 89-Up **Geo Tracker and Suzuki Sidekick** are in stock and ready for shipment. TransTec **#1269** (Paper, Rubber & Cork Kit) and TransTec **#2269** (Overhaul Kit). Tracker and Sidekick 2WD real seal not included. Order TransTec **#29630** separately.*

TransTec TROUBLESHOOTER

Dealing with Today's Mysteries of the Orient

By John Wozniak, TransTec Transmission Product Manager

How many times have you heard somebody talk about the "good old days" when work was uncomplicated, and a guy could run a trans shop without being hostage to the whims and fancies of automotive engineers...especially the ones in the Far East? You can probably remember when the hardest thing was the physical labor involved with a trans job.

It may be hard to believe, but those "good old days" were just 15 years ago! Then, only 10 different transmissions made up over 90% of the volume in a shop like yours. And the nice thing... you could look at a pile of them and immediately know which was which.

(Of course, you had to mess with all those balance weights in Chrysler torque converters. A heart-stopper of yester-year was in 1978 when the C-4 switched to thicker forward sealing rings. Sort of makes you wonder how we coped with humongus changes like that!)

And now? WOW!

In domestic transmissions alone, you have 32 "common" different ones to fool with. The imports add another 60 or so. All told, some 100 different trans are out there, waiting to make your life miserable.

To make it worse, as auto makers keep unveiling new models with the speed of light, the number of transmissions goes ballistic, too. Mid-year changes - once unheard of in domestics - are now S.O.P. And the Japanese change transmissions as if there was some sort of contest to see who can crank out the most in the shortest period of time. Logic be damned! Once you could afford to stock all the trans parts you'd ever need. Unless you know a secret back door into Ft. Knox, don't even think about trying that nowadays.

So these days you can't hardly tell one trans from the other, and even if you could, there's no practical way to stock the zillion parts you'd need.

Your Toughest Task of All

The really hard part of your job today is to identify exactly which transmission you're working on, so you can order the right parts. In this exercise in frustration, there's no such thing as being a little-bit wrong. It's like pregnancy, or what causes it.

With this article, I'm trying to help you work your way though the mystic maze of Japanese transmissions. First of all, these transmissions can drive anybody nutsy-cookoo, and information on domestic transmissions is readily available elsewhere.

In the "sidebar" with this article, you'll see why I lobby so strongly in favor of cataloging transmission types by vehicle, not by the transmission model designation.

How to Identify Which Trans You Have in Your Shop

For now ... take my word for it ... the best way to identify a Japanese transmission is by the vehicle, and the year. (I had to learn this the hard way, and I want to save you the grief.) And if you want a quick reference guide that tells you what goes in what, check the end of this article; I'll tell you how to get a Free copy of TransTec's Import Vehicle-to-Transmission Index.

Why Care about the Model Year?

Toyota's A140E transmissions show why you need to know the year as well as the vehicle. The A140E trans is in '86 Celicas and '86 Camrys ... but the Celica transmission has a different Overdrive Clutch setup than the "same" trans in the Camry. So if you are building an '86 A 140E you'll need to know which vehicle/year is involved before you can order a Master Kit that will work. (Camry and Celica trans matched in '87).

The build date of the car is found on the outer edge of the driver's side door.

Get in the habit of checking this plate before you order parts. Generally speaking, the Japanese use August as the new model month. A Japanese vehicle with a build date of 08/10/89 is considered a 1990 car. For obvious reasons, the build date is important with mid-year model changes, too.

The Big Pitfall in the Far-East Sky

I'll bet a million Rasbutniks that more wrong replacement kits have been bought for Acuras and Hondas

than for any other group, except maybe - for Mitsubishis. Its easy to see why.

Two- and three-speeds are nobrainers; the ugliness is with the fourspeed transmissions.

For starters, since 1983, Honda has produced 21 different four-speed transmissions, using 12 different axle seals and 14 different case gaskets. To

Honda/Acura
4-Speed Transaxles

Code	Model	Year	Clutch
CA	Civic	86-87	110mm
L4	Civic (2WD)	88-91	110mm
M24A	Civic	92-Up	110mm
AS	Prelude (Carb)	83-87	110mm
F4	Prelude (F.I.)	85-87	116mm
PY8A	Prelude	88-89	116mm
MP1A	Prelude	92-Up	120mm
AK	Accord	83	106mm
AS	Accord	84-85	110mm
F4	Accord	86-89	116mm
APX4	Accord	91-Up	116mm
CA	Integra	86-87	110mm
PI	Integra	88-89	110mm
RO	Integra	90	116mm
MPRA	Integra	91-Up	116mm
G4	Legend	86-87	116mm
L5	Legend	88-89	116mm
PL5X	Legend	90	116mm
MPYA	Legend	91-Up	125mm
MPWA	Vigor	91-Up	116mm

Figure 1

cover those 21 different trans, you need to know which of 14 different Master Kits to order.

Try These Identifying Tricks

Until everyone starts cataloging transmissions by vehicles/year there are a couple of ways you can identify the unit.

If it hasn't been torn off before you can check it, there's a paper tag attached to the unit that has a two-letter or a four- letter code. Look at Figure 1 where I've charted all the codes. I've also charted clutch size for each transmission. Until 1989, the clutch size was a pretty good way of identifying the trans. After then, different models use the same clutch size, so that doesn't work so well anymore.

Mazda... Short, but Not Sweet

In typical fashion, Mazda balanced the benefit of building only five four-speeds by adding complexity that boggles the mind. It starts off easy enough, but don't let that fool you; they more than make up for it, as you'll see.

The Jatco 4N71B is the most common rear drive found in Mazdas. It is nothing more than a 3N71B with an overdrive section stuck on the front. (Mazda's simplicity ends here.)

Mazda also built a version of this trans, but used a different valve body in what's called the N4A-EL. Here you'll find valve body gaskets and accumulator pistons. Guess what? You need a Master Kit that's different from the one developed for the 4N7 I B.

And so you know when and where To watch for this one, Mazda put the N4A-EL in '88-91 929s and '89-92 RX7s.

The most recent rear-drive unit is Mazda's R4A-EL which Nissan calls the RE4R01A. (To add to the confusion, Jatco - who makes the units in the Mazdas and Nissans - has their own designation for this transmission; they call it a JR401E...which is a bit larger than the 4N71B. Aren't you glad you were curious about all that?)

Technology, New Style

This unit represents the latest in Japanese transmission technology. You'll find it in '92-up 929s, '93-up RX7s, '89-up (V-6 only) MPVs, and '90-up 4x4 trucks.

Most 4N71B and R4A-EL kits are supplied only with the Nissan rear seal. The other kits are supplied with Nissan *and* Mazda rear seals.

In front-drive Mazdas you'll find one of two trans; the heavy duty G4A-EL or the light-duty F4A-EL.

The "G" model first showed up in the '86 626 (MX6). In '89 it was also used in the Ford Probe. An hydraulically-operated version found its way into '88-89 323s.

The "F" model surfaced with the '90 323. Starting in '91, the Ford Escort and the Mercury Tracer began using this unit, and the '92 Mazda MX3 also uses it.

The easiest way to tell the "F" from the "G" is to look at the pan. The "F" has only a bottom pan but the "G" has a side pan as well as a bottom pan.

NOTE: In 1993, the "G" model went through drastic design changes, and will now require a different Master Kit. (Just what you need; *another* Master Kit!)

Since 1990, all Nissan rear-wheel drives are using a version of the RE4R01A trans. (Yes ... that's the same trans used in the Mazdas mentioned above). This unit first showed up in Nissan four-wheel drive '88 Pathfinders and Pickups. Some folks still call this the "Pathfinder Transmission", which would please James Fennimore Cooper's fictional character of the same name.

But be alert: there are *two other versions* of this trans lurking around out there. One version is found in '90-up 4-cylinder Pickups. It's the hydraulically-controlled RL4R01A.

Here's A Big Deal For You

The other, a heavy-duty version

called the RE4R03A, has to be the biggest transmission the Japanese ever made. It shares the R01A's design, but everything about it is huge. You'll encounter this biggie in turbocharged 300ZXs and Infiniti Q45s from '90-up.

There's even a different version, the Jatco JR403R, to entertain you guys working on trucks. This is a heavy-duty R03A with an even larger case and PTO setup. You'll find this one in '88-up medium-duty trucks from Isuzu, Nissan, and even GMC/Chevy.

Don't Get Carried Away Just Yet

Hold tight, because Nissan isn't through yet. They're in the middle of updating their front-drive units, and you know what that means.

Starting with the '89 Maxima and the '90 Stanza, Nissan added electronic controls to the RL4F02A, and gave it a new name: The RE4F02A. Watch these little hummers, because these electronic versions don't take the same kit.

Furthermore, if you wind up working on a '91-up Maxima with a DOHC engine you'll see Nissan's newest "heavy-duty" trans, the RE4F04A. It is simply a front-drive version of their newest rear-drive trans.You'll also find this baby on the Quest van and on Mercury's counter-part, the Villager.

Thankfully, its not too hard to tell this one from RE/RL4F02A units. That's because this one has a *bottom* oil pan, the others have a top pan. I won't be surprised if this unit replaces all RE4F02As in the next few years.

Three-Speeds Go Hydraulic

To replace three-speeds in smaller cars, Nissan designed an hydraulically-controlled light-duty version and called it the RL4F03A. You'll see it in '90-up models of Nissan's smaller cars.

But of course...not quite in all of them. Nissan indicated they planned to phase out the three-speed RL3F01A transmission after the '92 model year.

The Mits Give Fits

If your eyeballs are still functioning after all the above, take a deep breath and try to stay with me as we work our way through the Mitsubishi situation... a transmission shop's equivalent of The Dismal Swamp.

Mits has made more different versions of their front-drive units and used them in more different vehicles than anybody else. By a long shot.

Lets start somewhere around '89. That's back far enough for anybody. Besides, Mits made wholesale changes in their transmissions about then, and forced the need for a whole bunch of new kits.

Dash-it-All Anyhow!

These changes are in transmissions known as "Dash-5" units...which simply means that when Mits made the changes, they added a -5 to the end of the transmission number.

For example, the Mits KM175 was transformed into the KM175-5. That system works as well as any Japanese system, except when Mits applied it to their KM177 transmission. Mits designated that unit - for reasons probably best left unanswered - the KM177-8.

The reason I used the words "somewhere around '89" is because all Mits vehicles did not sport the updated transmission at the same time. By and large, Mits updated sometime in mid-'88.

By contrast, Chrysler is easy. All Chryslers used the new transmission beginning with the '89 model year. Hyundai updated the Excel in '89 but didn't change the Sonata until the next year.

As you have figured out for yourself, beware the '88-'89 vehicles.

Sink Your Teeth Into This Tip

Once you get inside a Mits trans from this era, count the teeth on the steel low & reverse. If you count only 20 teeth, you're looking at a new unit. If you count 24 teeth, you're looking at an older unit. The new ones also use metal gaskets instead of paper gaskets.

Now before you get cocky and think that knowing early from late is all you need to order the right parts, think again.

Beginning in the '90 model year, Mits switched to a totally new transmission numbering system. Take a look at Figure 2. There I've shown you how old numbers and new numbers mesh.

Imagine! A Mits Improvement!

To be honest, the new numbering

Mitsubishi Transaxle Model Designations Figure 2

Old	New	Speeds	Engine(s)	Pan Bolts
KM171-5	F3A21-2	3	1.5L/1.6L	12
KM172-5	F3A22-2	3	2.0L	12
KM175-5	F4A22-2	4	1.8L/2.0L/2.4L	12
KM176-5	F4A21-2	4	1.5L/1.6L	12
KM177-8	F4A23-2	4	3.0L	13
———	F4A33-1	4	3.0L/2.0L/Turbo	14
———	W4A32-1	4	2.0L/2.4L	14

system makes far more sense than the system it replaced. And Mits is smart enough to stamp the trans numbers on the top of the case to help you make an exact identification.

Since it may be a bit difficult to see that stamped number while the trans is still in the vehicle, here are some other things to look for.

First, figure out if you are looking at a three-speed or a four-speed. All Mits four-speeds have an Overdrive button on the shifter, so those aren't hard to spot.

If you have a three-speed and the vehicle is not a Colt Vista Wagon with a 2.0L engine, you're looking at one of those "Dash-5" units... the KM171-5 (F3A21). The Vista uses a heavy-duty version called a KM172-5 (F4A22).

By spotting the Overdrive button, you'll know you've got a four-speed, but you'll have to do a bit more to know *which* four-speed it is.

Figure 3 **A40 Series Model Designations**

Tag Number	Toyota	Volvo	Mitsubishi/ Chrysler	Isuzu
3-Speed				
03-55	A40	AW-55		03-55
03-56	A41			03-56
03-75	A43			
BW-55		BW-55		
4-Speed Overdrive "D" Models				
03-50	A40D 77-82			
03-51	A40D 83-85			
03-70	A42D (1)	AW-70		03-70
03-71	A43D	AW-71		
03-72	A44D		AW372/KM148 (2)	
4-Speed Overdrive with Lock-Up "DL" "DF" Models				
03-70L	A42DL	AW-70L		03-70L
03-71L	A43DL			
03-72L(3)	A44DL/DF A45DL/DF	AW-72L	AW372L	
4-Speed OD with Lock-Up & Electronic Shift "DE" Models				
03-71LE	A43DE			
03-71LE	A46DE			

Notes: Toyota, Volvo, Mitsubishi and Isuzu models are identical with exception of rear seal and bushing.
(1) A42D not used in Toyota vehicles sold in U.S.A.
(2) AW372 and KM148 are identical AW372 (2WD) KM148 (4WD)
(3) A44DL/DF and A45DL/DF are identical with exception of overdrive gear ratio "DL" (2WD) "DF" (4WD).

It All Adds Up If You Do

Look at what you learn when you count pan bolts. The F4A33-1 trans has 14 pan bolts. It is used with 3.0L V-6 engines, and with 2.0L turbo-charged engines. The newest trans in the series, it replaced the 13-bolt KM177-8 (F4A23-2).

You've got a choice with a trans having 12 pan bolts. There's a "light-duty" KM176-5 (F4A21-1) and a "heavy-duty" KM175-5 (F4A22-2).

And Don't Forget Engine Size

What you need to know here is the engine size. Both the 1.5L and the 1.6L engines are hooked up to the light-duty 176-5. The heavy-duty 175-5 goes with the 1.8L, the non-turbo 2.0L, and the 2.4L engines.

The newest front drive is the W4A32-1. This a simple trans, since its an all-wheel drive. All Mits did was take their front-drive trans and added a transfer case; Schazzam! an all-wheel drive.

You'll find it as an option on 91-up Dodge Colts, Plymouth Lasers, Eagle Talons, Mitsubishi Galants, Eclipses, and Expos.

Rear-drive Mits vehicles are the only easy ones in their whole bunch. All these vehicles either use a Chrysler trans - which anybody should be able to identify - or a Toyota A40 Series trans. I'll tell you about that one in the next section.

Toyota and the Famous A40

Toyota's A40 Series trans is probably the most popular Japanese transmission ever made. Versions of it are still current in Toyota's Previa Van and two wheel drive trucks with 4-cylinder engines. Mitsubishi, Chrysler, Isuzu, and Volvo are also using it in one form or another.

The best way to identify which of the many versions you have on your bench is to look at the number stamped into the metal tag that's located on the left side of the transmission.

Check Figure 3 to see tag numbers and all the vehicles where you'll find these transmissions.

If you combine the info in Figure 3 with the model year of the vehicle, you should come up with what you need to order the right parts every time.

Here Comes the New Boss

But the A40 Series trans is on the way out, even at Toyota where the A340 Series has almost completely

Figure 4 **Toyota A240 Series Transaxles**

Trans	Vehicles	Clutch Plate Thickness	
		Direct	Intermediate
A240L	Corolla 1985-92	.067"	067"*
A240E	Corolla FX 87-89/Geo Prizm (Nova) 85-92	.75"	.75"
	MR2 W/O supercharger 1987/88		
A241E	MR2 w/supercharger 1988/ All 1989-Up	.75"	.75"
	Celica GTS 1990-Up	.75"	.75"
A241L	Celica ST 1990-Up	.067"	.067"
A243L	Celica GT 1990-Up	.067"	.067"*
A244E	Paseo 1991 -Up	.067"	.75"
A245E	Corolla/Geo Prizm 1993-Up	.75"	.67"

Note:Clutch Plates Changed to .075" Thick in 1992

replaced it's ever-popular ancestor. The A340 Series has a 19-bolt pan and is already being produced in four different versions.

The A340E is the standard two-wheel drive version that's found on most Toyotas. A heavy-duty version, the A341E, lives in Lexus V-8s.

You'll run across two versions, the A340H and the A340F, when you get into four-wheel drive Toyotas. Naturally, the two versions are almost identical; the only difference is in the transfer case.

Can a Transfer Case be a Closet Trans?

The "H" model has a unique transfer case that works like an automatic transmission and even shares the same fluid. If you find an oil pan on the transfer case, you're facing one of the "H" versions.

Slips and chatters can be caused by problems in the "H" version transfer case. And any contamination in the A340H trans will wind up in the transfer case. So, when a vehicle with one of these "H" units comes into your shop, you'll have to work on the transfer case as well as on the trans itself.

The A340F is the very same transmission, but uses a conventional transfer case.

What's Up Front, Doc?

Front-drive units are a little bit more complicated ... but not all that bad.

Three-speeds are basic, and all the parts are pretty much the same. But if you've been a bad boy and are looking up the tailpipe of a diesel-powered Corolla, you'll have to order axle seals as separate items because you're not likely to find those seals in any kit.

Toyota's A140 Series are the most popular of their group of front-drive transmissions. They look like the three-speeds, but have an overdrive unit bolted to the back.

You'll find the A140s in '83-85 4-cylinder Camrys, in '86-89 Celicas, and in '86 MR2s.

You'll find a redesigned Al40 in '86-up Celicas. The redesign deals mostly with the overdrive. Since '87, the same redesigned trans has been put in Camrys, too.

Tsch, Tsch Department

Some folks who should know better call this redesigned trans a "A142-E" or a "ST161" or even, a "ST162". *Good grief!* For the record, this is still officially designated the A140.

In '88, a V-6 option was first made available on Camrys, and to handle the added power, Toyota developed the heavy-duty A540E. You'll find it in front-wheel drive Lexus automobiles.

The Versions March On!

And while last in this article - but by no means least - Toyota's A240 Series has been avilable in more versions than any of their other transmissions.

To identify this series, look for an 18-bolt pan and a split case. The different versions use different thickness friction plates in direct and intermediate locations. When you look at Figure 4, you'll see what version of this unit is in which vehicle, and you'll see the different friction plate thicknesses.

As I was Saying Before All This...

I suspect that by now, you'll agree with my warning at the start of this article that ordering the right parts is your hardest job these days. I've tried to help you do just that, by giving you the information you need ... information you won't find in any other single source.

You just might want to save this article in some handy place, easy to scan when you face one of the Mysteries of the Orient.

For a Free Copy of TransTec's Import Vehicle Automatic Transmission Index, Write To:

TransTec
P.O. Box 556
Milan, Ohio 44846

IT'S TIME TO TRASH THE IMPORT CATALOGING SYSTEM

Transmission cataloging has always been done by transmission type, not by vehicle, much less by model year of the vehicle. The old domestic system, which worked so well in the past, must be scrapped for use on imports before you and I are driven to drink.

When cataloging by transmission began, it made sense because everybody knew what transmission they had. It was duck soup to order the right parts to fix aTH350 and it wasn't necessary to add that the trans fit on a 1973 Chevy.

And even with today's domestics, the old cataloging system still works, almost. Most guys can tell a TH440-T4 from a TH125-C. Because of all the mid-year model changes, you might have to check a build date here and there. But the basics still do the job.

Not so with the Imports!

There are not only tons more import transmissions to deal with, a lot of them look identical on the outside. You'd have to be really good to see the difference between a Toyota A240L and a A241L if both sat on your bench at the same time.

What Counts is Inside

But look inside those two transmissions, and the world is very, very different. The A240L uses .067" thick direct and intermediate frictions, but the outwardly almost identical A241L uses .075" direct and intermediate frictions.

Order the wrong kit and you've added at least another day before you can deliver the car to your customer. That will please your customer immensly, even if - as many shops do - you blame your supplier for sending you the wrong kit.

If cataloging was set up by vehicle instead of by transmission type, you could order a kit for a '91 Celica ST and receive the right parts, including the thicker frictions, to fix the A241L in that year and make.

A Trans By Any Other Number Is Likely The Same Thing

To further complicate things, often an import transmission is used in a multitude of car makes and models. For their own internal procedures, the car makers designate these transmissions with their own numbering systems, and pretend the original designation no longer applies.

In a '90 Mazda 626 you'll find a G4A-EL transmission. In a '90 Ford Probe you'll find a 4EAT-G. Guess what! Those transmissions are identical. (Or, just read the article and look at the Jatco/Mazda/Nissan designations for the same trans!)

During the past several years, I've brought up these problems to any parts salesman I could corner. The usual answer those guys give me is that you rebuilders would never sit for a change to cataloging import transmissions by vehicle/year. I think those salesmen are giving you guys a bad rap.

Look what would naturally happen.

When you order parts from your local supplier or from the Dealer, you'll give the counterman the year, the make, and the model of the vehicle you're working on, and you'll throw in the build date if that's necessary. No big deal.

Since its no more complex than that, and you could relax knowing you are ordering the right parts the first time, what's wrong with changing how import transmissions are cataloged to make it even easier?!

If ordering parts for a Nissan RE4R01A was as simple as ordering parts for a TH350, there'd be no need to change.

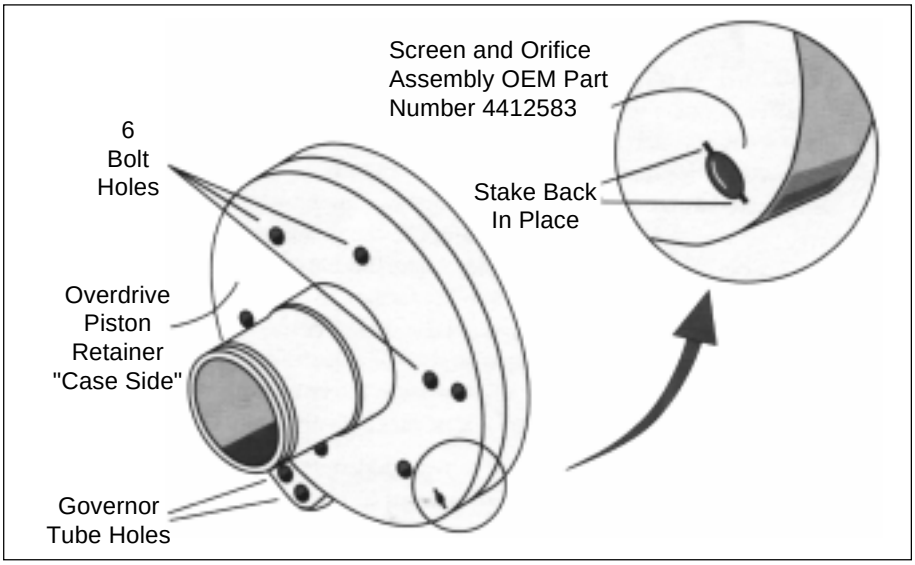
But just try it once, and I'll bet you become a convert to a new cataloging system for imports.

Chrysler A500 and A518 Screened Orifice

Chrysler's A500 and A518 transmissions have a screened orifice in the overdrive piston retainer.

TransTec is now including the screened orifice required in the overdrive piston retainer of Chrysler's A500 and A518 transmission in all overhaul kits. On early transmissions, this screen was not staked in place and is often missing, which can cause overdrive clutch burn-up.

All TransTec kits with a date code of G93 or later will contain this screen. TransTec #87079 (OEM #4412583).



4T60 TCC Filter Screen

The torque converter clutch (TCC) screen in the 4T60 (TH440) is not only a filter, but also an orifice for TCC signal oil to the solenoid. It often may become clogged, torn or deteriorated, resulting in no converter lockup. Or if the old screen is left out and not replaced, the torque converter will lock up as soon as it hits second gear. Therefore, we recommend that it should *always* be replaced during a rebuild.

TransTec was the first to include this TCC screen in rebuild kits - until then, it had to be purchased separately. Beginning in 1992 (kits with a date code of J92 and later), TransTec included it in 4T60 and 4T60-E gasket and Seal and Overhaul Kits.

Other kit packagers have since followed suit this year. In fact, one even created a magazine ad that bragged about adding the filter screen to their kits this year because "rebuilders told them they needed it"! At TransTec, we already knew it was needed and didn't have to be told.

The TransTec filter screen part number is #87076 (OEM #8658060), and is included in the following TransTec kits:

4T60 1995-UP

Kit #	Kit Type	Pan Gasket
1109	Gasket & Seal	Cork
1203	Gasket & Seal	Farpak®
DP1109	Gasket & Seal	Duraprene®
2109	Overhaul	Cork

4T60-E 1991-UP

Kit #	Type	Pan Gasket	Comments
1223	Gasket & Seal	Molded Rubber	Includes Quad Rings
DP1223	Gasket & Seal	Duraprene®	Without Quad Rings
2223	Overhaul	Molded Rubber	Includes Quad Rings and Vespel® Rings
DP2223	Overhaul	Duraprene®	Without Quad Rings

Appearing Soon

A TransTec representative will be at the following "Tech Seminars"

Date	City	State
August 26-28	Las Vegas	Nevada (Big T Show)
September 18, 1993	Detroit	Michigan
September 25, 1993	Charlotte	North Carolina
September 25, 1993	Nashville	Tennessee
October 8-10, 1993	Orlando	Florida (Powertrain Industry Expo)
October 16, 1993	Pittsburgh	Pennsylvania
October 23, 1993	Wichita	Kansas
October 30, 1993	Toronto	Canada

TransTechnical Bulletins

4T60 and 4T60E Channel Plate Gaskets

TransTec is changing the gasket material used for the 4T60 and 4T60E channel plate gaskets in its on-going effort to improve Sealing effectiveness. The current gaskets used are OEM material and work fine under normal conditions, however, there have been reports of the upper channel gasket blowing out. We feel in the few cases where this happens, it is not due to the gasket itself, but to other factors. A warped case or channel plate, or improper torque on the bolts can cause gasket failure. Higher than normal line pressure is another reason for this failure. High pressure can be caused by an improperly adjusted modulator or sticking valves.

This change in material should provide added insurance against gasket blow out. The new material has been thoroughly tested and has much better crush strength and compressibility than the current material being used.

The five gaskets affected by this change are listed below. The part numbers will remain the same. As current stock is depleted, they will be replaced by the new gaskets.

Application		TransTec #	OEM #
4T60	Channel Plate Upper	12211	8649196
4T60	Channel Plate Lower	12212	8649830
4T60	Modulator Port	12213	8656002
4T60E	Channel Plate Upper	12488	8668064
4T60E	Channel Plate Lower	12500	8651615

4L60 (TH 700-R4) Valve Body Gaskets

There have been several field reports of transmission failure due to rebuilders installing the wrong valve body gaskets on 4L60 transmissions. There are two sets of gaskets for this transmission. The early gaskets fit '82-'86 transmissions and the late gaskets fit transmissions from '87-up.

Some rebuilders are incorrectly assuming they have an '86 or earlier transmission because it has no auxiliary valve body. Many early '87 transmissions did not have an auxiliary valve body, but they still use the late valve body gaskets. Installing the early gaskets on these transmissions will block the 3rd clutch exhaust hold in the separator plate and cause clutch or band failure.

Checking gaskets against the separator plate is a good rebuilding practice which, if followed, would prevent costly transmission comebacks.

4T60E Valve Body Gaskets

General Motores has changed the hydraulics on the 4T60E transaxle for 1993. The valve body casting, valve body spacer plate, valve body gaskets, and channel plate castings were all changed and will not interchange with the '91-'92 parts.

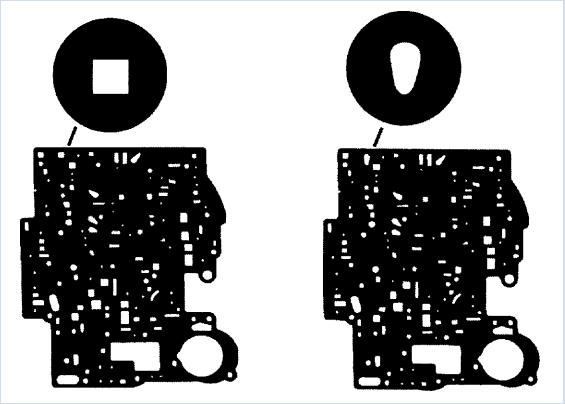
Part numbers for early and late gaskets are detailed in the chart. Taskets are easily identified by the OEM part number, ink stamped on each gasket. All TransTec kits with a date code of F93 or later will have the new gaskets included.

	1991-92	1993
Spacer Plate to Valve Body Gasket	TT #12502 OEM #8678762	TT#12628 OEM #8682281
Spacer plate to Channel Casting Gasket	TT #12503 OEM #8678761	TT#12627 OEM #8682280

4L60 Valve Body Gaskets '87-up

Once again, General Motors has changed the hydraulics on the 4L60 (TH700-R4) transmission For 1993, a checkball was added to the valve body and a hole to the separator plate to orifice feed oil to the reverse input clutch. This made it necessary to change the upper and lower valve body gaskets.

The previous gaskets, TransTec #12281 (OEM #8667232) and TransTec #12559 (OEM #8680758), had a square hold at the location shown below. The new gaskets, TransTec #12617 (OEM #8681339) and TransTec #12618 (OEM #8681351), have a tear drop shaped hole instead of a square hole. They will retrofit back through 1987. The old gaskets can not be used on 1993 model transmissions. All kits with a date code of #93 or later will contain the new gaskets.



Old Gasket New Gasket

TransTechnical Bulletins

C-6 Forward Clutch Inner O-Ring

TransTec has received quite a few calls concerning the forward clutch o-ring on the C-6. Most of the calls refer to a blue "so called" high-temperature o-ring found in kits from other packagers. This o-ring is made of polyacrylate with a blue Teflon coating.

In 1990, Ford changed the o-ring from nitrile to polyacrylate (OEM #E9TZ-7A548-A). TransTec updated to polyacrylate in June of 1991 (TransTec #15232).

In the 1968-up kits, there are two of the same size o-rings required. The other o-ring is for the early servo release. TransTec changed **both** o-rings to polyacrylate, eliminating the need for any color identification on the forward clutch inner o-ring.

All kits with a date code of F91 or later will include the polyacrylate o-ring(s).

4T60E TCC Orifice Screen

The 1993 4T60E transaxle had numerous changes made to the valve body and related parts. One of these changes was enlarging the TCC solenoid hole in the spacer plate to accept a TCC orifice screen. TransTec #87076 (OEM #8658060). This is the same screen used in the 4T60 transaxle. TransTec was the first to supply this screen in 4T60 kits, and we will add it to all 4T60E kits to cover the 1993 transaxles. All kits with a date code of F93 or later will contain this screen.

Who is Freudenberg-NOK?

The TransTec name is certainly not a new one in the transmission industry - rebuilders have been trusting TransTec kits for years as having the highest quality contents in the industry. The Freudenberg-NOK name, however, may not be so familiar to you. You may not be aware of the advantages of using a kit packaged by an OEM manufacturer.

Having the Freudenberg-NOK technical and engineering resources to draw from, plus having kits that include parts originally produced for the OEMs by Freudenberg-NOK, gives TransTec kits a big advantage. Bottom line: TransTec is the *only* kit packager who is also an OEM manufacturer.

An example of what all this means to you, the rebuilder, is that when you rebuild a 4L80E, 4T60E or AODE with a TransTec rebuild kit, it contains the exact same molded rubber pan gasket that Freudenberg-NOK manufactures for GM and Ford for their production lines.

Formed in 1989 as the North American Partnership between Freudenberg & Company of Germany and NOK Corporation of Japan, Freudenberg-NOK is the largest U.S. manufacturer of precision molded seals. Globally, Freudenberg (Gennany) and NOK (Japan) combined are in the top ten rubber manufacturers in the world.

Headquartered in Plymouth, Michigan, Freudenberg-NOK is a development partner with all of North America's automotive OEMs, and globally provides its customers with leading edge technology from Europe, the Pacific Rim and North America.

Freudenberg-NOK operates 14 major facilities in North America including Canada and Mexico. A producer of precision seals, molded rubber and plastic products, vibration control components and automotive rebuild kits, Freudenberg-NOK has become well known for its capabilities as a systems supplier for automotive, appliance, aerospace and heavy-duty equipment applications.

Much of Freudenberg-NOK's success stems from its product design and material formulation expertise. With over 2,000 technical specialists worldwide, and a combined *$150 million* spent annually on Research and Development, Freudenberg-NOK consistently gives its customers innovative, peek perfoming products.

Freudenberg-NOK is the clear front runner in applying the principles of lean systems under a program called Growtth (Get Rid of Waste Through Team Harmony). This has introduced new levels of productivity to the automotive supplier community, as well as automotive OEMs. Through the Growtth program, all company employees have been trained in lean manufacturing techniques, and have adopted continuous improvement as a part of their daily culture. Lean systems is a key ingredient in Freudenberg-NOK's success story.