

DEALER

LEVEL

TRAINING

PRESENTATION GUIDE

**HIGHLIGHTS OF
VOLKSWAGEN
MAINTENANCE**

**PART II
AUTOMATIC TRANSMISSIONS**

**HOW TO USE
VOLKSWAGEN OF AMERICA
SERVICE TRAINING FILMSTRIPS**

The purpose of these training aids is to help you improve specific skills. As you know that "training aids" are just "aids" and their value is directly related to how you use them. They have been prepared with you in mind, and we suggest that you read these suggestions for use, carefully, and tailor the proposed format to your individual needs.

The format of using a visual aid, to see and hear the training problems first, and then actually performing (on the job) the skills taught, is a highly effective one. The service training filmstrips have been produced in this format, and the records are banded (spaced between sections) for the purpose of using the "seeing" and "doing" method of training.

A "Presenter" Is Required

The program should be run by a qualified person, as Presenter.

The Presenter should be fully prepared and should take charge firmly, seeing that all arrangements are made in advance.

If the Presenter is not qualified to answer technical questions, he should have someone present who is. Questions should be invited during the "work breaks".

Preview the Filmstrip

The Presenter should always see and hear the sound filmstrip *before* presenting it to the group.

He should know what the film covers, and what vehicles and equipment he will need to have standing by for the "work breaks".

Check the Equipment

You have available a DuKane filmstrip *projector* (sound type), and a *screen*. You should also have available an *extension cord*, and a spare *projection bulb*. Your equipment may include an *extension speaker*, which provides sound at the front of the room.

The projector has a "manual advance cord" with a button that you press to advance the film to the next frame. You will want this, even though you will run on "automatic".

You use the manual advance to advance the film from the focus frame to the first blank frame. From that point on, the projector advances automatically. For your convenience, instructions for this are printed on the record.

IMPORTANT — Check out the equipment at least a week before the showing date. This will give you time to get repairs or replacements, if needed. Be sure everything is in working order.

At the same time, check that the *filmstrip* and *record* to be used, are available.

Operation of Projector

Read the DuKane directions, or have somebody show you how to operate the projector and the sound apparatus.

Put the film in and start the record several times, so you can do it expertly.

The voice on the record is synchronized to the pictures by a silent signal in the sound track. Your equipment is the automatic type and will advance the film automatically.

Operation is simple and reliable. You are not likely to have any difficulty if you get familiar with operation in advance and know where the controls are.

Be certain the film matches the record. They are both labeled. The shipping carton is also labeled, and is used as a library-type storage container.

These are hi-fi records. Protect them from dust, dirt and scratches. Do not touch the grooves! Hold by edges and the center area. If necessary, dust with soft, lint free cloth. Keep records in their covers. Avoid heat. Store vertical, with the film in the original shipping carton.

After showing a film, it will be automatically rewound for the next showing. See DuKane instructions.

Preparing for Showing

This is a check list you may find handy:

1. Decide where people will sit and where screen will be.
2. Set up screen and projector. You will need a table.
3. See that nobody will trip over cords.
4. Test how room can be darkened. Who will turn lights on and off?
5. Will the room be quiet enough at the time of showing? Who will answer the phone or take care of other interruptions?
6. Will the room be comfortable? Check heat, ventilation, air conditioning, smoking needs, if permitted.
7. Everything ready for "shop breaks"? Right vehicles? Will they be warmed up if necessary? Tools and all equipment handy? Will light, exhaust fan, etc., all be available? (Your showing may be outside regular hours.)

Before the Meeting

Thread the projector. Project the FOCUS frame. Be sure film is right side up and at the beginning. Adjust projector and screen to get best size picture. Make sure switch on rear of projector is in automatic position.

The filmstrip is made with FOCUS, a dark frame, then No. 1. When you are finished with FOCUS, advance to the dark frame by using remote button. Instructions for this are printed on the record.

When ready to start, have the machine and sound warmed up, turntable revolving. Place the needle at beginning of record. This will start the film going, and synchronize it automatically.

Plan the Schedule

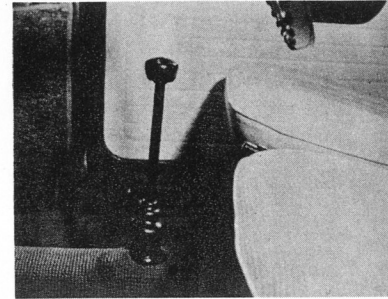
Know how long your program will take, and make out a schedule showing when each "shop break" should end. This will help you stay reasonably on time.

Introduction

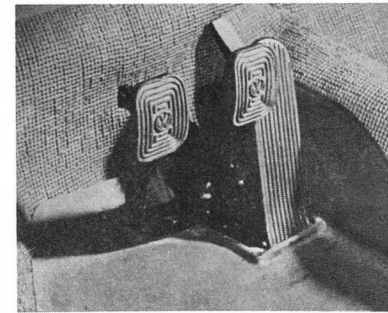
People like to know what is going to happen. Explain the program, saying something like this:

"We're going to see a VW sound filmstrip. I think you will enjoy seeing it. During the film we'll take some "shop breaks", and go to the shop to work on actual vehicles...then we'll come back to see more of the film. The whole session will take about minutes. If there are any questions, please ask them during the breaks. All ready? Lights out, please."

The remaining parts of this booklet contain a printed version of the filmstrip and record. The presenter should use this as a guide while following the actual filmstrip.



Here's a familiar sight—the manual shift lever, long standard in millions of Volkswagens,



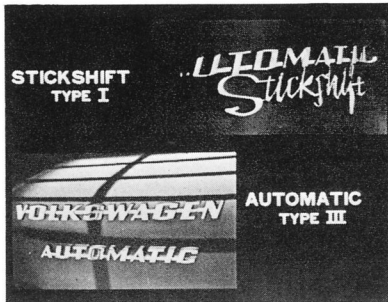
with its companion, the clutch pedal. But times change. VW's change—they improve.



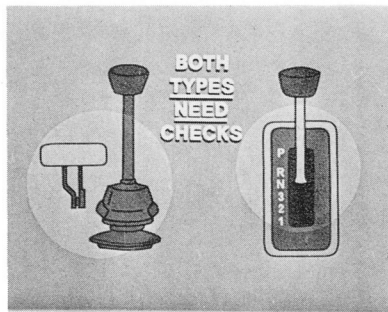
This is Part Two of our series on VW Maintenance—the job you do that *keeps* the customer satisfied, brings them back to your dealership to be serviced.



You've probably seen this VW advertisement...and the TV commercial...that tell about *automatic* shifting. Which is what we're going to talk about now.



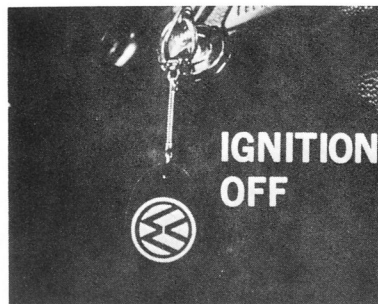
We'll take a good look at the Automatic Stickshift, and at the fully Automatic Transmissions, important VW developments you'll be seeing a lot more of from now on.



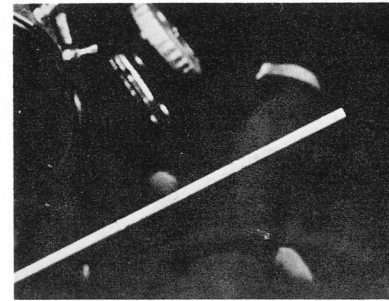
As you're well aware, both transmissions require checking during maintenance. Let's start by discussing the Automatic Stickshift.



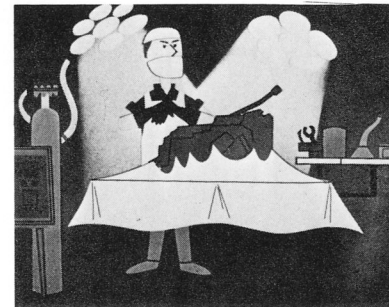
The initial step is simple—but important—to make sure that there is the right amount of Automatic Transmission fluid, usually called ATF, in the Reservoir—not too much, not too little.



And when checking the level, the engine must *not* be running.



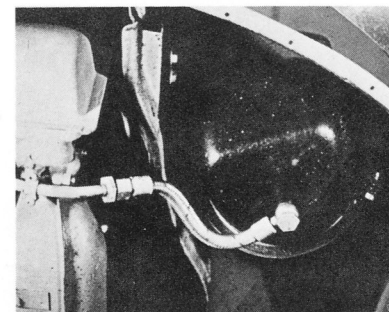
The correct level is between the two marks on the dipstick. If there's too little fluid, some must be added—but add it gradually, checking the level as you put more in to be sure you don't overfill it. If there is fluid above the top dipstick mark, some must be drained out.



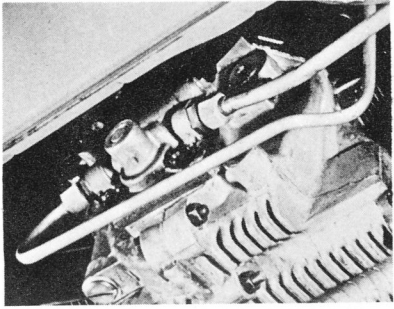
Incidentally, any time you even *begin* to service a transmission, remind yourself that automatics are fine, precision devices. Like a surgeon, you need to take precautions against contamination. See that no dirt can fall in. To wipe the dipstick, use clean, lint-free material,



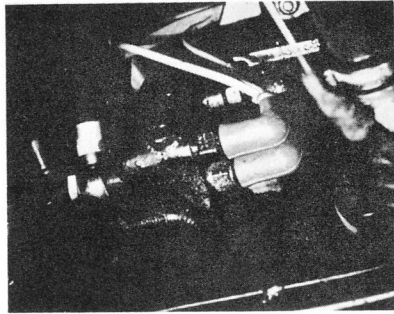
and be sure any fluid you put in is an approved type. That means the word "dexron" and the letter "B" followed by five digits must appear on the can.



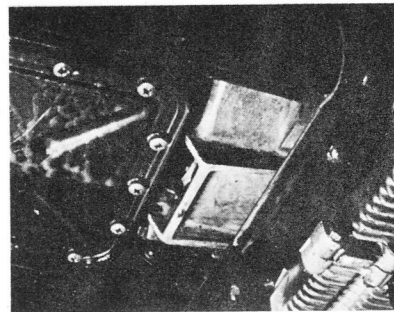
You want to inspect your "patient" too. Take a thorough look for leaks—around the tank,



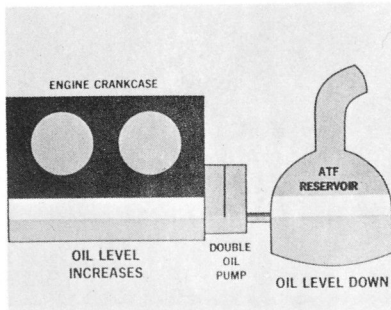
lines and fittings,



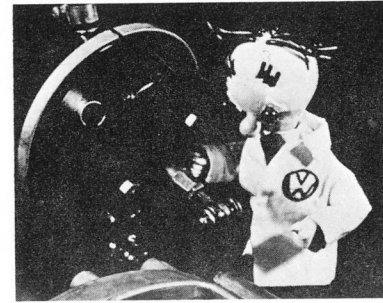
temperature switches. . .



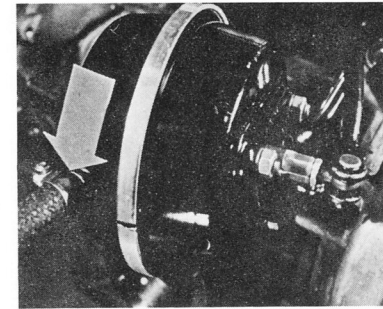
. . .and the torque converter. If the dipstick showed the fluid was low, there is extra reason to suspect a leak—but check with care in *every* case. A leak may be small—perhaps just beginning. Careful inspection will detect it, and you can then take whatever steps are necessary to stop the leak.



If the ATF level is low and no leaks are visible, there is a possibility that the ATF is leaking into the engine crankcase through the double oil pump. So check the engine oil level to see if it is increased.



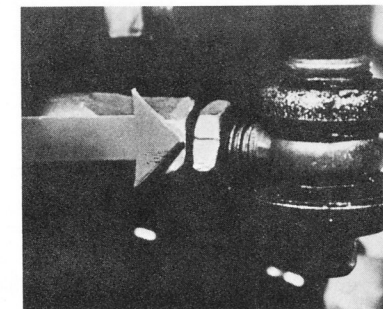
The next step in your servicing involves checking the adjustment of the vacuum operated clutch linkage. Here's how you go about it.



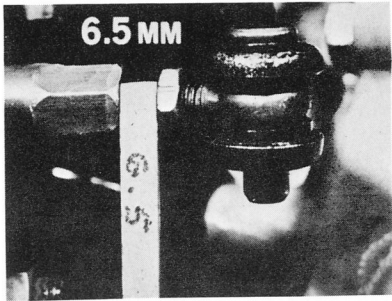
Disconnect the vacuum hose here, at the servo unit—green arrow—to equalize the pressure in the clutch servo.



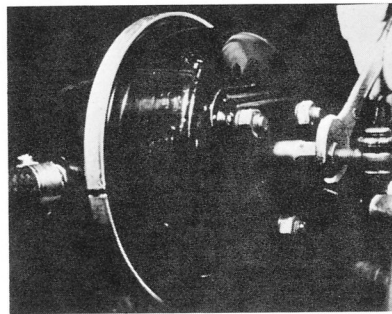
Using the 4mm end of the gauge, measure the gap as shown. If the gap is four millimeters or larger, an adjustment is needed. Here's the procedure to adjust the clutch.



First, loosen the lock-nut—blue arrow—slightly.



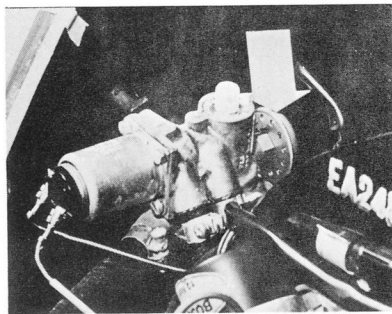
Screw the adjusting sleeve away from the nut 5 to 5½ turns. . .just enough to admit the 6.5 millimeter end of the gauge.



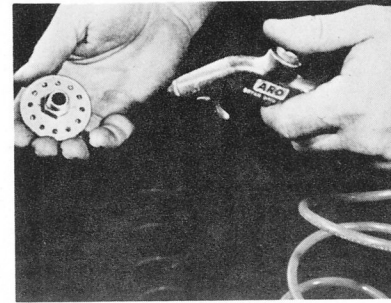
Screw down and tighten the lock-nut. . . reconnect the vacuum hose and tighten the hose clamp. But note this. . .



...should the clutch operating lever contact the clutch housing prior to the adjustment—as the yellow arrow shows here—no further adjustment can be made. This is an indication that the clutch plate is worn and has to be replaced.



Now, let's direct our attention to the air filter on the control valve—red arrow.



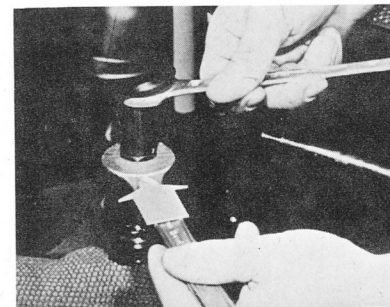
It should be removed and washed out in a clean solvent, then blown completely dry with compressed air. And please—don't put oil in the filter because oil will interfere with the operation of the control valve.



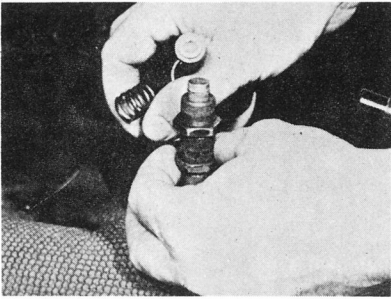
Be certain the filter is thoroughly washed, thoroughly dried, and free of oil, before putting it back.



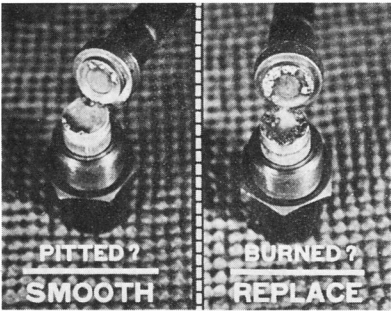
Another part of the Automatic Stickshift maintenance concerns the adjustment and inspection of the contacts within the selector lever. These contacts cause the clutch to disengage whenever the shift lever is moved to engage a drive range.



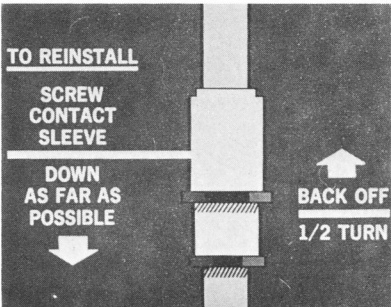
To inspect them, lift the rubber boot on the selector lever. . .loosen the locknut—green arrow—and screw off the sleeve. . .



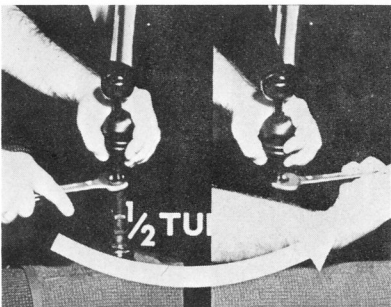
remove the shift lever upper part and the spring. Now you can get a good look at the contacts.



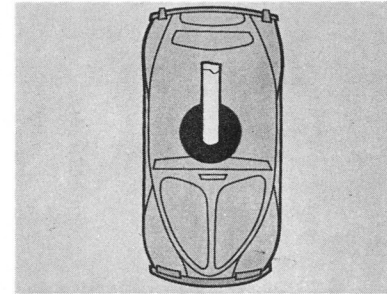
If you find them only pitted, smooth them out. But if they are badly burned, replacement is called for.



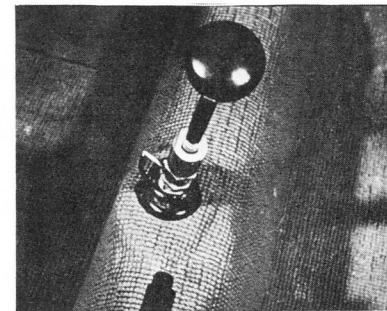
To reinstall the contacts, first, screw the contact sleeve down as far as possible. Then back it off *one-half* turn.



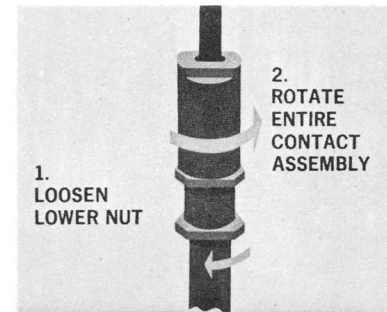
That half-turn, no more—no less—will set the contacts at the correct clearance. Now tighten the locknut.



One final check...look at the oblong hole where the shift lever enters the contact sleeve. This hole *must* be *in line* with the vehicle, *as shown on the diagram*.



This is how it looks in the correct position...this oblong hole prevents the clutch from disengaging should the shift lever be accidentally bumped from the side.



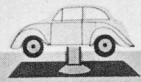
So if the hole is not correctly lined up, loosen the *lower* nut and rotate the entire contact assembly until it is aligned. Then, retighten the nut, and that's all there is to it.

VW AUTOMATIC STICKSHIFT MAINTENANCE

1. ATF LEVEL
2. LEAKS
3. CLUTCH ADJUSTMENT
4. AIR FILTER
5. SHIFT LEVER CONTACTS

Let's summarize these five steps of the Automatic Stickshift maintenance. Check the automatic transmission fluid level; check for leaks; check the clutch adjustment; clean and dry the control valve air filter; check and adjust the shift lever contacts.

ASK QUESTIONS



Now . . . a vehicle is waiting for us so let's review these procedures on an *actual* car. Ask any questions during this break—then we will resume.

- TURN PROJECTOR OFF UNTIL NEEDED AGAIN
- REMOVE PHONO ARM
- DO NOT TURN FILM

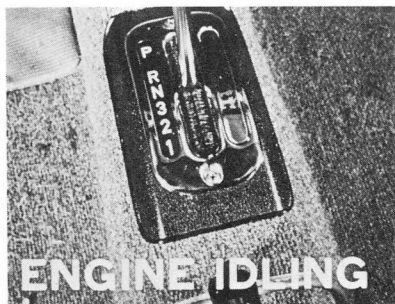
TO START SECOND PART

- PLACE PHONO ARM ON SECOND BAND OF RECORD
- PICTURE WILL ADVANCE AUTOMATICALLY

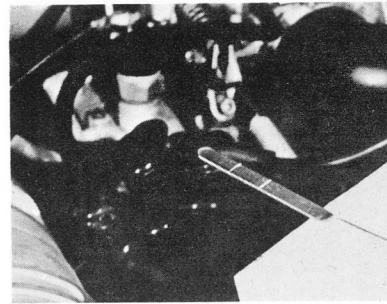
Turn projector off until needed again. Remove phono arm. Do not turn film. To start second part, place phono arm on second band of record. Picture will advance automatically.



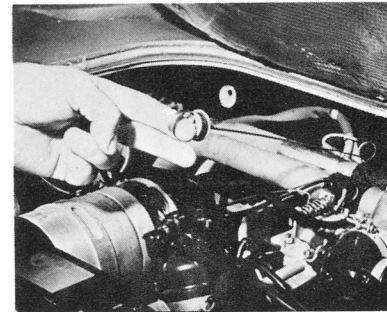
Now let's take a look at one of VW's newest developments—the Fully Automatic Transmission.



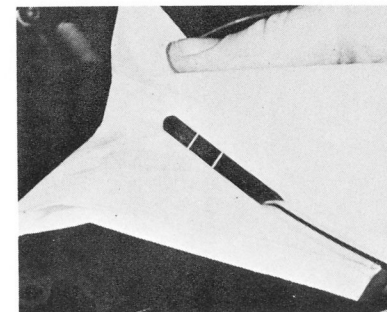
As with the Automatic Stickshift, you begin by checking the ATF level; only this time there's a significant difference. The fluid is checked with the *engine running* at idle speed, with the selector lever in "neutral". The fluid should be warm . . . not cold, not really hot.



The fluid level on the dipstick should be between the upper and lower marks.



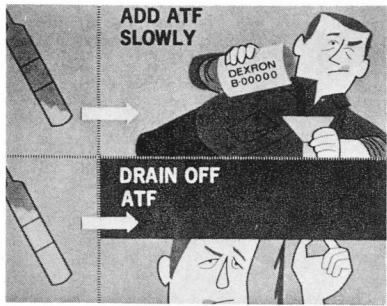
Note that the ring-shaped handle of the dipstick is held vertically—otherwise, it may bend in the filler tube and give a false reading:



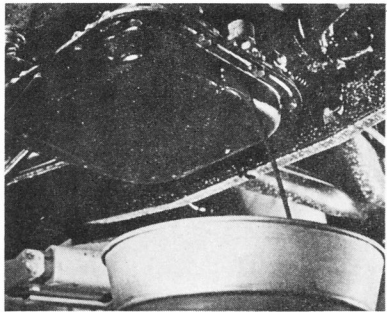
and, please remember the importance of cleanliness—use clean, lint-free material to wipe the dipstick, and throughout servicing don't let the slightest bit of dirt or foreign matter get in the transmission. It could cause plenty of trouble.



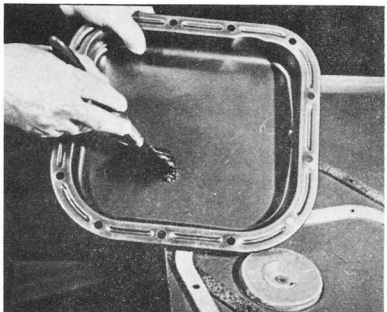
As with the Automatic Stickshift, a thorough check for leaks should always be made, particularly if the level is low.



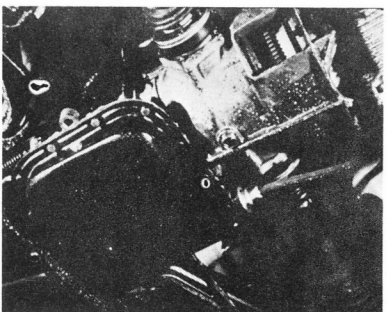
If you have to add fluid, use only a VW-approved ATF. Add it slowly, since the difference between the lower and upper dipstick marks amounts to less than one pint. Too much fluid is harmful to the operation of this transmission—it *must be drained off*.



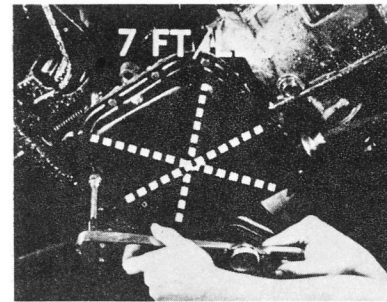
When a change of ATF is called for, the following procedure is used: Remove the plug. . .let the fluid drain. . .then remove both the *pan* and the *strainer*.



Both must be thoroughly cleaned. When you reinstall the pan, *always* use a new gasket.



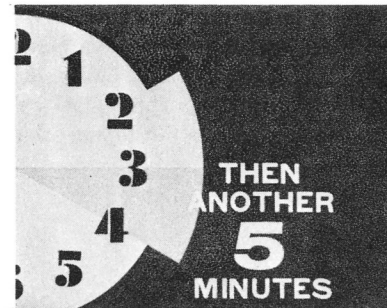
To prevent leaks from developing, the bolts holding the pan have to be tightened in a special manner. Here's the way it is done.



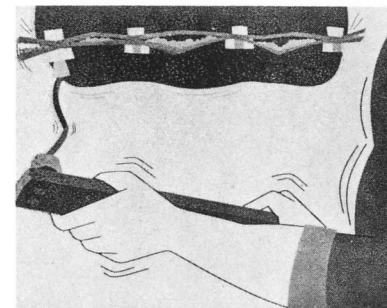
Position the pan with the new gasket in place. . .insert the bolts and tighten them diagonally to one meter kilogram—or 7 foot pounds. . .



. . .wait five minutes, then tighten the bolts again. . .



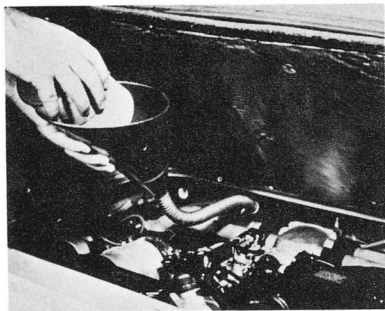
. . .and then, again after another five minutes—always follow the diagonal pattern—since the gasket takes time to settle, you must not tighten it in one step.



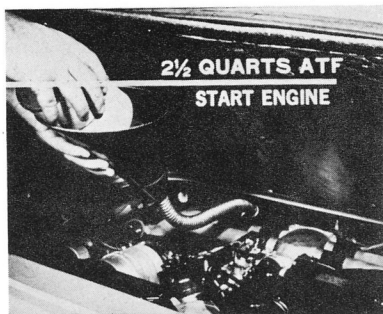
And you can't hurry the job by using a higher torque. That could not only damage the gasket, but also the pan itself.



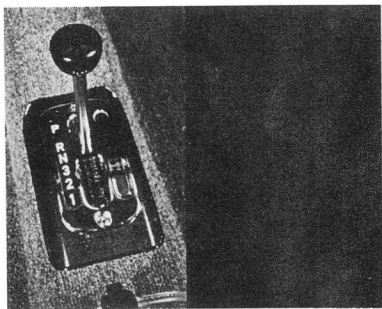
One special caution—never start the engine whenever the pan is off, or whenever there isn't any ATF in the transmission.



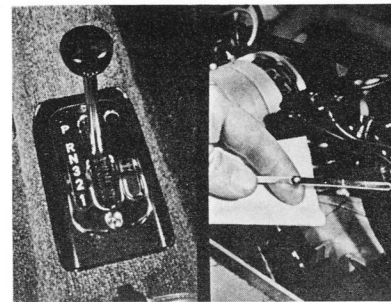
After installing a new gasket, you must replace the ATF. This is a bit more intricate than you might expect. Use a funnel with about a 20 inch extension hose—and of course here again, both must be absolutely *clean* to prevent any dirt from getting into the transmission.



Pour in about two and one-half quarts of fluid and then start the engine. With the vehicle stationary, and the hand brake on, select all lever positions. This gives the fluid a chance to circulate throughout the system.



Now select "neutral" and check the ATF level again.



It should be up to the lower end of the dipstick. After the transmission fluid has warmed up some more, check again.

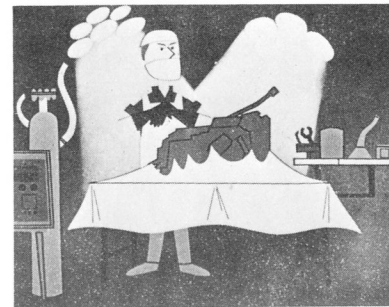


In most cases you will find that the fluid level is now between the two marks, as it should be. If it is not at the proper level—that is between the two marks—add some more ATF. Remember, the difference between the two marks is only about 8/10 of a pint. Be careful not to overfill!

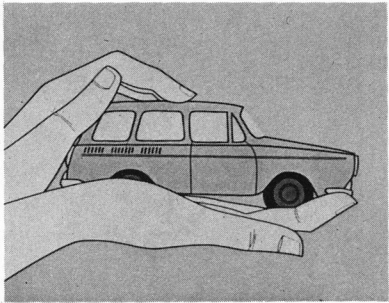
 **AUTOMATIC
TRANSMISSION
MAINTENANCE**

1. ATF LEVEL
2. LEAKS
3. PAN & STRAINER
4. NEW PAN GASKET

Let's quickly review these checks for the Automatic Transmission. Check the ATF level with the engine running, always inspect for leaks. . .when scheduled, drain fluid—remove and clean the pan and strainer. Always use a new gasket and tighten the bolts using the correct torque sequence. . .wait five minutes, then re-tighten—wait another five minutes, and do it again.



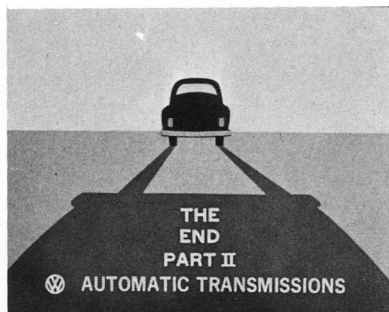
Remember, keep it clean.



These transmissions were made to work automatically, but their maintenance cannot be automated. They still need your skilled hands to keep them running.



Now, let's take our second and final break to work on an actual vehicle. Ask any questions, or offer any comments. We hope you found this session helpful and informative.



END

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