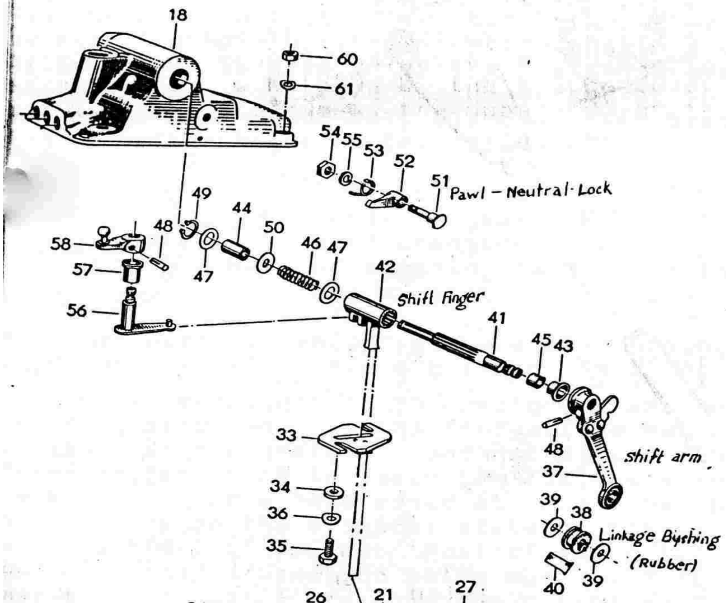
TECHNICAL

YOU AND YOUR GEARSHIFT CABLE --things that you have never wanted to ask and, now that you know, you will not sleep nights.

The gearshift cable --or "crossshift cable", as it was known in Chrysler autos of the late 1930's-- hooks one of the three shift forks in the top of the gearbox (key #'s 21, 19, 20) for the gears Back-up/ 1st-2nd/ 3rd-4th to the shift arm at the side of the gearbox by means of the shift finger (#42). The shift finger is spring-loaded to keep it from slipping into the reverse fork (#21), but it slides freely (without any spring action) between the strike forks for 1st-2nd (#19) and for 3rd-4th (#20).

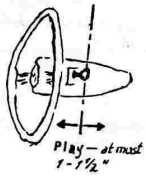


The shift lever below the steering wheel swings in three planes parallel to the wheel. The mechanism is spring-loaded like the shift finger above to favor the lowest (or farthest from the wheel). This is the third/ fourth plane. The first/second plane is locked at midway in the shift lever's path to and from the steering wheel by the stop bolt on the shift tube (key # 1) shown in drawing of steering column. With the shift lever pulled out, this stop is by-passed for back-up.

If, at any of these stops, shifting into gear is impossible, the cable may be at fault. Much maligned, the cable is mostly guilty, but other parts can effect the throws. Check play while shifted in first gear:

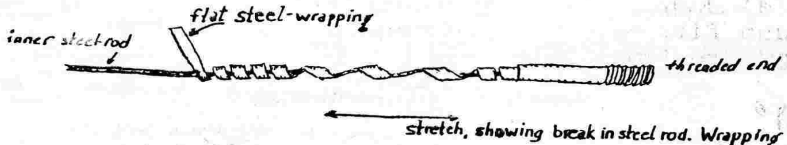
Play in shift lever towards/ away from steering wheel:

Broken cable.
Loose nuts on cable housing at firewall or at gearbox.
Loose or broken shift bracket (key #3). Check for wear where bracket fits into steering column. (Lack of oil here can make for stiff shifting).
Missing shift bushing (#7).
Wear at hinge bolt (#11).



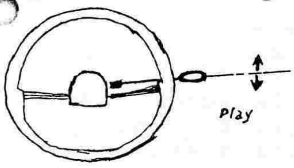
With all parts worn somewhat at this time, play of shift lever towards and away from steering wheel ought not to be greater than 1" — 1-1/2" while in gear.

T o c h e c k s h i f t c a b l e . Unsnap swivel from shift-tube at firewall while still in gear. Pull on cable end. If it comes out in your hand, the cable is probably broken; if it seems springy, the same. The old cables are made of a steel rod wrapped with flat steel. When the rod breaks, the cable may still work as long as the outer wrapping holds. The new garbage from your parts department no longer has the outer steel-wrapping, even though from the original maker.



C h e c k f o r w o b b l e at upper end of shift tube.

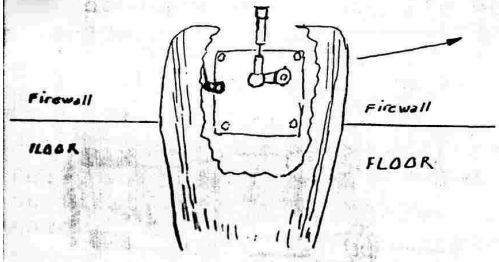
Play here means that silent block (key # 4) is broken. This is changed by removing horn button, steering wheel --depending upon how well the silent block is held on by the flattened-over end of the shift tube, you may also need to remove the upper end of the steering column (held on by set screw #52) pivot bolt #11 and shift bracket #3. This aluminium housing is often tight on the column #51.

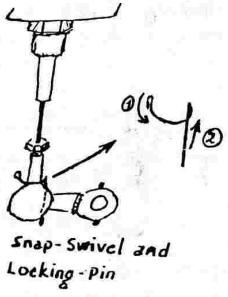


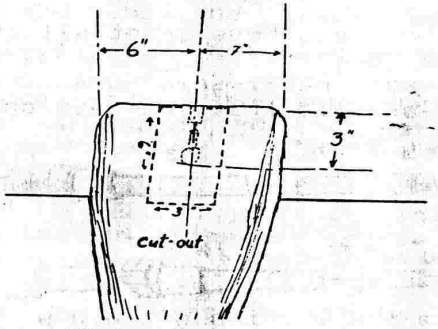
C h e c k l o n g t h r o w o f s h i f t lever in gear: Rubber linkage bushings (#35 or 38) need changing, snap swivels (24,25), shown at bottom of steering column and in sketch #9 also at bottom, may be worn. These are under the LH fender.

Now that part for which you have been honing your imagination in gay anticipation: T h e C h a n g i n g o f t h e C a b l e - -

Perhaps an oversight of the designers was not to have put a reach-hole into the gearbox hump at the firewall to get at the lower end of the shift-in cable at the gearbox. Such a hole, by the bye, was put into the trunk floor in late 1960 to reach the fuel-tank sender without need to pull the tank out. Such a hole added at this time for the shift cable would, of course, change the original state of the car. The decision is yours -- but, be tidy! if you do. Most of the cut-outs that I have seen are quite sloppy. The information below was taken from my defenseless Combi into which a one-foot-square hole was butchered (not by me!!) for this very purpose.







If you truthfully M U S T cut a hole into Isabella, all that you need is a hole about 6" x 3" beginning at the firewall.

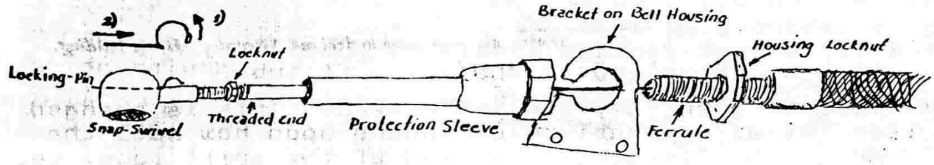
Undoing the cable:

1) inside auto-- a) Loosen locknut below swivel(9 m/m wrench, pliers)

b) Unsnap swivel from lower end of shift-tube (screw drive: Remove swivel and nut.

c) Undo nut for protection sleeve on bracket at firewall. (11 m/m wrench) (Protection sleeve keeps cable from buckling or kinking.)

d) Undo locknut on other side of bracket. Slide cable through firewall towards engine, catch locknut when cable slips beyond bracket.



2) under hood-- a) Loosen locknut for cable housing at bracket fastened to bell housing. (14 m/m wrench)

b) Undo protection sleeve with fingers.

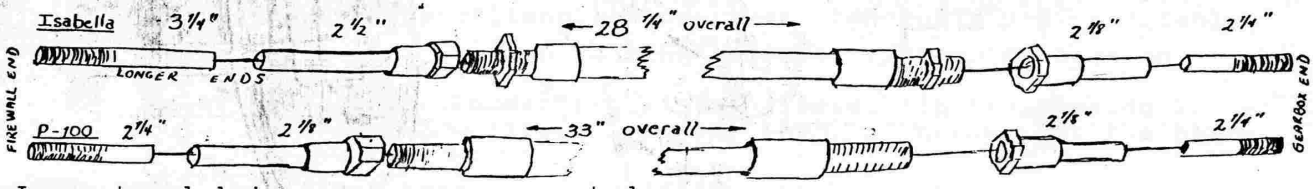
c) As cable is broken, remove housing from inner cable, leaving protection sleeve (which can slide right off), threaded cable end, locknut and swivel on top of gearbox.

d) Loosen locknut at swivel (top of gearbox). (9 m/m wrench, or grasp threaded end with pliers and loosen everything from snap-swivel. These parts can be reached much better from below with car raised.

NOTE: Snap-swivel can not be removed from top of gearbox, as it has a locking pin in it. Unless you have a hole in the gearbox hump, it is easier to leave this fitting and screw the new cable into it.

NOTE: To unfasten snap-swivel without using a homemade hole in the gearbox hump, lower gearbox by undoing back buffer where fastened to floor (do not overlook the locknuts inside the car). Reach the top of gearbox from below with screw driver to 1) pry locking pin up (shown in sketch) and 2) to slide pin forwards (towards engine) and unsnap swivel. (Hint: It may help to break your arm --or better, a friend's arm-- between wrist and elbow!!)

Now that you have spent all this time getting grease all over, you ought to check whether the parts department sent the wrong cable. Since the old German cable maker sold some fifty wrong cables to the parts dep't, you can be rest-assured that you have one for the P-100. But, it works just as well.



Installing new cable

1) At Gearbox: a)Thread SHORTER cable end with locknut, to-gether with SHORTER protection sleeve and housing nut, into snap-swivel atop gearbox. (Or, fasten snap-swivel with all fittings to top of gearbox.)

b) Tighten locknut against snap-swivel. (9 m/m wrench)
(Note: This locknut is not needed. The cable can not loosen.)
c) Slip cable into bracket on bell housing. See drawing above.
d) Thread locknut about half way on ferrule. Warning: If P-100 cable, tighten locknut right against shoulder of cable house.
e) Tighten protection sleeve against bracket(11 & 14 m/m wrench)

e very careful not to kink inner cable whilst sticking it through the fire-all. Slip cable through stripped (no hardware).

) At Firewall: a) Slip threaded end of cable just through firewall, slip housing locknut over end. (P-100 cable: Locknut is put onto upper side of bracket with protection sleeve, later).
b) Slip cable through bracket; thread housing locknut (14m/m) to about half way along threaded ferrule. (Not P-100 cable)
c) Screw protection sleeve (P-100 cable = with locknut) onto ferrule, tighten. (11 m/m & 14 m/m spanners)
d) Screw snap-swivel onto cable end with locknut.
e) Shift lever in neutral, slide cable end inwards for first gear: (Cable fully pulled = 3rd-4th gears
cable fully pushed = back-up gear
middle setting = 1st-2nd gears)
(Note: The middle setting is just where spring pressure is noticed when pushing the cable in. This is part of the reverse lock-out. The shift cable slides shift finger #42 (page 7) freely (no spring pressure) between 1st/2nd and 3rd/4th strike-forks. To engage back-up, spring #46 must be compressed. When shift finger touches this spring, it is alined with strike fork #19 (1st/2nd). THIS is the "middle setting".)
f) Lift shift lever towards steering wheel so that the lower end (at steering column) is against stop-bolt.
g) With the cable still in the middle setting (do not fight the spring mentioned in note above), set the snap-swivel (screw in or out on cable end) to meet the stud at the lower end of the shift tube (at firewall).

(Note: if you do not have enough adjustment (snap-swivel either falls off cable end or is screwed all the way down), you must raise the cable end (lengthen) or lower the cable end (shorten).

Raise cable end: Loosen housing locknut, tighten protection sleeve.
Lower cable end: Loosen protection sleeve, tighten housing locknut. Do this at the firewall first, then, if needed, at the gearbox.

Check shifting into first gear. When shifting, be sure to lift shift lever fully up towards steering wheel against stop bolt. If you can not shift into first, you must determine whether the cable must be lengthened or shortened.

NOTE: In some cases, the shift lever must be lifted quite near the steering wheel for back-up. This makes for an awkward angle for the shift bellows, besides being somewhat harder to shift. Check for wear at the stop bolt and at the mating face on the shift lever. To overcome this, you may have to build up either the stop-bolt or the shift lever with weld, or replace with new.

If you just happen to be pulling your engine and gearbox out (a two-hour

job), it is easier to unhook the shift cable and the speedometer cable from under the firewall. Put the engine and gearbox back in with the cables already fastened. Be very careful not to cross-thread the cable nut on the speedometer cable onto the speedometer. The housing is aluminium.

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This Newsletter has been thrown to-gether perhaps faster than the others, owing to trying to ready everything before I leave for Mexico. The trip is already been shifted two weeks later. I had hoped to leave by the end of April, before the heat of summer reaches the southern lands fully. But repairs to my Combi (the rebuilt engine and new differential) have held things up.

News of new things are as follows under the "SPECIALS" heading:

WINDSHIELDS for Coupe: No stock in Germany. These can be made here, as mentioned in a past Newsletter, to sell for $200 each --if I can get 20 sold. If I can, then those ordering could buy a second windshield for well under $200 (perhaps $150 - 175). They would sell for $250 to anybody else, if this ever goes through.

TAIL LIGHT LENSES: No change.

PISTONS in oversizes SHALL be on hand THIS year. They were reportedly made by Mahle for the Mexico company. The head of the company told me this by telephone two weeks ago. Price is unknown. They are also available from England.

FLOOR PARTS are available from the Netherlands, where a new batch was made. The exact details are not yet known, but floor pans, side beams under doors, the strip right before the back fender for the Coupe seem to be available at reasonable prices and reportedly good workmanship.

THE BORGWARD-OWNERS' CLUB (B. O. C.), set up in August of 1974, works for the preservation and enjoiment of all BORGWARD products. Through its ties with the other BW clubs --those in Germany, South Africa, the United Kingdom, and groups in Australia and New Zealand-- the B. O. C. has been working to have obsolete parts become available once more, lending funds to projects as needed and as available. To raise these funds, the club subscription fee is now $15 a calendar year, beginning January. A limited number of subscriptions is accepted at the old, ten-dollar fee in special cases. (Those joining later on in the year --after February-- may renew at a lower rate for the first time, only.) The exact fee is given in the Winter Newsletter.)

Since we are so far-flung, the Newsletters are the only bond amongst BW owners to bear both spare-part information and the news of doings both at home and abroad. The Newsletters --in theory, at least-- are put out (quite) irregularly at the beginning of each season. The Friends of the B. O. C. are entreated to send in written offerings for the interest of all. Any technical questions can often be answered by mail or telephone from the many books on hand here or from first-hand knowledge. Failing that, questions can be put into the Newsletters for the Experts!

END OF NEWSLETTER #29 Fall of 1981
the 19th of May 1982