

Notes on Finger Tip Control Switches

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1929 FINGER TIP CONTROL SWITCH

Designed and manufactured by the Aid Manufacturing Company of Chicago, Ill.

This switch, which is mounted at foot of steering column, is one of the outstanding 1929 developments in modern electrical equipment, combining a starting switch, lighting switch, and horn switch in one unit, all switches being controlled by the knurled button in center of the steering wheel. To operate the starting motor the knurled button is pulled upwards, which movement closes the starting motor circuit, thus doing away with the conventional foot starting switch, which at its best is difficult to locate. The lights are controlled by turning the button clockwise, there being three positions; namely, dim, tilt, and bright. The horn is operated by pressing the button downwards, the same as in the past. All of the switching contacts are made within the switch itself, including that of completing the horn circuit, the operating motion being transmitted from the button through a rod in the steering column.

This switch is now standard equipment on all models of the Elcar, Roosevelt, Whippet, and Willys-Knight automobiles.

TO REMOVE SWITCH FROM CAR

Fig. 17 shows the switch with the parts in the order which they are removed from the unit. To expedite this operation on the Whippet automobiles it is recommended that the carburetor be first removed.

Proceed as Follows:

1. Disconnect one of the heavy battery leads from the battery (this will "kill" the electrical system, and avoid danger from fire due to short circuits).
2. Disconnect the small wires from row of six screws on front of switch.
3. Remove thin brass nuts #18 (Fig. 17), lock washers, heavy starting cables, and the ammeter feed wire.
4. Remove thick brass nuts #16.
5. This will allow fiber washers #13, the aluminum cover plate #3, and the two fiber washers behind the plate to slip down and off the studs. (If necessary, tap the switch with a light blow to free cover).
6. Push up on starter contact #11 (working thru the opening at bottom of switch), and slip locking pin #12 out of hole in actuating rod. (This locking pin fits loosely in a hole drilled thru actuating rod, and is held in place by the cup-like rim on starter contact. The assembly is very similar to an engine valve spring retaining cup.)
7. Slip spring #10 from actuating rod.
8. Remove the two nuts holding switch to base of steering column, and slip switch body down and off the actuating rod.

In assembling the unit proceed in the reverse order, making sure that one each of fiber washers #13 are placed above and below the aluminum cover #3, on each stud.

The six terminal screws on switch are as follows, naming from outside of car: (1) Dimming Resistance (or side lights, if used); (2) Lower Head Light Beam; (3) Feed; (4) Horn; (5) Upper Head Light Beam; (6) Tail.

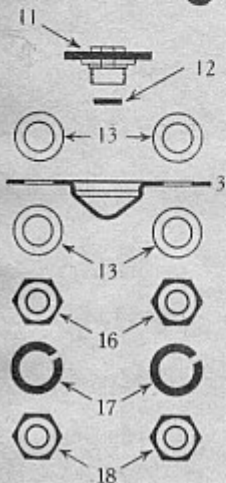
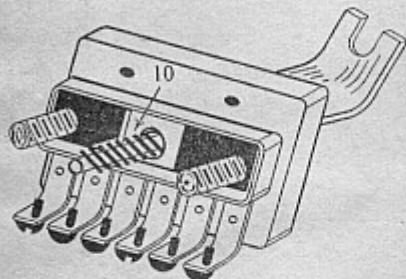


FIG. 17.

Aid "Finger Tip Control" Steering Column Switch with parts shown in order of assembling.

IMPROVED 1930 FINGER TIP CONTROL SWITCHES

Radical changes in the design and construction of Finger Tip Control Switches have been made since their first appearance in 1929. In order to remove the early model switches from the car it was necessary to loosen the lower switch cover and withdraw a small retaining pin, which held the starting contact in place. (This operation is fully explained on page 28 of this section, under the heading of 1929 Finger Tip Control Switches.) The starting contacts apparently were not designed with sufficient size, area, and carrying capacity, with the result that it was necessary to replace many of the early switches. It was soon found that the switch design did not permit of its easy removal, and a new type was developed to overcome this difficulty.

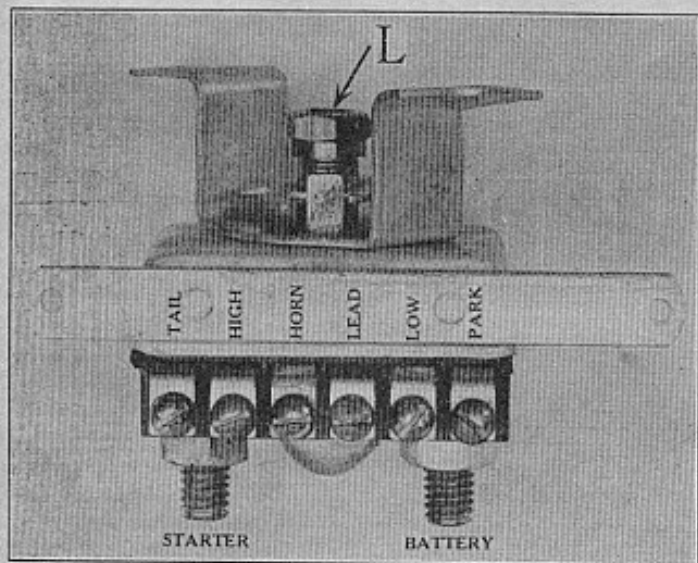


Fig. 1

Figure 1 shows a Briggs & Stratton improved Switch No. 50160, for Willys-Knight, Models 66-B and 70-B, Willys Six, Model 98-B, and Whippet, Models 96-A and 98-A. This new switch may be used to replace the early type, providing slight changes are made to the end of the actuating rod (the rod which carries the horn button, and extends down through the steering column and through the switch). Figure 2 shows the end of this rod as it appears after removing the original switch.

Remove the two screws "B" (Fig. 2) which hold the oil reflector, and throw this unit away. Shaft "A" (Fig. 2) extends but a short distance up into the end of actuating tube "C". It is held in place by pin "D", which pin must be driven out before shaft "A" can be removed. On some cars it is possible to pull the entire actuating tube "C" right up through the steering column, and remove it from the car (providing the horn button does not hit the roof of the car before the tube is entirely free). If the tube can be removed it is a simple matter to hold it in a vise and punch out pin "D". If this operation is performed on the car, extreme care must be exercised not to bend the tube "C". With pin "D" removed pull out the short shaft "A". Replace it with the knurled extension shaft "E", Figure 3.

When knurled shaft "E" has been driven as far as possible into place it will appear similar to Figure 4.



Fig. 3

A hole must be drilled through the tube and knurled shaft for a new retaining pin, "P" Fig. 4, which should be riveted over on both ends. The new switch is complete in itself, and turning motion to operate it is transmitted from the horn button and actuating rod to the switch proper by a split chuck and clamping nut. Slightly loosen clamping nut "L" (Fig. 1), and insert knurled shaft "E". Securely tighten nut "L". Bolt legs of switch to bottom of steering column.

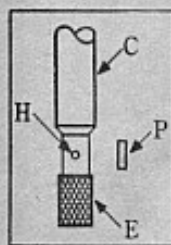


Fig. 4

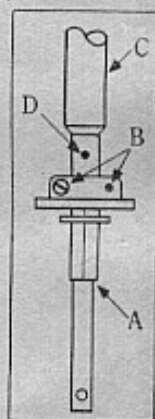


Fig. 2

IMPORTANT: After switch is in place, and before any wires are attached, have someone pull up on the horn button (as though to start engine) and carefully observe if there is at least 1/32" clearance between the top of clamping nut "L" and the bottom of the steering gear. If there is no clearance, or nut "L" hits, the starting contacts will not close. To remedy, place plain washers between legs of switch and steering gear. Attach cables and wires.

AID ROUND TYPE
FINGER TIP CONTROL SWITCH No. 805, STANDARD EQUIPMENT ON THE NEW
WILLYS STRAIGHT EIGHT, MODEL 8-80

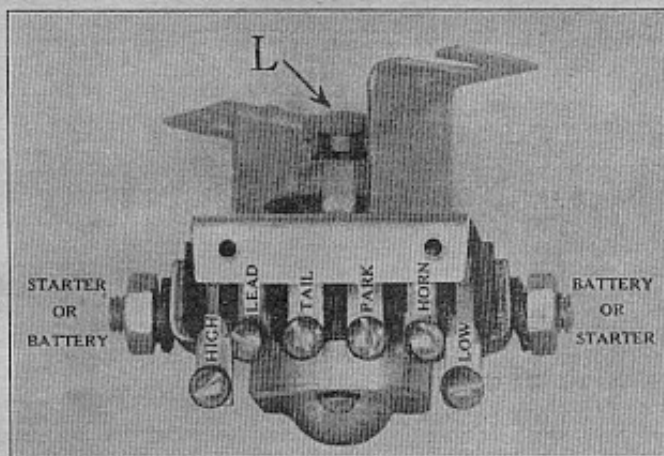


Fig. 5

The starting contacts of this switch are very much heavier than those previously used, and in all probability trouble will not develop from this source. With the new switch the horn circuit may be fused, which was not possible before.

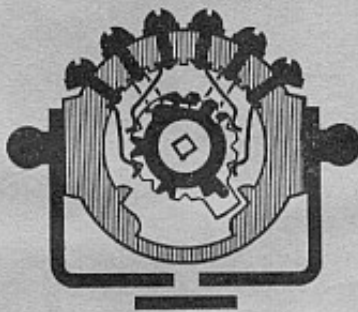


Fig. 6

Figure 6 shows the internal construction of the switch. It will be seen that the wires are not attached in the same order as previously.

Pines Type

(Pines Winterfront brought the Aid Manufacturing Co in 1930-31)

DESCRIPTION:—The Pines Type 'Finger Tip Control' consists of a starting switch, lighting switch, and horn button combined in a single unit which is designed to be mounted at the lower end of the steering column and controlled by a button on the steering wheel. The starting switch is operated by lifting the button slightly, the horn circuit is closed by depressing the button, and the various lighting circuits are completed by rotating the button. There is no electrical connection between the starting switch unit and the lighting and horn control unit, which permits an ammeter to be placed in circuit to show the discharge current. The two terminals on the side of the unit are the starting switch terminals and one terminal should be connected to the car battery. The lead for the generating and lighting circuits should be taken from this terminal. The other starting switch terminal should be connected directly to the starting motor. The six lighting switch terminals are grouped on the front of the switch. These terminals should be connected as follows (left to right facing the bottom of the switch):

1. Headlight (High Beam—lower filament).
2. Lead—Connect to ammeter through fuse or circuit breaker.
3. Tail—Tail light. On some cars, the dash light is taken off also.
4. Park—Parking bulbs, fender lights or side lights.
5. Horn—This is the horn feed lead. The other horn terminal is grounded.
6. Headlight (Low or depressed beam—upper filament).

The lighting switch terminals terminate in switch fingers within the switch housing (see exploded view of switch). These switch fingers rest on the notched edge of the switch spider which carries a contact plate on its lower surface. This contact plate bears against the circular plate connected to the 'Lead' terminal and is kept in contact with it by a spring under the plate. The horn terminal contact is directly under this contact plate and they are brought together whenever the control shaft is pushed downward.

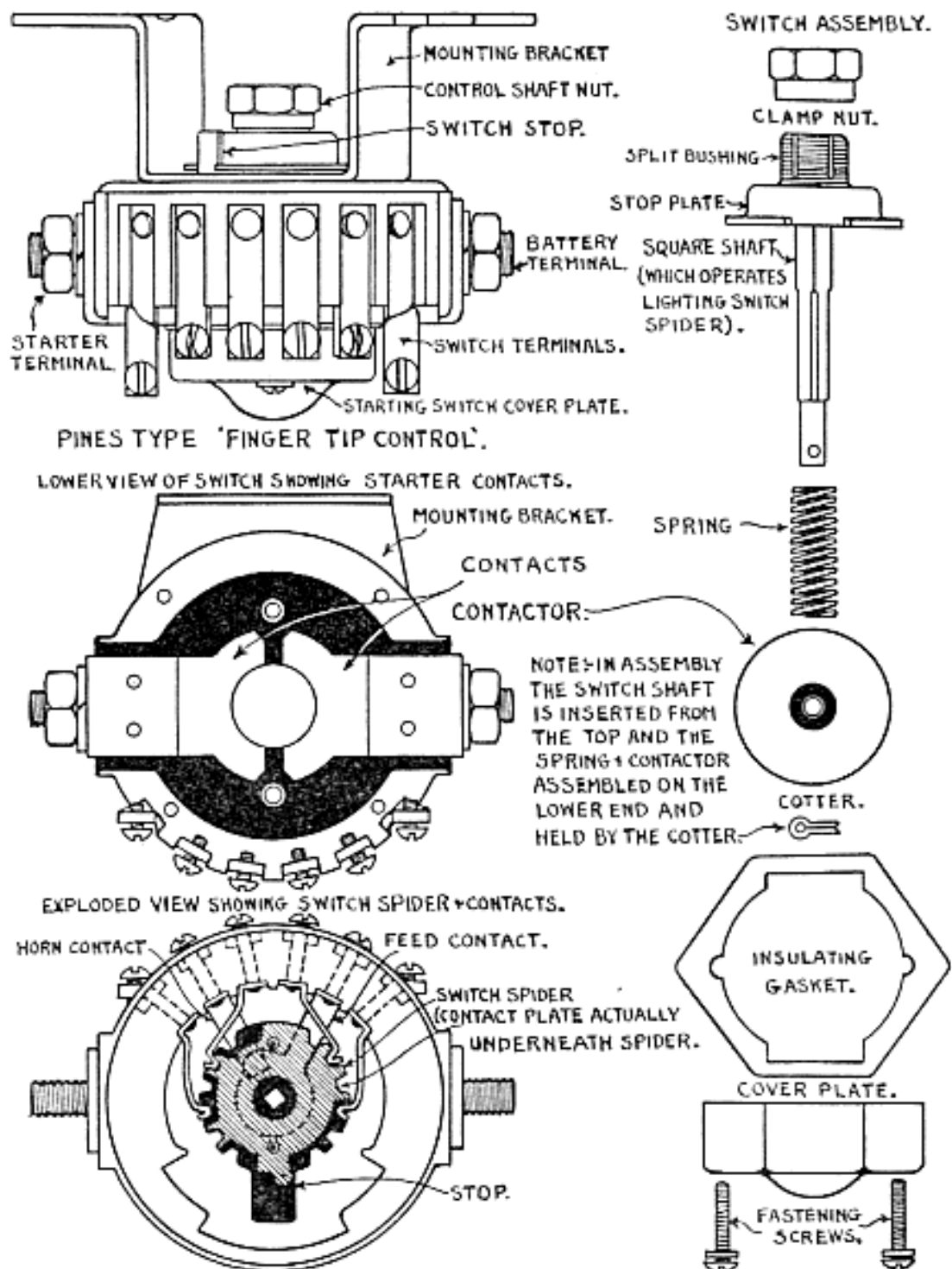
The switch control shaft extends through the switch housing to the starting switch housing on the lower end of the switch. The starting switch terminals terminate in two semi-circular copper contacts. A circular contactor is mounted on the lower end of the control shaft below these contacts and is normally separated from them by a spring on the control shaft above the contactor. When the control button is lifted up, this spring is compressed by the upward movement of the control shaft and the contactor completes the circuit between the two starting switch contacts. The contactor is insulated from the control shaft.

MOUNTING:—The switch is fitted with a universal mounting bracket so that it can be mounted on the steering column or on the chassis frame at the lower end of the column. The control shaft upper end is fitted with a slotted bushing and lock nut and grips the control tube in the steering column when the lock nut is tightened. To remove the switch, first disconnect battery cable and tape to prevent short-circuits. Then disconnect starter cable and all lighting lines. Loosen the lock nut on the upper end of the control shaft. Then take out bolts or screws in mounting bracket. The switch can be removed by pulling it straight downward until the control tube slips out of the control shaft bushing.

SERVICING:—The starting switch contacts can be examined by taking off the lower cover plate. To remove cover plate, take out the two screws and lift off the plate and insulating gasket. The contactor on the control shaft can be removed by taking out the cotter pin in the lower end of the shaft. The spring, which will come off with the contactor, must be replaced when the switch is reassembled. If the control shaft is removed, it must be replaced so that the slot in the stop plate is against the stop when the lug on the switch spider is against the stop on the switch body. To secure this result, insert the control shaft and turn the switch spider as far as possible in one direction. Then remove shaft and assemble so that the stop on the

top of the switch body prevents the shaft from turning any further in that direction.

The cover plate over the lighting switch spider is riveted in place and it



is not practical to attempt any repairs to the lighting switch unit. If tests through the lighting switch with a voltmeter or lamp and test points indicate that the lighting switch is defective, it should be replaced with a new unit.