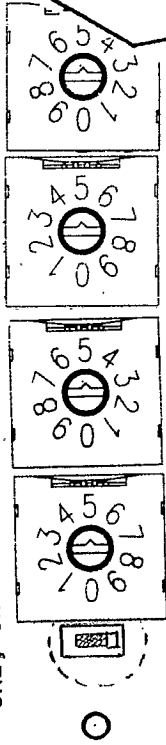


CALIBRATION SWITCHES

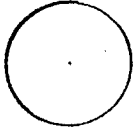
Last Digit

1st Digit
OFF = ONE, ON = ZERO



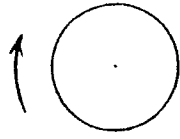
0 5 5 5
ILLUSTRATED BASE NUMBER = 5,555

ROTATE COVER PLATE
TO EXPOSE CALIBRATION HOLES



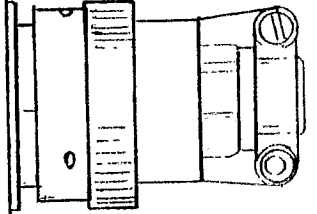
SW 6

Bead Timing Adjust
CW for maximum
correction



Instant Stop Option
Switch

ON for Inst. Stop
OFF for "Complete the Stripe"



CALIBRATION

The Model 304 now has One-Pass calibration. This entails a simple comparison of measurements of a predetermined course with that of an actual run with the controller set for the same distance. The ratio of the actual to desired distance is calculated with a hand calculator (perhaps some of us can still do it longhand?) and multiplied by the base number used to run the course. The base number is then changed on the digital rotary switches on the underside of the unit to that of the result of that calculation. If the measures were carefully taken of both the course of travel and that of the actual distance run, are calculated and re-entered as the NEW base number of the control, then the calibration will have been completed.

METHOD AND EXAMPLES

If you unfasten the control from its tray, leaving the cable connected, and lift it straight up and expose its bottom, you will see a rectangular cover plate near the top edge of the exposed underside. See illustration.

Remove the screw securing the left end, and slide the coverplate so that the series of holes in the bottom plate of the unit will be exposed. When you peer down through the exposed holes, you will see a series of 4 red colored numbered dials, and a single slide switch at the far left. The dials may be set to any indicated digit between 0 and 9, by means of a small screwdriver, so that a series of digits may be entered into the array. The far left switch may be set for either a zero, or a numeral 1. Thus any number between 19,999 and zero may be set into the unit as its BASE number. The usual range would be from approximately 5,000 to about 12,000 or so for normal conditions.

When you receive the unit from the factory, the BASE number set into the calibration dials in the control will ordinarily be the number **8250**. This number should provide a reasonable start for those systems that have the Encoder connected to the truck transmission which would be expected to have the normal speedometer connections using the standard 1000 revolutions per mile.

If you, the customer, indicate that you will be using a "fifth wheel" having a nominal 2' diameter, then we will set the number **10,000** as the base number for the system. This would give you fairly close results on your calibration run, and only a small correction would be required to bring the system into near-perfect alignment with your measured course.

The object is to correct the BASE number to a new value which will cause the control to accumulate the correct distance measures for its operation.

Bear in mind that at the start, the actual numerical value of the base number is not too important. It is simply the REFERENCE point from which you will change to get the correct distance measure of your skipline patterns. When you make the test run and recalculate the NEW base number, and reset it on the base number switches, then the calibration will be complete.

To use SHORTCUT METHOD

SKIP NEXT PAGE

You may use the easier and more accurate Shortcut method if your system has a Model 312 or 322 Totalizer whose calibration is locked to the basic Model 304 Traffic Paint Control. This enables one to use a very long baseline for the measured course, such as 1 mile for the one-pass calibration procedure.

You may use any arbitrary distance for your test run. The overall accuracy will be greatly improved if you use a long test run, as opposed to that of just doing a 40' cycle length, or so. We recommend using at least a tenth mile or so, so that the cumulative error in measuring the distances involved will not pile up and degrade the overall accuracy. A 500' run could be programmed as 10 cycles of 50'. Just choose a total distance that can be evenly divided and use that divisor for the number of cycles to put down over the course.

EXAMPLE: Make a tenth mile run between two accurately located tenth mile highway markers.

A tenth mile is 528 feet, so one could make a run with the stripe length set to a few inches or so, to put a short spot of paint down on the pavement, and the cycle to 52.8 feet. Start the run at the first marker by pressing the "Start" button, and then put 10 more "blips" of paint down. Let us suppose the actual measured distance fell short of the full tenth mile by 24.1 feet. Thus the actual run comes out to $528 - 24.1 = 503.9'$.

Now, multiply this actual distance, by the base number you read off the switches beneath the cover plate on the underside of the control. If the number read on the dials happened to be the original number 8250 as placed into them at the factory, the result would be: $503.9 \times 8250 = 415175$. Now divide this number by the distance of the course, 528'. 415175 divided by $528 = 7873.438$. Round off to the nearest whole number: **7873**. This is the NEW BASE NUMBER you should dial into the base number switches on the underside of the control unit. When you have done so, the calibration is then complete. Simply reset the stripe length and cycle lengths to the normal distances you want for skipline and start painting.

EXAMPLE 2

Suppose you have a measured distance of 400' to test. Set the stripe length to several inches or so, and the cycle length to 40'. Start the first "stripe" at the beginning marker and continue for 10 more "pips" of paint. Measure the actual distance of the paint put down. Suppose the actual measure went beyond the measured course by 12.7' for a total run of 412.7'. Multiply this distance by the base number on the calibration dials; for example let us suppose the base number turned out to be 9,146 as placed in from some previous calibration. $412.7 \times 9146 = 3,774,554.2$. Divide this number by that of the test distance, 400'. The result is: 9436.386. Round off to the nearest whole number **9436**. This is then the new base number to dial into the calibration switches on the underneath side of the control in order to have it in calibration.

If you contemplate using a "fifth" wheel having a diameter much less than 24", such as a 12" or 6" wheel, contact the factory for instructions for setting your calibration switches so that there will be minimal decrease in accuracy from that of a more customary installation.

SHORTCUT CALIBRATION

USING TOTALIZER FOR QUICK EASY SYSTEM CALIBRATION

Your system is arranged so that the calibration of the Model 304 traffic Paint Control is directly related to the calibration for the Totalizer as well. This permits a simplified method of calibrating the system over a much longer course to give more precision than is possible by a run over a few hundred feet or so.

The basics are similar to that of the fundamental method for calibration of the Model 304 unit by itself, described earlier, except that only one distance has to be observed in the procedure, that of the calibration distance itself.

EXAMPLE: Test against a previously ACCURATELY measured 1000 ft course.

PRECEDURE: Drive the vehicle to the beginning of the course and stop the vehicle. If not done previously, power up the 304 control by turning on its "Power" switch, and do the same with the Totalizer.

Zero the Trip counter. Turn the "Trip" switch on.

Start the vehicle over the course and continue until near the end of the measured course, slowing the vehicle until you reach a stop exactly at the end of the course.

Note the counter reading. Let us suppose it reads 11507 (1150.7 feet) instead of the expected 10000 (1000.0 feet) it would show had it been in perfect calibration to begin with.

NOW, USE THIS FORMULA:

$$\text{NEW BASE NUMBER} = \frac{\text{OLD BASE NUMBER} \times \text{MEASURED COURSE}}{\text{DIVIDED BY COUNTER READING}}$$

In this case: If the Base Number were 08250, for example (the initial factory set number in most instances), the formula would be:

$$8250 \times 1000 / 1150.7 = 7169.55$$

Rounded to the nearest whole number, this would be 07170, the new BASE NUMBER for the SYSTEM, which should be entered into both the calibration dials on the underside of the 304 control and the calibration dials of the 322 Totalizer as well.

The system will now be in calibration to within approx. 4" per mile, subject to vehicle tire scrubbing during travel over up-hill, down-hill runs and similar effects that occur when driving on one side of a crowned road surface.