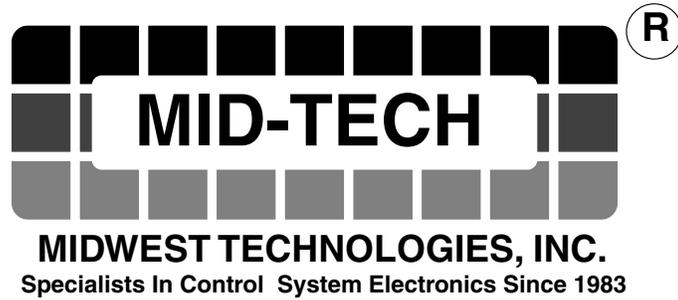
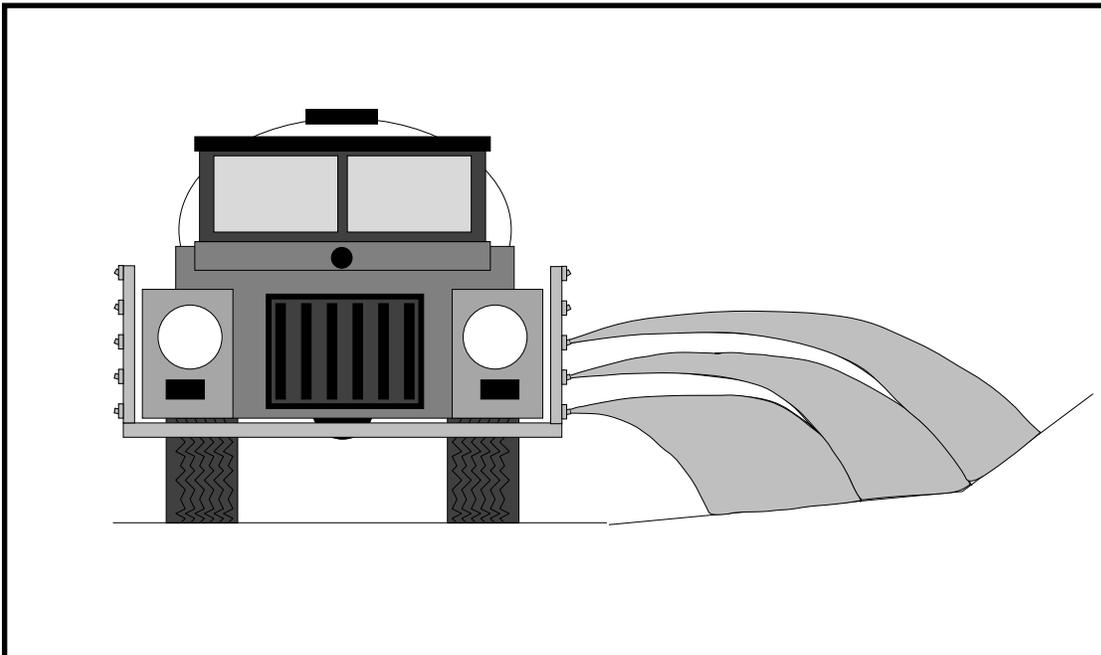


999-1512



TASC 6000, 6300 OR 6600 ROADSIDE SPRAYER OPERATIONS TASC MANUAL SUPPLEMENT



SOFTWARE VERSION 3.10

999-1512

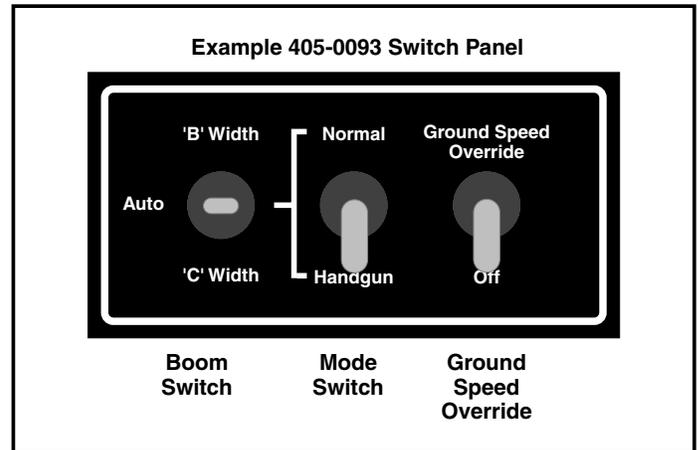
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ROADSIDE SPRAYER OPERATIONS, TASC MANUAL SUPPLEMENT

TASC roadside operations require, at least, TASC software level 3.10 or above, Slave software level 3.0 or above, the inclusion of an external handgun function switch, an interface cable and a flow switch in the handgun feed line. There are special features of the TASC available to Roadside Applicators in both the Handgun and Normal modes. The Handgun option allows the user to set chemical injection rates based on carrier flow rates, (i.e. ounces per 100 gallons of carrier or the chemical to carrier ratio, e.g. gal:gal or oz:oz). Pumps start and stop in response to the start of carrier flow sensed by a flow sensing switch. Chemical injection will only occur when the handgun trigger is pulled and flow is established.

In the Normal mode the TASC can control to a desired pressure (regardless of speed changes), responding to the activation of pressure balanced boom sections found on certain roadside sprayers. The Normal mode also allows selection of alternate widths "B" or "C" to accommodate changes in sprayed area due to roadside slopes rather than boom sections turned on or off.



MODES OF OPERATION

HANDGUN

- 1) Operate at a programmed carrier rate to keep a constant injection pump speed, regardless of small variations in carrier flow.
- 2) Operate carrier valve in manual to keep a constant concentration of chemical, regardless of all variations in carrier flow. (Use when feathering trigger on handgun for example.)

NORMAL SPRAYING WITH PRESSURE BALANCED ROADSIDE SPRAYER

- 1) Operate in programmed carrier rate to keep a constant carrier application and injected chemical application per acre, regardless of speed changes. (pressures will vary with speed.)
- 2) Operate in Automatic pressure control to keep a constant pressure regardless of speed or boom changes. Chemical injection pumps will respond to speed and boom changes to keep chemical rate per acre constant.
- 3) Use alternate boom widths to increase injected chemical pump speed when spraying significant slope, to account for larger area being covered..

HANDGUN MODE, SET-UP FUNCTIONS: First put the TASC in the Handgun mode. To do this, set the switches on the boom control panel as follows: 1) set the boom width switch to "Auto", 2) set the mode switch to "Handgun", 3) set the ground speed switch to "OFF". Now, Turn the TASC power "ON" and put the mode selector switch to "SET-UP".

The following programming functions are available in the TASC console:

SPEED: An "Err" message will appear (GSO is not available in the handgun mode).

AREA: Area will not accumulate in handgun mode.

CHEMICAL, VOL. APPLIED: This is the pump calibration number for each injection pump (see section 4.7 in the TASC Manual).

CHEMICAL, CHEM. RATE: With pump switch in the "ON" position, program the rate as ounces per 100 gallons of carrier (use the INC/DEC switch to set this rate). With pump switch in the "ALT" position, the display will read as a ratio (i.e. 1:100, gal:gal, or oz:oz, chemical:carrier). The rate can be programmed with pump switch in either position.

CHEMICALS, % RATE: Use the INC/DEC switch to select the desired rate change % for chemicals or carrier.

CARRIER RATE: Use the INC/DEC switch to set the desired carrier rate in gallons per minute.

CARRIER TOTAL APPLIED: The flow meter calibration number (section 4.5 in the TASC Manual).

WIDTH: The message "none" will appear (boom width is not used in the handgun mode).

DISTANCE: The distance calibration number (section 4.6 in the TASC Manual).

PRIME: The prime volume for each pump (section 4.7.4 in the TASC Manual).

TEST SPEED: Using the INC/DEC switch, set a test flow rate in gallons per minute (this rate is required before pumps can be accurately calibrated).

SCAN: An "Err" message will appear (there is no programming in SCAN).

HANDGUN MODE, OPERATE FUNCTIONS: Now put the TASC mode selector switch to "OPERATE". The following programming functions are available in the TASC console:

SPEED: This is a direct reading of ground speed.

AREA: Area will not accumulate in the handgun mode.

CHEMICAL, VOL. APPLIED: Accumulated ounces as they are applied, switches to hundredths of gallons after 256 ounces are accumulated.

CHEMICAL, CHEM. RATE: This register will indicate the programmed standard rate (oz per 100 gallons) regardless of the switch position "ON" or "ALT", With pump switch in the "ALT" position, the display will read as a ratio (i.e. 1:100, gal:gal, or oz:oz, chemical:carrier).

CHEMICALS, % RATE: Allows changing chemical injection rates a preset percentage (section 5.4.2.1 in the TASC Manual).

CARRIER RATE: Displays target carrier application rate. Actual carrier flow rate in gallons per minute will be displayed once flow is established. The INC/DEC switch will change the carrier rate by the percentage amount programmed in the "Chemicals, % Rate" register (injected rates will not be affected).

CARRIER TOTAL APPLIED: Accumulated gallons applied.

WIDTH: "none" (boom widths are not used in the handgun mode.)

DISTANCE: Accumulated distance in feet or miles.

PRIME: Used for priming the injection pumps (section 5.5 in the TASC Manual).

TEST SPEED: The gallons per minute programmed in the "SET-UP" mode is displayed.

SCAN: Scans information in the accumulators and registers.

HANDGUN MODE, SPECIAL CONSIDERATIONS:

- A. Pump Calibrations: The speed of the injection pumps during calibration is determined by the programmed test speed (gallons per minute) and the programmed chemical application rate (ounces per 100 gallons or ratio: gal/gal). Set these numbers to your typical operating conditions before doing the pump calibrations.
- B. The injection pumps will operate at the speed necessary to apply the correct amount of chemical according to the programmed carrier application rate, regardless of small variations in the actual carrier flow rate. (Large variations in the actual flow rate lasting more than 5 seconds will cause an error shutdown of the sprayer). Thus, chemicals will always be applied correctly, even if there is variation in the carrier output. (If the carrier rate is set to 0.0, see the Manual Override of Flow Control Valve Section, page 4.)
- C. Booms are not used in the handgun mode. If the TASC senses a boom "ON" condition it will indicate an "Err" and will stop the injection pumps and close the flow control valve.
- D. The initial response of the flow control valve to the selection of the handgun mode is to open fully. Once application has started, the response of the flow control valve to the flow switch "OFF" condition is to "HOLD" the valve in the partially open condition. The CLOSE valve response is not selectable while operating in the handgun mode.
- E. The values programmed into the TASC console while in either the Handgun or Normal mode will remain in console memory, even when the opposite mode is selected.
- F. Selecting TEST SPEED on the TASC console, while in the "OPERATE" mode, will cause the flow control valve to adjust flow to the test rate selected and the injection pumps to control to the programmed test rate.

HANDGUN MODE, TYPICAL OPERATION:

- A. Set the Normal/Handgun switch to "Handgun", the Boom switch to "Auto", and the Ground Speed Override Switch to "OFF".
- B. Select "SET-UP" for the TASC console mode selector. Program the TASC console as necessary (See SET-UP Mode, page 2).
- C. Zero the accumulated rates and set the desired carrier flow rate as necessary.
- D. Select "OPERATE" with the TASC console mode selector switch. The initial response of the flow control valve is to drive fully open.
- E. Turn "ON" the desired chemical injection pumps.
- F. Close the valve leading to the spray boom.

G. Be sure the carrier pump is operating. Turn on the handgun. As soon as the flow switch senses flow, the console will begin to adjust the flow control valve (after a short delay to allow flow to stabilize) to achieve the desired flow in gallons per minute. At the same time the chemical injection pumps will be activated at the speed necessary to apply the desired rates of ounces per hundred gallons, according to the programmed target carrier rate. There is no delay to the control of the injection pumps. (*NOTE: the carrier flow rate is the sum of the carrier and the injected chemicals.*)

H. Turn off the handgun. The chemical injection pumps will stop immediately. The flow control valve will hold its position so that flow will be immediately available at the proper rate when the handgun is again activated.

I. Set the Normal/Handgun switch to "Normal" and the flow control valve will automatically go closed. Open the valve leading to the spray boom. The TASC console will then be ready for the previously programmed broadcast spraying operations.

HANDGUN MODE, MANUAL VALVE OVERRIDE:

The flow control valve can be set to a manual override condition, if needed. Put the TASC console in "SET-UP" mode, with the display selector on "Carrier, Application Rate". Use the INC/DEC switch to set the application rate to 0.0 gallons/minute. When the mode selector is switched back to "OPERATE", the display will show "*Flow Contl OFF Auto, Handgun*", and the flow control valve is driven fully open.

When in the Manual override condition, and with the display selector in "Carrier, Application Rate", the flow control valve responds only to operation of the INC/DEC switch on the console. Flow can be controlled, either by the INC/DEC switch setting, or by feathering the handgun trigger. When flow is established with the handgun valve, the console will display flow as GAL/MIN. Any injection pumps selected "ON" will be controlled to the proper rate per hundred gallons, based on the actual flow rates measured by the flow meter (except in the "TEST SPEED" position where the programmed test carrier rate is used to control injection pump speed).

HANDGUN MODE, ERROR MESSAGES, see also section 8.0 in the TASC Manual:

Error-1: "Error - 1, Pump #" This indicates the displayed pump is running at its maximum rate. An Error-1 condition lasting more than 5 seconds will cause all the injection pumps to stop and the flow control valve to close, stopping all spraying operations. Check power connections and programming. Check that the pump is large enough for the desired flow. Once the problem is corrected, Error-1, Pump # is cleared by first selecting Normal and then returning to the Handgun mode on the switch panel.

Error-3: "Error - 3, Pump #" This indicates there are no sensor pulses being received from the displayed pump. An Error-3 condition lasting more than 5 seconds will cause all the injection pumps to stop and the flow control valve to close, stopping all spraying operations. Check power, ground and fuses on the pump power cable. Check the programming. Check if the pumps runs before the error condition occurs. Once the problem is corrected, Error-3, Pump # is cleared by first selecting Normal and then returning to the Handgun mode on the switch panel.

Error-4: "Error - 4, Pump #" An Error-4 condition indicates that the displayed injection pump is running when it should be off. An Error-4 condition will immediately cause all the injection pumps to stop and the flow control valve to close, stopping all spraying operations. Check for normal operation of the injection pump, the pump driver module may need to be replaced. Once the problem is corrected, Error-4, Pump # is cleared by first selecting Normal and then returning to the Handgun mode on the switch panel.

Error-5: "Error -5. Pump F" This indicates the carrier flow rate is exceeding the target rate and the flow control valve is not responding to the consoles commands. An Error-5 condition lasting more than 5 seconds will cause all the injection pumps to stop and the flow control valve to close, stopping all spraying operations. Check the fuse and power and ground to the flow control valve. Check for a stuck valve. Once the problem is corrected, Error-5 is cleared by first selecting Normal and then returning to the Handgun mode on the switch panel.

HANDGUN MODE, PRINTER OUTPUT SAMPLES

The following two sample printouts show the typical printouts in the HANDGUN MODE. The one on the left shows metric units and the one on the right shows english units.

MIDWEST TECHNOLOGIES, INC.
TASC- 6300 SPRAY CONTROL

APPLICATION RATES:

CHEM.1 = 39.92 L/100L
CHEM.2 = 4.99 L/1000L
CHEM.3 = 4.99 L/1000L

CARRIER = .0 L/MIN

VOLUME APPLIED:

CHEM.1 = 38.46 LITERS
CHEM.2 = 38.25 LITERS
CHEM.3 = 37.87 LITERS

CARRIER = 3038 LITERS

AREA COVERED:

FIELD = 10.04 HA
TOTAL = 1.8 HA

CHEM. DESCRIPTION

CHEM.1 =
CHEM.2 =
CHEM.3 =

WEATHER DATA:

TEMP..... %-HUMD.....
WND.....DIR.....

FIELD#
REF. #
DATE:...../...../..... TIME: :
OPER.

MIDWEST TECHNOLOGIES, INC.
TASC- 6300 SPRAY CONTROL

APPLICATION RATES:

CHEM.1 = 511.1 OZ/100 GAL
CHEM.2 = 64.0 OZ/100 GAL
CHEM.3 = 64.0 OZ/100 GAL

CARRIER = .0 GAL/MIN

VOLUME APPLIED:

CHEM.1 = 10.16 GAL
CHEM.2 = 10.11 GAL
CHEM.3 = 10.01 GAL

CARRIER = 803 GAL

AREA COVERED:

FIELD = 27.50 ACRES
TOTAL = 7.2 ACRES

CHEM. DESCRIPTION

CHEM.1 =
CHEM.2 =
CHEM.3 =

WEATHER DATA:

TEMP..... %-HUMD.....
WND.....DIR.....

FIELD#
REF. #
DATE:...../...../..... TIME: :
OPER.

TASC ROADSIDE SPRAYER SUPPLEMENT

NORMAL MODE, AUTOMATIC "PRESSURE" OPERATION

The TASC can be setup to control to a desired pressure. As boom sections of a balanced sprayer are turned on and off, the control valve will open and close to maintain a flow rate that will give a constant pressure. The control valve will adjust according to boom width only. SPEED will not adjust flow rate. To enter this mode do the following:

MODE SELECTOR switch to carrier application rate. SETUP/OPERATE switch to SETUP. Use INC/DEC switch to set rate to 0.0. Put SETUP/OPERATE switch back to OPERATE. Console will read "*Flow Contl OFF Auto*".

Monitoring a pressure gauge, use the INC/DEC switch to set the desired pressure. You are now set to operate at a predetermined pressure. Injection pumps will track boom width changes and speed changes to keep chemical rate per acre constant. The console will display flow as GAL/ACRE at speeds above 1 mph. Below 1 mph the console will display flow as GAL/MIN.

NORMAL MODE, SPECIAL PURPOSE BOOM WIDTHS

For broadcast spraying operations on slopes, separate widths can be programmed into the 'B' or 'C' widths on the TASC console. Select the "Normal" mode and 'B' Width or 'C' Width on the Boom Switch Panel. Select the Width display function and the "SET-UP" mode on the TASC console. Enter the desired width in inches.

Now, whenever boom width 'B' or 'C' is selected on the switch panel, the TASC console will automatically adjust its flow rate for the programmed width, regardless of the position of the individual boom valves