

SECTION 4 MINI-SPREADER

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GENERAL

Mini-Spreader components and hardware items necessary for installation are shown in figure 4-1. Before starting work, check to see that all items required for installation have been included in the kit. If vehicle is

not equipped with a step bumper, it will be necessary to bolt the two mounting angles to the vehicle frame rear crossmember and to the feet of the spreader frame uprights.

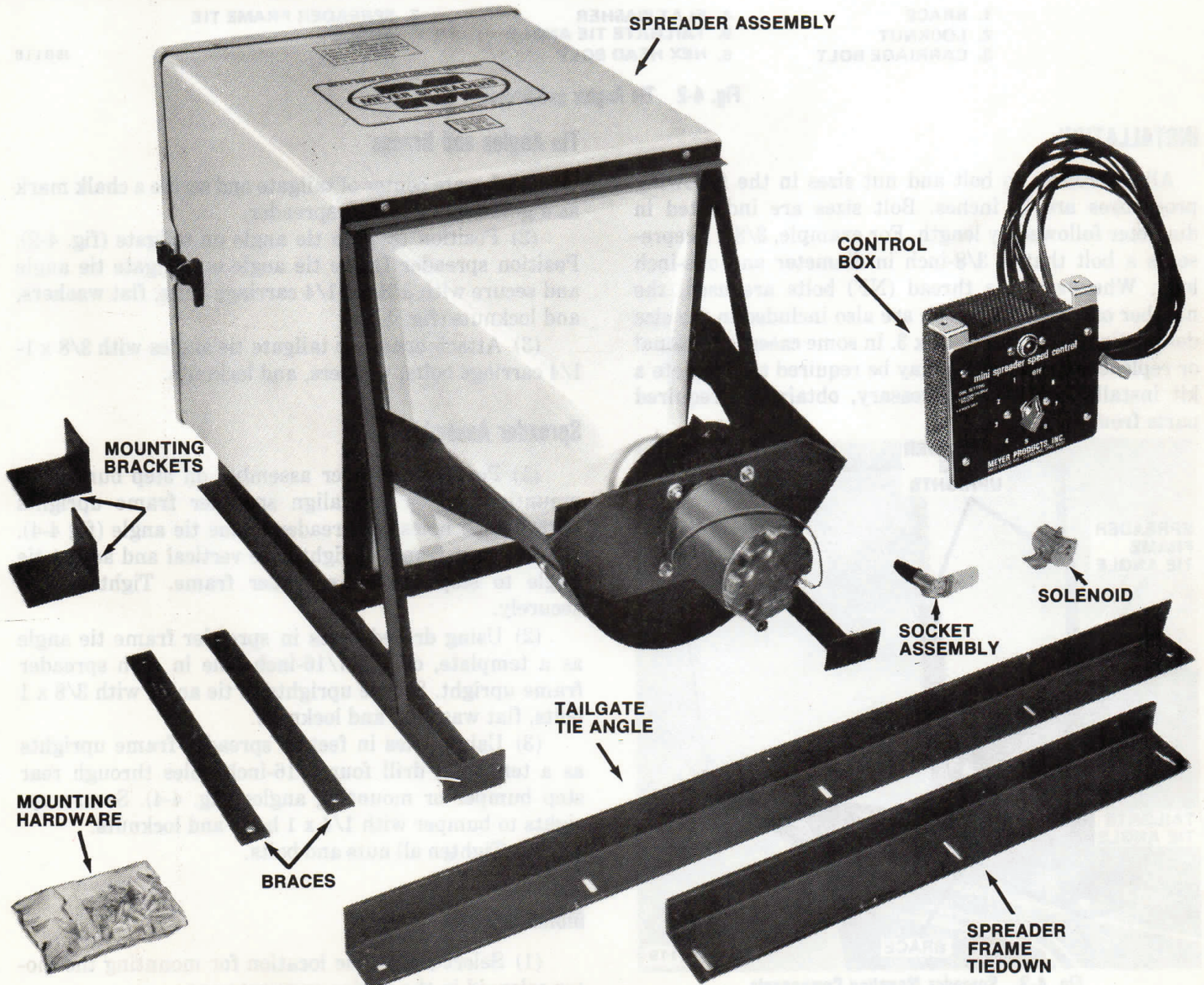
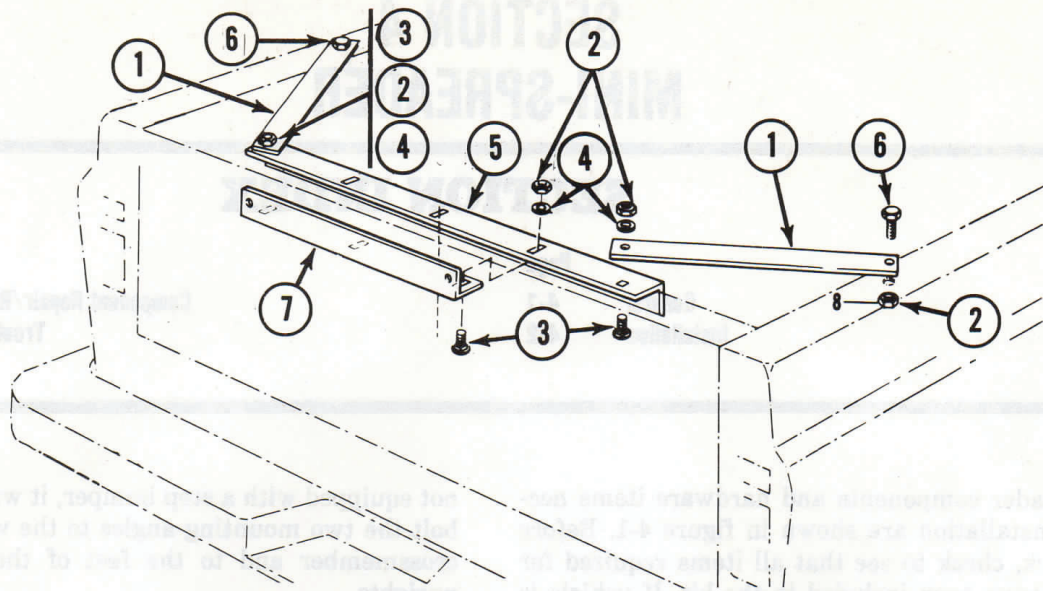


Fig. 4-1 Spreader Assembly and Hardware



- 1. BRACE
- 2. LOCKNUT
- 3. CARRIAGE BOLT

- 4. FLAT WASHER
- 5. TAILGATE TIE ANGLE

- 6. HEX HEAD BOLT
- 7. SPREADER FRAME TIE ANGLE

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Fig. 4-2 Tie Angles and Braces

INSTALLATION

All references to bolt and nut sizes in the following procedures are in inches. Bolt sizes are indicated in diameter followed by length. For example, 3/8 x 1 represents a bolt that is 3/8-inch in diameter and one-inch long. Whenever fine thread (NF) bolts are used, the number of threads per inch are also included in the size description, such as 1/2-20 x 3. In some cases, additional or replacement fasteners may be required to complete a kit installation. When necessary, obtain the required parts from your stock.

Tie Angles and Braces

- (1) Locate center of tailgate and scribe a chalk mark as a guide for centering spreader.
- (2) Position tailgate tie angle on tailgate (fig. 4-2). Position spreader frame tie angle on tailgate tie angle and secure with 3/8 x 1-1/4 carriage bolts, flat washers, and locknuts (fig. 4-3).
- (3) Attach braces to tailgate tie angles with 3/8 x 1-1/4 carriage bolts, washers, and locknuts.

Spreader Assembly

- (1) Position spreader assembly on step bumper or mounting angles and align spreader frame uprights with drilled holes in spreader frame tie angle (fig 4-4). Be sure that frame uprights are vertical and adjust tie angle to stop against spreader frame. Tighten nuts securely.
- (2) Using drilled holes in spreader frame tie angle as a template, drill a 7/16-inch hole in each spreader frame upright. Secure uprights to tie angle with 3/8 x 1 bolts, flat washers, and locknuts.
- (3) Using holes in feet of spreader frame uprights as a template, drill four 5/16-inch holes through rear step bumper or mounting angles (fig. 4-4). Secure uprights to bumper with 1/4 x 1 bolts and locknuts.
- (4) Tighten all nuts and bolts.

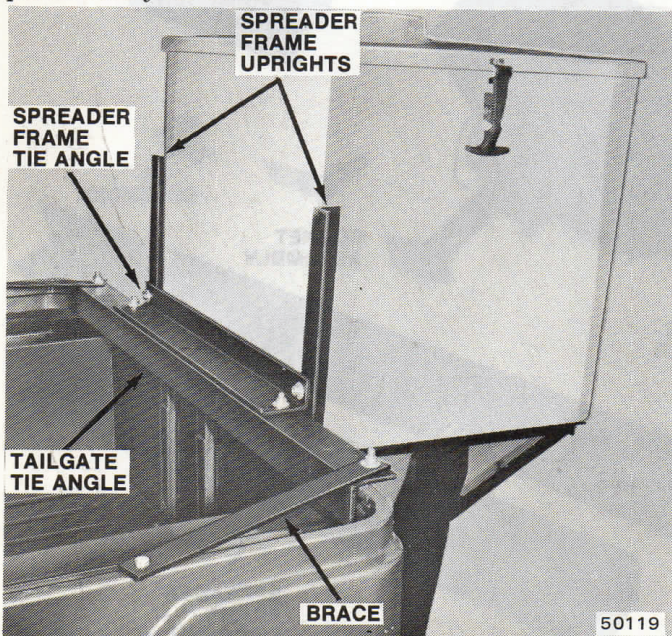


Fig. 4-3 Spreader Mounting Components

Motor Solenoid

- (1) Select a suitable location for mounting the motor solenoid in the engine compartment.

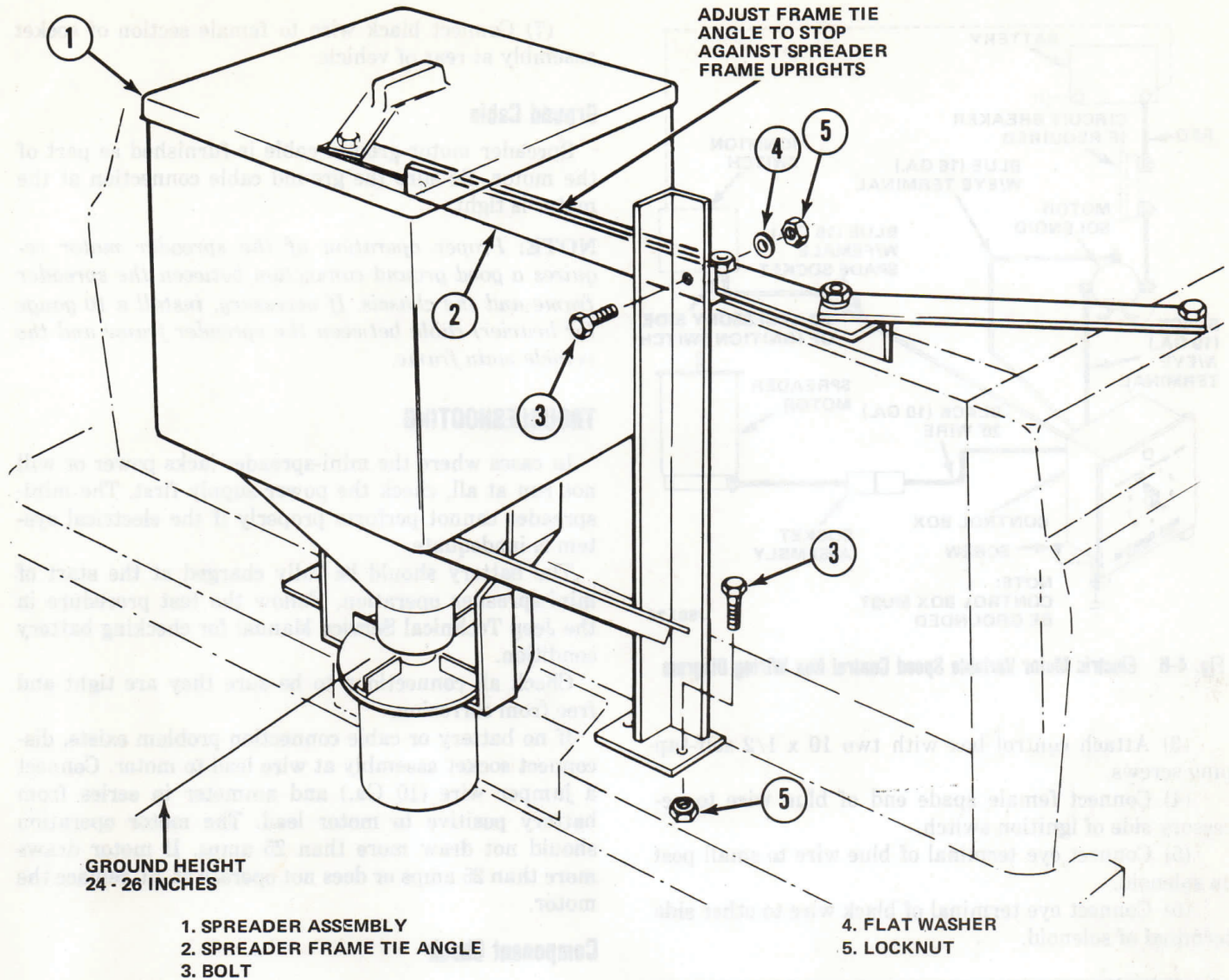


Fig. 4-4 Installation of Spreader and Spreader Frame

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(2) Using solenoid as template, drill two 3/16-inch holes and attach solenoid with 14 x 3/4 screws.

Socket Assembly

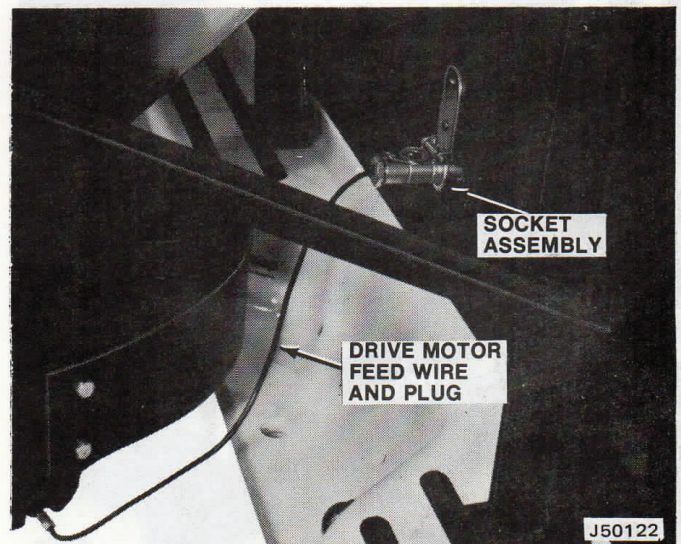
(1) Position socket assembly at center of lower rear panel or other convenient location (fig. 4-5).

(2) Using socket mounting bracket as template, drill two 5/32-inch holes in panel and attach socket assembly with 8 x 1 screws and locknuts.

Electrical Wiring with Variable Speed Control

(1) Connect one end of red wire to positive side of battery and other end to side terminal of motor solenoid (fig. 4-6).

(2) Position speed control box at bottom edge of instrument panel and use as a template to drill two 1/8-inch holes in panel as shown in figure 4-7.



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Fig. 4-5 Socket Assembly Installation

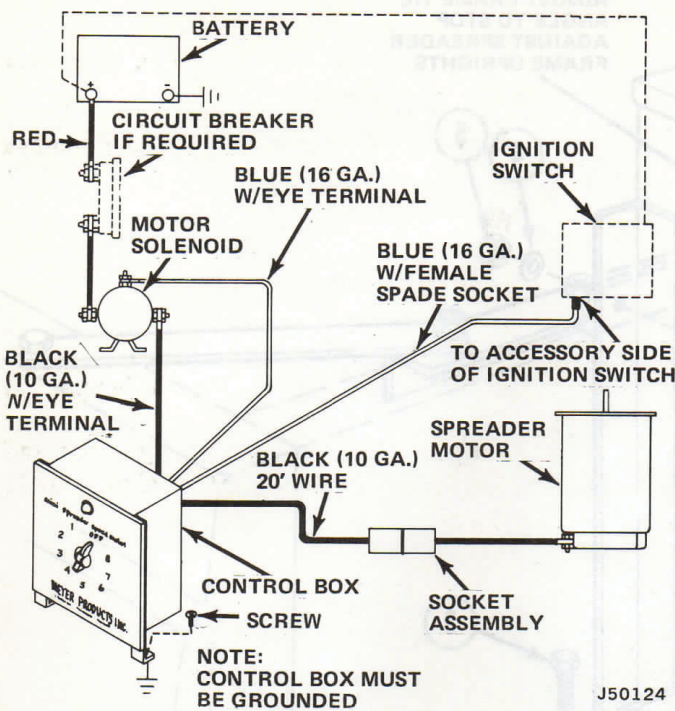


Fig. 4-6 Electric Motor Variable Speed Control Box Wiring Diagram

- (3) Attach control box with two 10 x 1/2 self-tapping screws.
- (4) Connect female spade end of blue wire to accessory side of ignition switch.
- (5) Connect eye terminal of blue wire to small post on solenoid.
- (6) Connect eye terminal of black wire to other side terminal of solenoid.



Fig. 4-7 Speed Control Box Installation

(7) Connect black wire to female section of socket assembly at rear of vehicle.

Ground Cable

Spreader motor ground cable is furnished as part of the motor. Be sure the ground cable connection at the motor is tight.

NOTE: Proper operation of the spreader motor requires a good ground connection between the spreader frame and the chassis. If necessary, install a 10 gauge (or heavier) cable between the spreader frame and the vehicle main frame.

TROUBLESHOOTING

In cases where the mini-spreader lacks power or will not run at all, check the power supply first. The mini-spreader cannot perform properly if the electrical system is inadequate.

The battery should be fully charged at the start of mini-spreader operation. Follow the test procedure in the Jeep Technical Service Manual for checking battery condition.

Check all connections to be sure they are tight and free from corrosion.

If no battery or cable connection problem exists, disconnect socket assembly at wire lead to motor. Connect a jumper wire (10 Ga.) and ammeter in series from battery positive to motor lead. The motor operation should not draw more than 25 amps. If motor draws more than 25 amps or does not operate at all, replace the motor.

Component Check

(1) Turn ignition switch to the run position to energize speed control box.

CAUTION: An internal stop prevents setting below 3 on speed control box. Forcing knob below 3 setting will result in internal damage.

(2) Turn speed control switch to one of eight ON positions.

(3) If spreader motor does not operate, check circuitry with continuity lamp.

(4) Check the battery feed (red) wire to motor solenoid with continuity lamp. If lamp does not light, replace the feed wire.

(5) Check solenoid to control box (blue) wire with continuity lamp. If light does not light, check wire and circuit breaker.

NOTE: Control box must be grounded for this test.

(6) Check blue wire between accessory side of switch and control box for continuity. No continuity at accessory side of switch indicates an open circuit or blown fuse. Repair open circuit or replace fuse.

(7) Check solenoid by connecting a jumper wire from battery side of solenoid to motor side of solenoid. If motor runs, replace solenoid. If motor does not run, check for current at socket assembly between control box and motor. If current is indicated, replace motor. If no current is present from the control box, replace the control box.

COMPONENT REPAIR/REPLACEMENT

Auger and Spinner Plate

Removal

(1) Shut off power by disconnecting drive motor feed wire plug from socket assembly (fig. 4-5 and 4-6).

(2) Remove hopper cover (fig. 4-8).

(3) Remove locknuts and bolts attaching auger and spinner plate to spinner drive.

(4) Remove auger from inside hopper and remove spinner plate from under hopper.

Installation

(1) Position spinner plate on spinner drive.

(2) Position auger, through opening in hopper, on spinner plate.

(3) Install bolts and locknuts attaching auger and spinner plate to spinner drive. Tighten locknuts to 11 foot-pounds (15 N•m) torque.

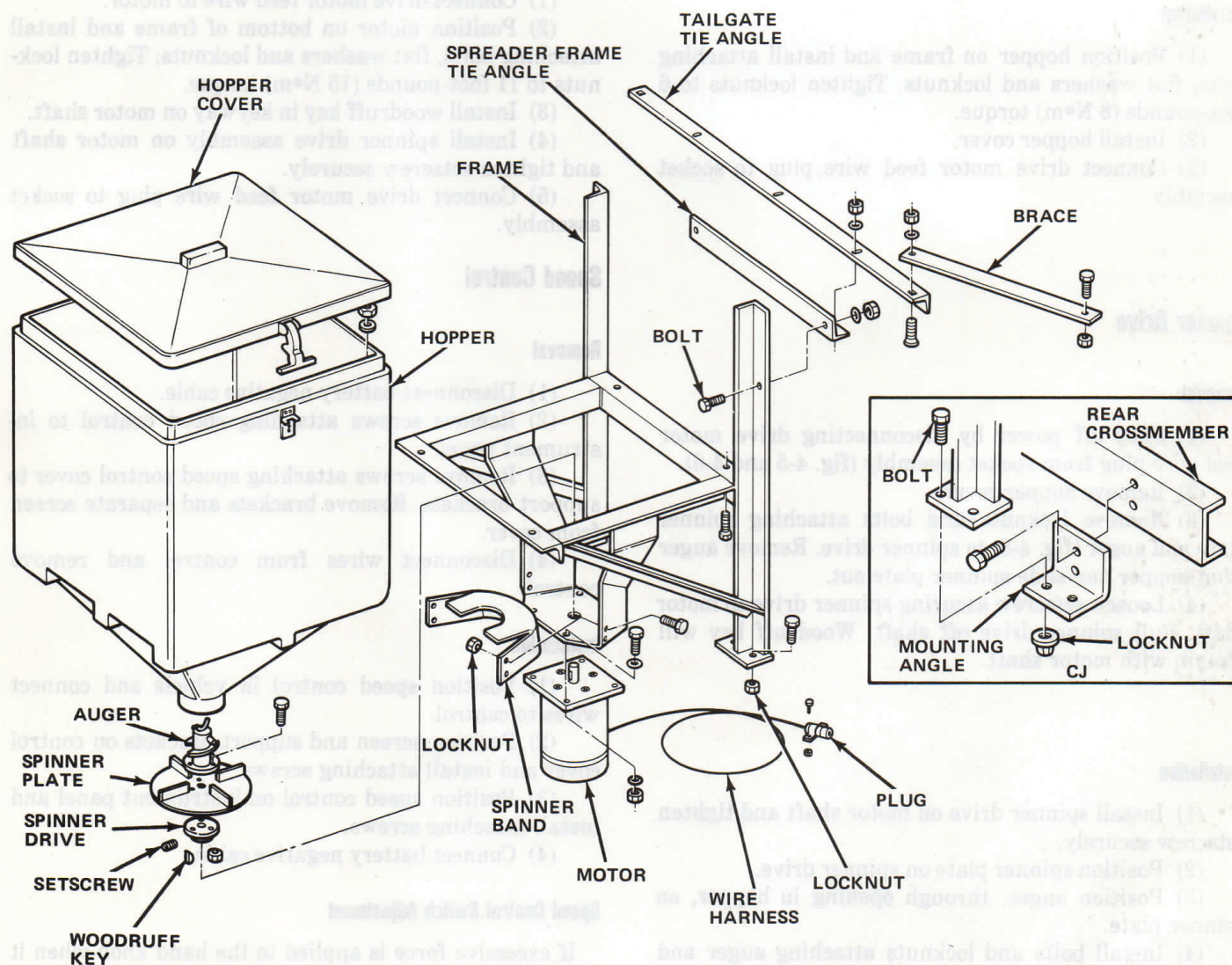


Fig. 4-8 Mini-Spreader Assembly Components and Hardware

(4) Install hopper cover.

(5) Connect drive motor feed wire plug to socket assembly.

Hopper

Removal

(1) Shut off power by disconnecting drive motor feed wire plug from socket assembly (fig. 4-5 and 4-6).

(2) Remove hopper cover (fig. 4-8).

(3) From inside hopper, remove locknuts, flat washers, and bolts attaching hopper to frame.

(4) Remove hopper.

Installation

(1) Position hopper on frame and install attaching bolts, flat washers and locknuts. Tighten locknuts to 6 foot-pounds (8 N•m) torque.

(2) Install hopper cover.

(3) Connect drive motor feed wire plug to socket assembly.

Spinner Drive

Removal

(1) Shut off power by disconnecting drive motor feed wire plug from socket assembly (fig. 4-5 and 4-6).

(2) Remove hopper cover.

(3) Remove locknuts and bolts attaching spinner plate and auger (fig. 4-8) to spinner drive. Remove auger from hopper and slide spinner plate out.

(4) Loosen setscrew securing spinner drive to motor shaft. Pull spinner drive off shaft. Woodruff key will remain with motor shaft.

Installation

(1) Install spinner drive on motor shaft and tighten setscrew securely.

(2) Position spinner plate on spinner drive.

(3) Position auger, through opening in hopper, on spinner plate.

(4) Install bolts and locknuts attaching auger and spinner plate to spinner drive. Tighten locknuts to 11 foot-pounds (15 N•m) torque.

(5) Install hopper cover.

(6) Connect drive motor feed wire plug to socket assembly.

Motor

Removal

(1) Shut off power by disconnecting drive motor feed wire plug from socket assembly (fig. 4-5 and 4-6).

(2) Loosen setscrew attaching spinner drive to motor shaft (fig. 4-8).

(3) Remove spinner drive assembly from motor shaft.

(4) Remove locknuts, flat washers, and bolts attaching motor to frame.

(5) Remove motor and woodruff key from motor shaft.

(6) Disconnect drive motor feed wire from motor.

Installation

(1) Connect drive motor feed wire to motor.

(2) Position motor on bottom of frame and install attaching bolts, flat washers and locknuts. Tighten locknuts to 11 foot-pounds (15 N•m) torque.

(3) Install woodruff key in keyway on motor shaft.

(4) Install spinner drive assembly on motor shaft and tighten setscrew securely.

(5) Connect drive motor feed wire plug to socket assembly.

Speed Control

Removal

(1) Disconnect battery negative cable.

(2) Remove screws attaching speed control to instrument panel.

(3) Remove screws attaching speed control cover to support brackets. Remove brackets and separate screen from cover.

(4) Disconnect wires from control and remove control.

Installation

(1) Position speed control in vehicle and connect wires to control.

(2) Position screen and support brackets on control cover and install attaching screws.

(3) Position speed control on instrument panel and install attaching screws.

(4) Connect battery negative cable.

Speed Control Switch Adjustment

If excessive force is applied to the hand knob when it is in stop position (3), the cam can slip on its shaft and get out of phase with the micro-switch roller. This condition will prevent you from turning the spinner motor off. To prevent recurrence of this problem, remove and discard stop screw, nut and washer.

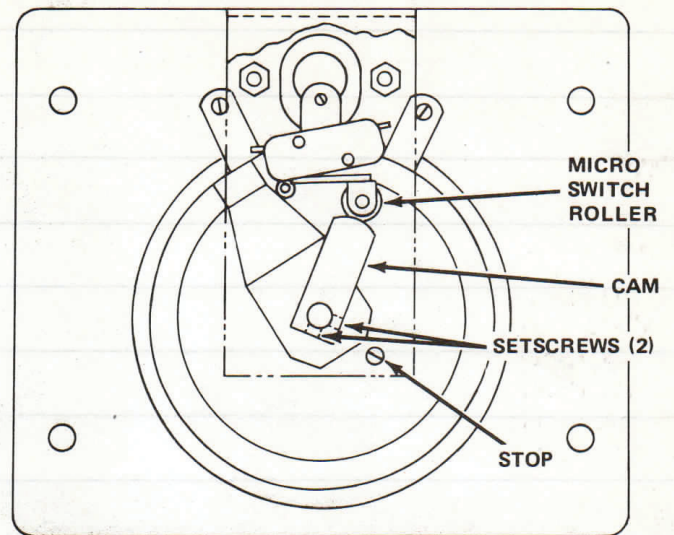
(1) Remove screws retaining back cover and slide cover away to provide access to the control.

(2) Loosen the two cam setscrews (use 1/16-inch Allen wrench) and return hand knob to OFF position.

(3) Position high spot of cam against micro-switch roller as shown in figure 4-9.

(4) If necessary, slide cam along shaft so cam is in contact with full width of roller.

(5) Tighten both cam setscrews securely and reassemble back cover.



REAR VIEW OF SPEED CONTROL

Fig. 4-9 Speed Control Switch

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