DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

SHOP SET, SPARE PARTS STORAGE

FIELD MAINTENANCE

(NSN 4940-00-322-6016)

INSTALLATION IN ONE M35A2 CARGO TRUCK

HEADQUARTERS, DEPARTMENT OF THE ARMY

25 March 1970

WARNING

All electrically-powered tools and equipment must be grounded prior to use.

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*This bulletin supersedes TB ORD-444-15 dated 23 January 1962.

LIST OF ILLUSTRATIONS

1. General

a. Instructions contained in this bulletin are to be used as a guide for installation of spare parts storage fleld maintenance shop set (NSN 4940-00-322-6016) in one M35A2 cargo truck, referenced in figure 1.

b. Slight variations to the installation instructions may be made at the discretion of the officer in charge.

c. Complete lists of items contained in this shop are found in SC 4940-95-CL-A09.

d. Personnel performing this installation should have a practical knowledge of electricity.

e. Items not mentioned in this bulletin, that may be components of this shop, may be stowed in storage cabinets and drawers or secured in such a manner as to avoid damage in transit.

f. All dimensions, fastener sizes, and hardware sizes are in inches.

g. When entering the shop, curbside is at right and roadside is at left.

2. Warnings and Cautions

WARNING

All electrically-powered tools and equipment must be grounded prior to use.

CAUTION

Special care should be exercised to avoid damage to electrical connectors, wiring, or electrical equip ment.

To preserve waterproof characteristics, precautions should be taken not to puncture the outer skin when drilling holes into the walls or floor of the shop. Coat underside of vehicle body with coating compound (UNDERCOATING TT-C-520, NSN 8030-00-221-1834) where mounting hardware projects through floor.

3. Location of Equipment

a. Locations of equipment installed or stowed in M35A2 cargo truck are shown in figures 2 thru 7.

(1) Refer to table 1 for hardware required for installation.

(2) Refer to table 2 for components to be mounted.

(3) Refer to table 3 for electrical components to be mounted.

b. Refer to table 4 for standard conversion chart.

3. Location of Equipment--Continued

Table 1. Mounting Hardware

MS/part no.	Size and description	Qty	Application
MS3367-3-O	12.00-in. Tiedown Strap	10	Power cable assemblies
MS27130-A20K	#10-24 UNC Blind Rivet Nut	2	Strap loop
MS7183-14	13/32-in. Flat Washer	32	Storage cabinets
MS7183-42	7/32-in. Flat Washer	5	Fire extinguisher, strap loop
MS35190-275	#10-24 UNC-2A Countersunk Head Machine Screw x 1.00L	7	Fire extinguisher, strap loops
MS35338-43	#10 LockWasher	5	Fire extinguisher, strap loop
MS35338-46	3/8-in. LockWasher	42	Storage cabinets, truck bows
MS35649-202	#10-24 UNC-2B Hex Nut	5	Fire extinguisher, strap loop
MS51861-49	#10 Thread Forming Screw x 1.00 L	12	Switch box, lampholder junction boxes, duplex junction box
MS51939-3	Strap Loop	2	Vehicle boarding ladder
MS51967-8	3/8-16 UNC-2B Hex Nut	42	Storage cabinets, truck bows
MS90725-61	3/8-16 UNC-2A Hex Head Capscrew x 1-1/8 L	32	Storage cabinets
MS90725=66	3/8-16 UNC-2A Hex Head Capscrew x 2.00 L	10	Truck bows
7550588-9	66.00-in. Retaining Strap	1	Vehicle boarding ladder

3. Location of Equipment--Continued

Table 2. Components to be Mounted

NSN	Qty	Description	Figure no.
7125-00-693-4352	2	CABINET, STORAGE: 12 drawers	2-3
7125-00-378-4261	5	CABINET, STORAGE: 18 drawers	2-3-4
7125-00-335-0292	1	CABINET, STORAGE: 42 drawers	2-4
4210-00-270-4512	1	EXTINGUISHER, FIRE: carbon dioxide	2-4-7
2540-O0-641-0187	1	LADDER, VEHICLE BOARDING	2-3

Table 3. Electrical Components to be Mounted

Part no. or specification	Qty	Description	Figure no.
APPLETON 15233	8	BOX CONNECTOR: type I, class 4, style M (W-F-406)	10 thru 13
4910-00-800-1405	1	CABLE ASSEMBLY, ELECTRICAL POWER (MIL-C-45820)	9-14
11023000	3	CABLE ASSEMBLY, POWER consisting of one each of the following: 18-in. flex. cord (J-C-580) plug (W-C-596/91-1) box connector (W-F-406)	8-10-13
11023002	2	CABLE ASSEMBLY, POWER consisting of one each of the following; 18-in. flex. cord (J-C-580) connector (W-C-596/92-1) box connector (W-F-406)	8-12-13
11023001	1	CABLE ASSEMBLY, POWER consisting of one each of the following: 118-in. flex. cord (J-C-580) plug (W-C-596/91-1) box connector (W-F-406)	8-11-13
GE-GLD0533	2	CONNECTOR, CABLE OUTLET: 2-pole, 3-wire, 30 amp, grounding, 125 V, 50/60 Hz (W-C-596/92-1)	12

3. Location of Equipment--Continued

Table 3. Electrical Components to be Mounted--Continued

Part no. or specification	Qty	Description	Figure no.
GE-GLD0531	4	CONNECTOR, PLUG: straight, grounding, 2-pole, 3-wire, 30 amp, 125 V, 50/60 Hz (W-C-596/91-1)	10-11
6145-00-295-0855	24 ft	CORD, FLEXIBLE: type S06CF3/10SRNJG (J-C-580)	8 thru 13
APPPLETON 2510	1	COVER, JUNCTION BOX, DUPLEX: type VIII, size F, style 59 (W-J-800)	9
“5975-00-281-0090	1	JUNCTION BOX, DUPLEX: type III (W-J-800)	8-9-13
APPLETON 40-3/4	3	JUNCTION BOX, LAMPHOLDER: type I (W-J-800)	8-9-13
GE-5740-7	3	LAMPHOLDER	9-14
5935-01-058-9269	1	RECEPTACLE, DUPLEX, GROUNDED: 2-pole, 3-wire (W-C-596/40)	9-14
SQUARE D D221NRB	1	SWITCH BOX (ENCLOSED): surface mtd, type NDS, class 2, design 2SN BOX, 120/240 v ac, 30amp (W-S-865)	8-9-13-14
MS20659-141	15	TERMINAL LUG	13

4. Installation

NOTE

Hand blind riveter (5120-OO-679-6523) is used for installation of blind rivet nuts in steel cabinet wall. Install blind rivet nuts in accordance with MIL-N-47187.

Position floor-mounted equipment as shown in figure 2. Use equipment mounting holes as template for location of drilled floor mounting holes in accordance with figures 2 thru 4.

a. Follow steps (1) thru (8) below for equipment installation in M35A2 cargo truck. Referto figures 2 thru 4 for component locations and dimensions.

(1) Mark and drill four 0.41-in. diameter holes to botton plate of cabinets. Locate at the four corners, allowing for minimum required clearance for 3/8-in. hex head capscrews.

(2) Position two 12-drawer storage cabinets (7125-00-693-4352) on front right wall in accordance with figures 2 and 3. Using the holes in the cabinet bottoms as templates, mark and drill eight 0.41-in. diameter holes

4. Installation--Continued

through floor. Secure cabinets to floor, using eight 3/8- x l-1/8-in. hex head capscrws (MS90725-61), eight 13/32-in. flat washers (MS27183-14), eight 3/8-in. lockwashers (MS35338-46), and eight 3/8-in. hex nuts (MS51967-8).

(3) Position two 18-drawer storage cabinets (7125-00-378-4261) against right side wall in accordance with figures 2 and 3. Using the holes in the cabinet bottoms as templates, mark and drill eight 0.41-in. diameter holes through floor. Secure cabinets to floor, using eight 3/8- x l-1/8-in. hex head capscrews (MS90725-61), eight 13/32-in. flat washers (MS27183-14), eight 3/8-in. lockwashers (MS35338-46), and eight 3/8-in. hex nuts (MS51967-8).

(4) Position three 18-drawer storage cabinets (7125-00-378-4261) and one 42-drawer storage cabinet (7125-00-335-0292) against the left side wall in accordance with figures 2 and 4. Using the holes in the cabinet bottoms as templates, mark and drill sixteen 0.41-in. diameter holes (four per cabinet bottom) through floor. Secure cabinets to floor, using sixteen 3/8- x l-l/8-in. hex head capscrews (MS90725-61), sixteen 13/32-in. flat washers (MS27183-14), sixteen 3/8-in. lockwashers (MS35338-46), and sixteen 3/8-in. hex nuts (MS51967-8).

(5) Position mounting bracket of fire extinguisher (4210-00-270-4512) on front wall in accordance with figures 2 and 4. Mark and drill three 0.22-in. diameter holes through mounting bracket. Using the mounting bracket as a template, mark and drill three 0.22-in. diameter holes in wooden truck slats in accordance with figure 7. Secure mounting bracket, using three #10 x l-in. countersunk head machine screws (MS35190-275), three 7/32-in. flat washers (MS27183-42), three #10 lockwashers (MS35338-43), and three #10 hex nuts (MS35649-202). Install fire extinguisher in mounting bracket.

(6) Mark and drill two 0.25-in. diameter holes in right side wall of rear right side 18-drawer storage cabinet in accordance with figure 5. Install two #10 blind rivet nuts (MS27130-A20K) . Position and secure one strap loop (MS51939-3), using two #10 x l-in. countersunk head machine screws (MS35190-275) (fig. 3).

(7) Mark and drill two 0.22-in. diameter holes in right side rear truck slats in accordance with figure 6. Position and secure one strap loop (MS51939-3), using two #10 x l-in. countersunk head machine screws (MS35190-275), two 7/32-in. flat washers (MS27183-42), two #10 lockwashers (MS35338-43), and two #10 hex nuts (MS35649-202) (fig. 3).

(8) Position one vehicle boarding ladder (2540-00-641-0187) against rear 18-drawer storage cabinet in accordance with figures 2 and 3. Secure, using 66-in. retaining strap (7550588-9).

b. Follow steps (1) thru (14) below for electrical component installation.

(1) To provide sufficient head room for personnel to work in the M35A2 cargo truck, raise the bows 18 inches and drill ten 0.44-in. diameter holes through bow sockets and bows in accordance with figure 9.

(2) Secure bows in place with ten 3/8- x 2-in. hex head capscrews (MS90725-66), ten 3/8-in. lockwashers (MS35338-46), and ten 3/8-in. hex nuts (MS51967-8).

(3) Position switch box (Square D D221NRB) on the two top truck slats in accordance with figures 8 and 9. Using holes of switch box as a template, mark and drill four 0.12-in. diameter pilot holes. Secure switch box to truck slats with four #10 x l-in. thread forming screws (MS51861-49).

4. Installation--Continued

(4) Install electrical power cable assembly (4910-00-800-1405) through box connector in bottom of switch box and connect to circuit breaker inside switch box in accordance with figures 9 and 14.

(5) Position three lampholder junction boxes (Appleton 40-3/4) on inner side of second, third, and fourth bows as shown in figure 8. Mark and drill six 0.12-in. diameter pilot holes and secure lampholder junction boxes to bows with six #10 x l-in. thread forming screws (MS51861-49).

(6) Position one duplex junction box (5975-00-281-0090) on second bow as shown figures 8 and 9. Mark and drill two 0.12-in. diameter pilot holes and secure duplex junction box to bow with two #10 x l-in. thread forming screws (MS51861-49).

(7) Remove one knockout slug from duplex junction box (5975-00-281-0090) In line with the second bow in accordance with figure 9. Remove two knockout slugs from each lampholder junction box [Appleton 40-3/4) in accordance with figures 8 and 9. Install seven box connectors (Appleton 15233), one in duplex junction box and two in each lampholder junction box in accordance with figure 13. Install jam nuts on box connectors.

(8) Fabricate six power cable assemblies (three 11023000, two 11023002, and one 11023001), using approximately 18 feet of flexable cord (6145-00-295-0855). For power cable assembly (11023001), use three terminal lugs (MS20659-141) on ends of wires. Install one box connector (Appleton 15233). Refer to figures 10 thru 12 for individual power cable assembly construction, and install in accordance with figures 8 and 13.

(9) Install 6 feet of flexible cord (6145-00-295-0855) through duplex junction box (5975-00-281-0090) and lampholder junction box (Appleton 40-3/4) on second bow. Refer to figures 8, 9 and 13. Strip a l-1/2-in. length of outside insulation from flexible cord on inside of each junction box. Strip l/2-in. of insulation from each individual wire and twist wire to fit three terminal lugs (MS20659-141). Install and crimp terminal lugs in place in accordance with figure 13.

(10) Connect terminal lugs (MS20659-141) to grounded duplex receptacle (5935-01-058-9269) and secure grounded duplex receptacle to duplex junction box (5975-00-281-0090) with screws provided with grounded duplex receptacle. Install duplex junction box cover (Appleton 2510) with screws provided in duplex junction box cover.

(11) Install nine terminal lugs (MS20659-141) in lampholder junction boxes (Appleton 40-3/4) by stripping l/2-in. of insulation from each individual wire. Twist wires to fit terminal lugs (three on each box) and crimp in accordance with figure 13.

(12) Connect terminal lugs to lampholder (GE-5740-7) and secure to lampholder junction box (Appleton 40-3/4) with screws provided with lampholder. Repeat this step for remaining two lampholders. Refer to figures 9 and 14.

(13) Tighten al 1 box connectors (Appleton 15233) to secure cords in junction boxes and switch box. Refer to figure 13.

(14) Secure power cable assemblies to bows with ten 12-in. tiedown straps (MS3367-3-0). Refer to figures 8 and 9. Refer to figure 14 for electrical schematic.

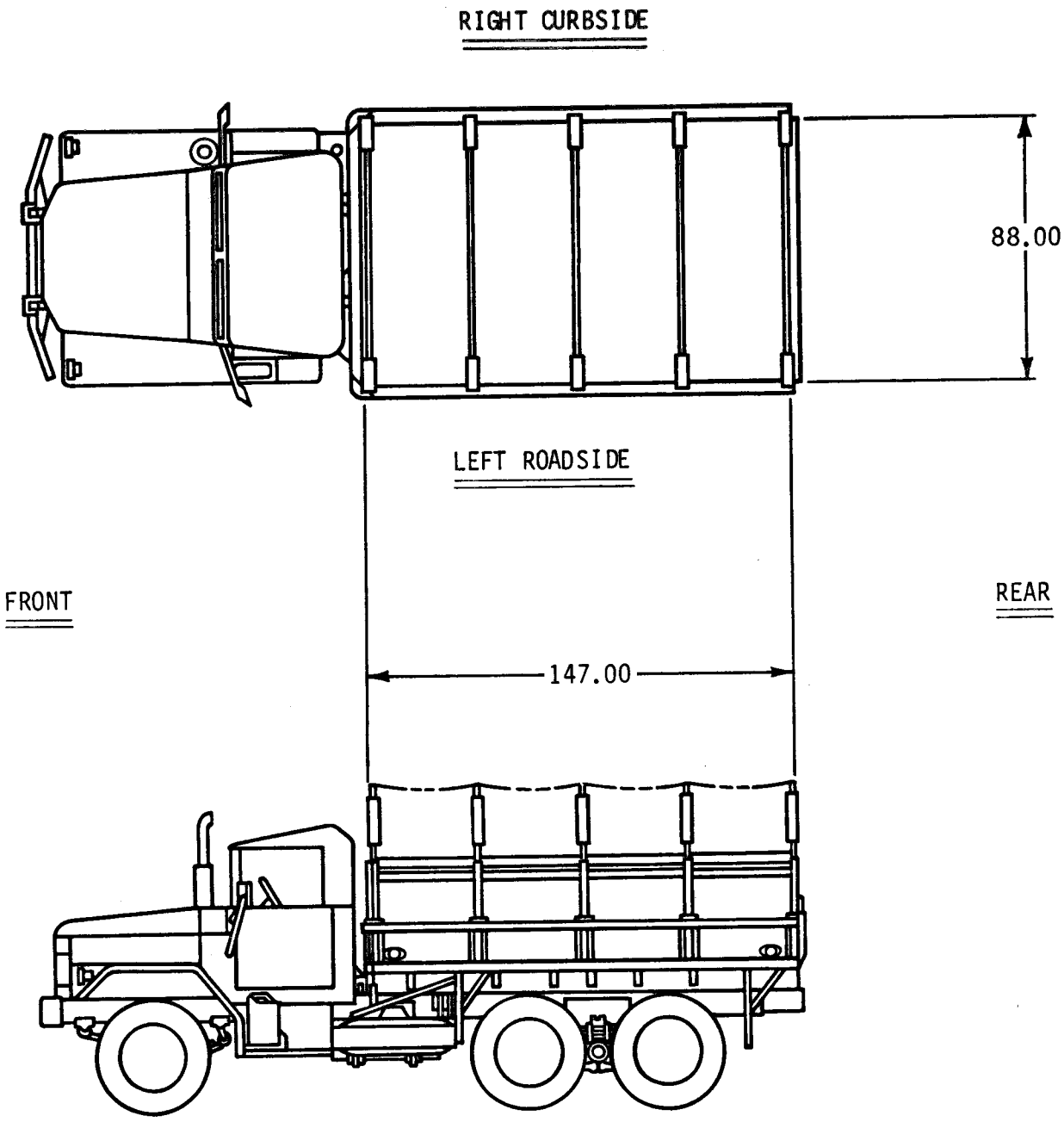


Figure 1. Cargo Truck, M35A2.

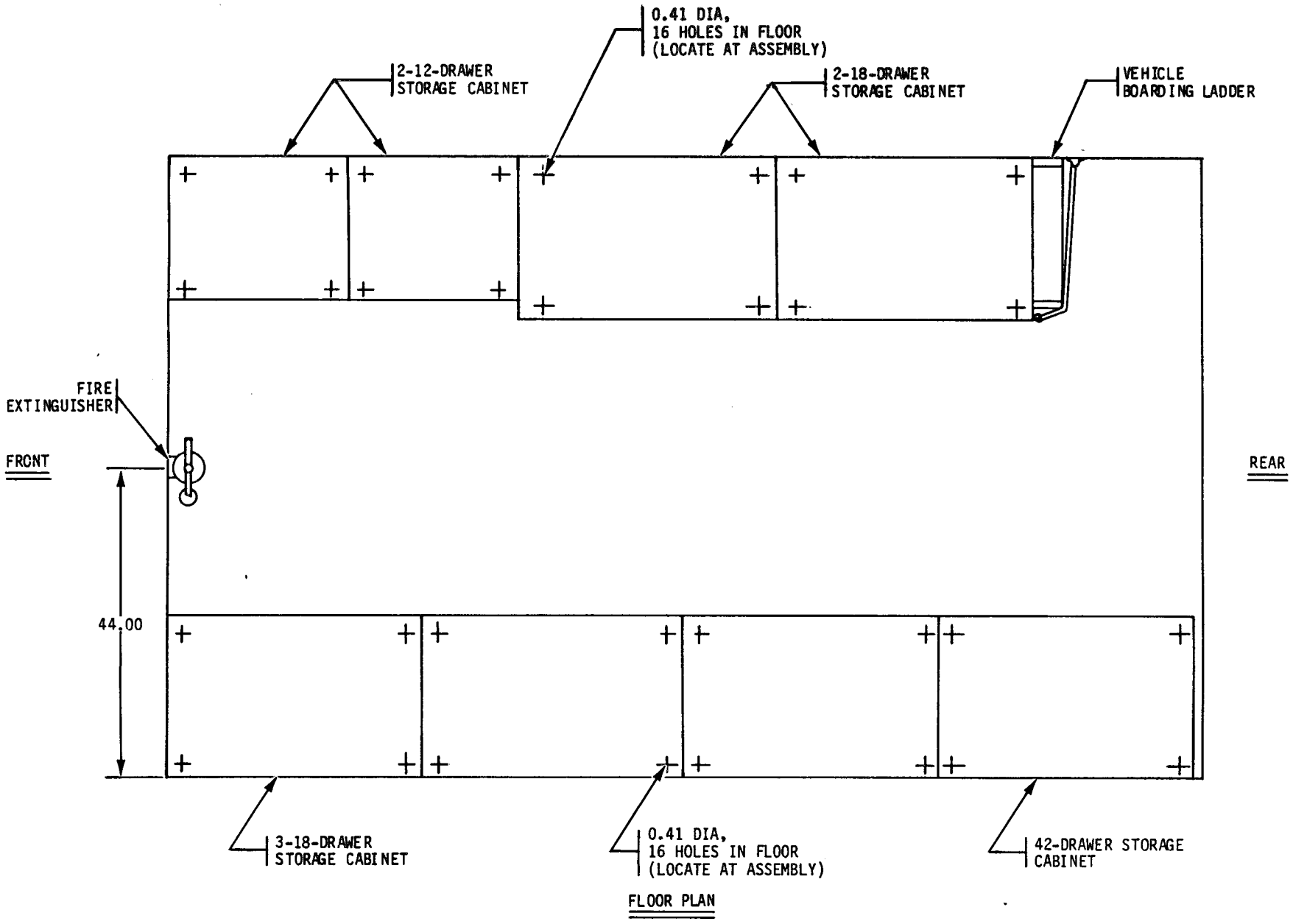
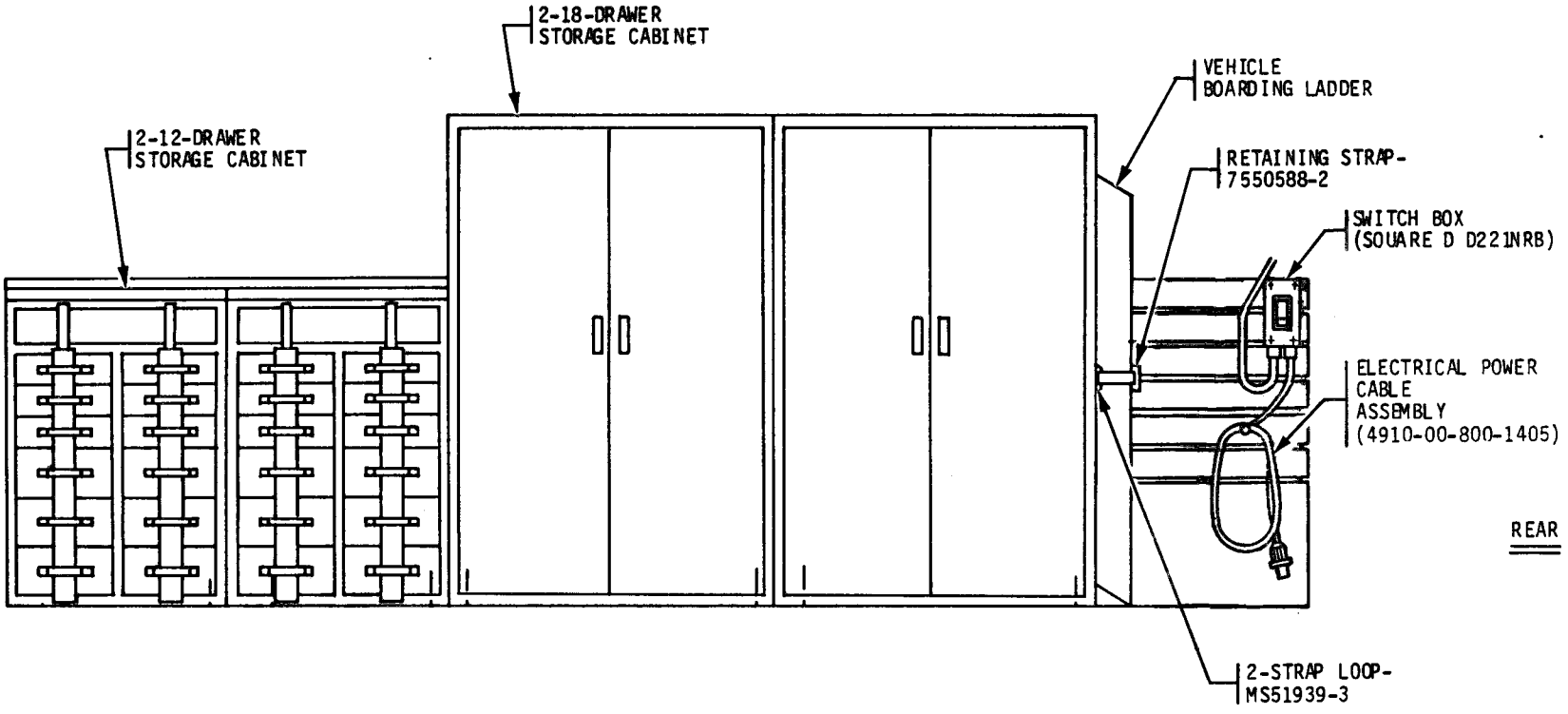


Figure 2. Components to be Mounted, Floor Plan, M35A2.



RIGHT SIDE ELEVATION

Figure 3. Components to be Mounted, M35A2, Right Side Elevation.

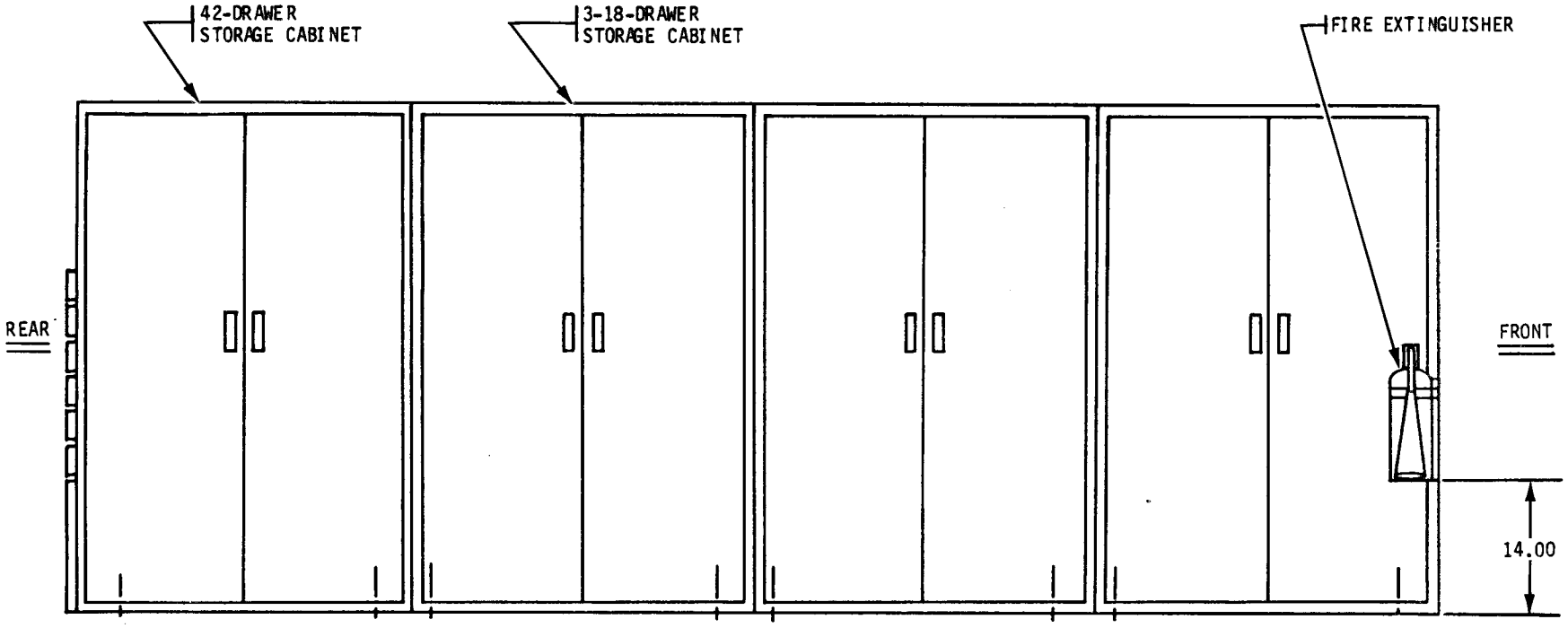


Figure 4. Components to be Mounted, M35A2, Left Side Elevation.

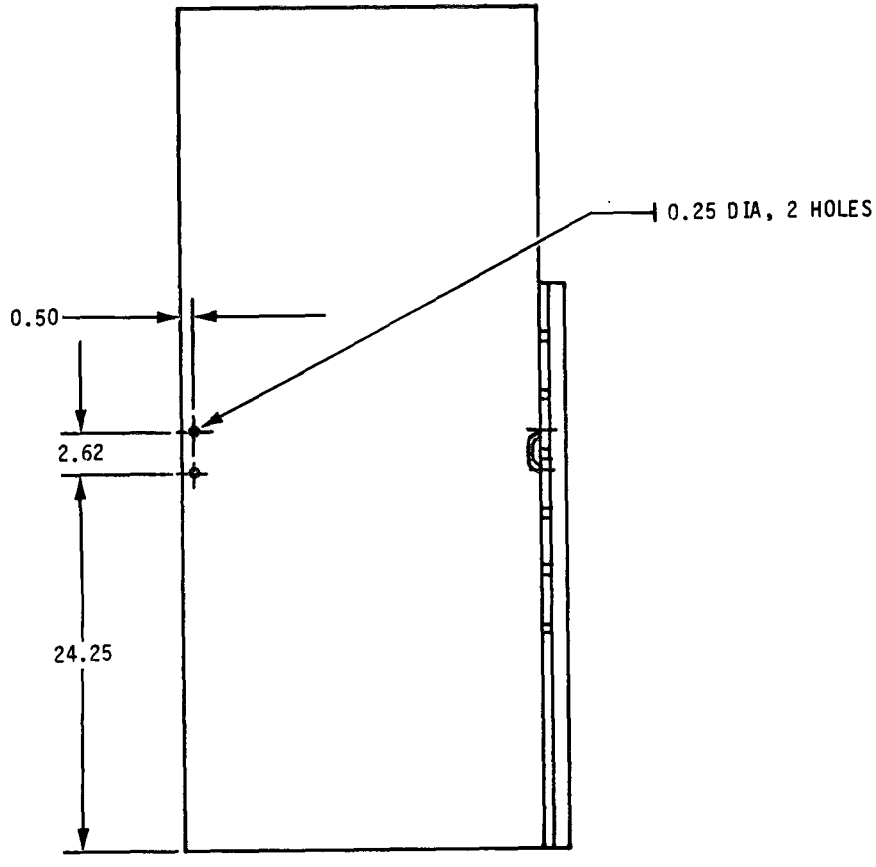
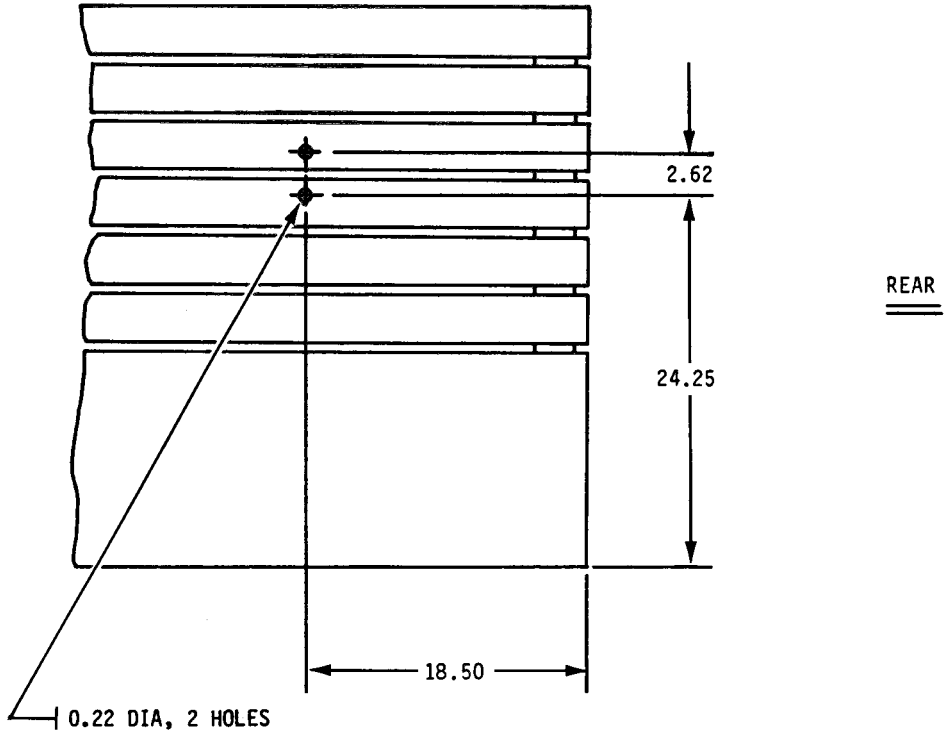


Figure 5. Hole Dimensions and Locations for Strap Loop, 18-Drawer Storage Cabinet, Right Side, M35A2.



RIGHT SIDE REAR TRUCK SLATS

Figure 6. Hole Dimensions and Locations for Strap Loop, Rear Truck Slats, Right Side, M35A2.

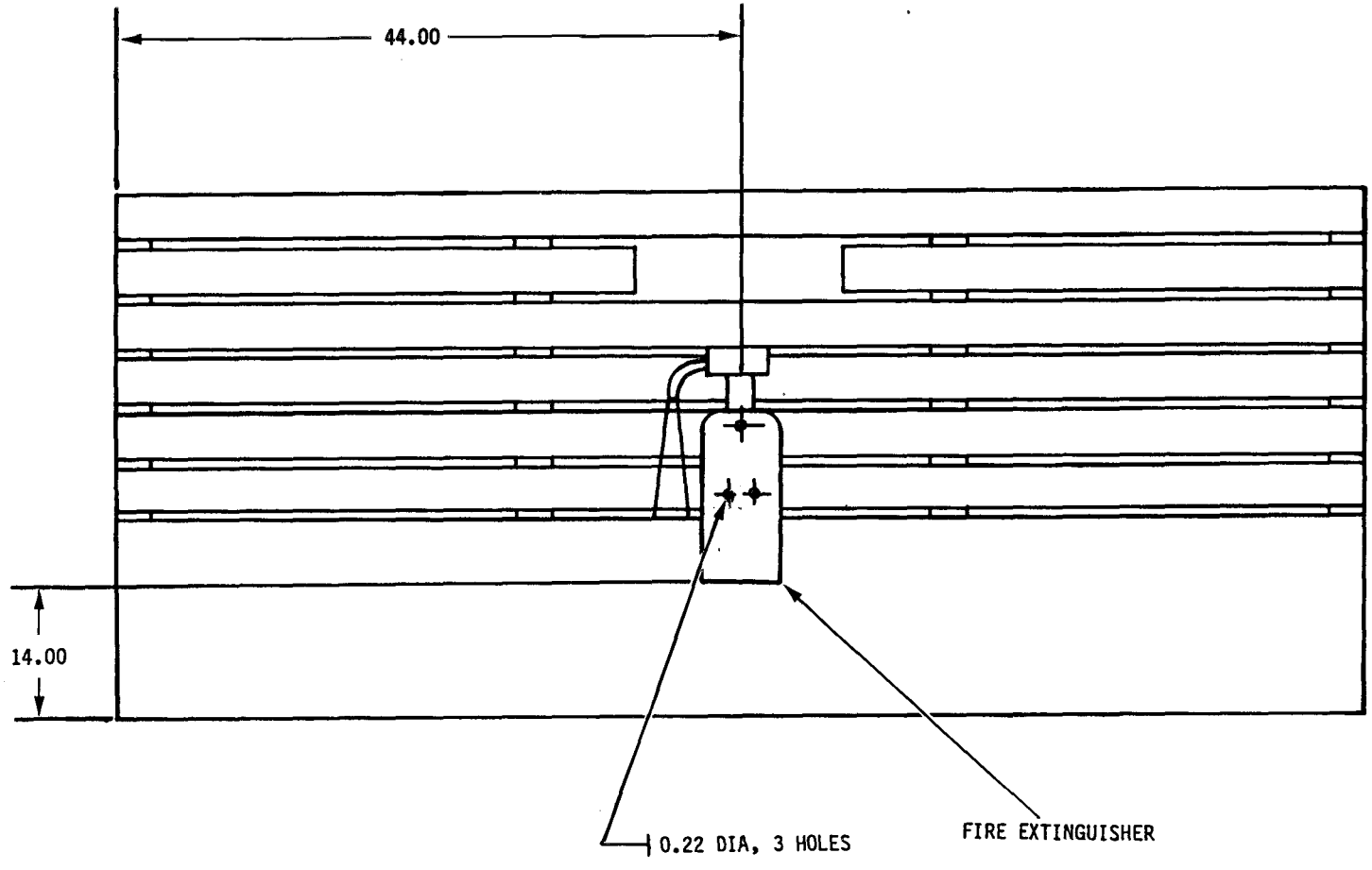


Figure 7. Dimensions for Location of Fire Extinguisher, Front Wall, M35A2.

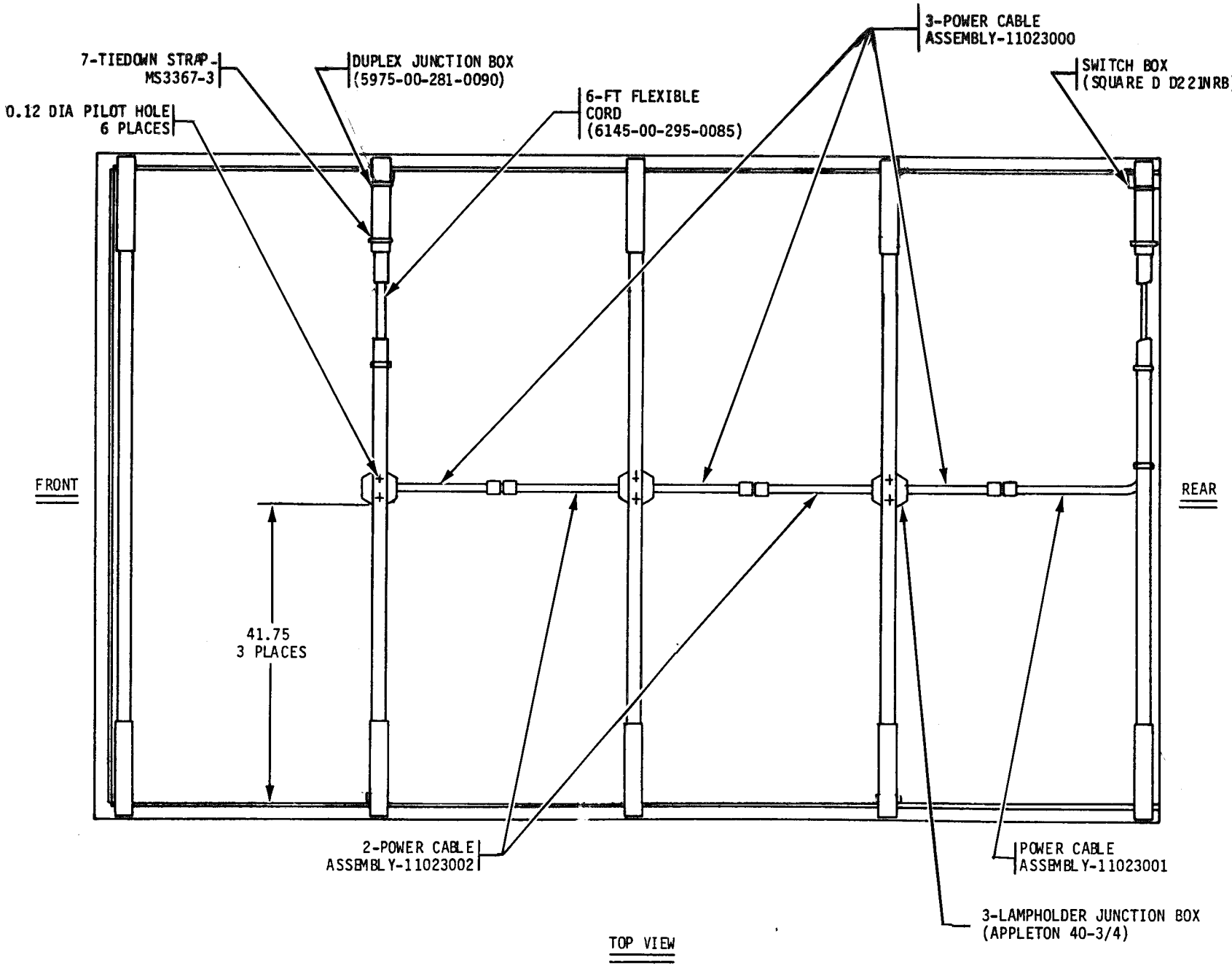


Figure 8. Electrical Components to be Mounted, Top View, M35A2.

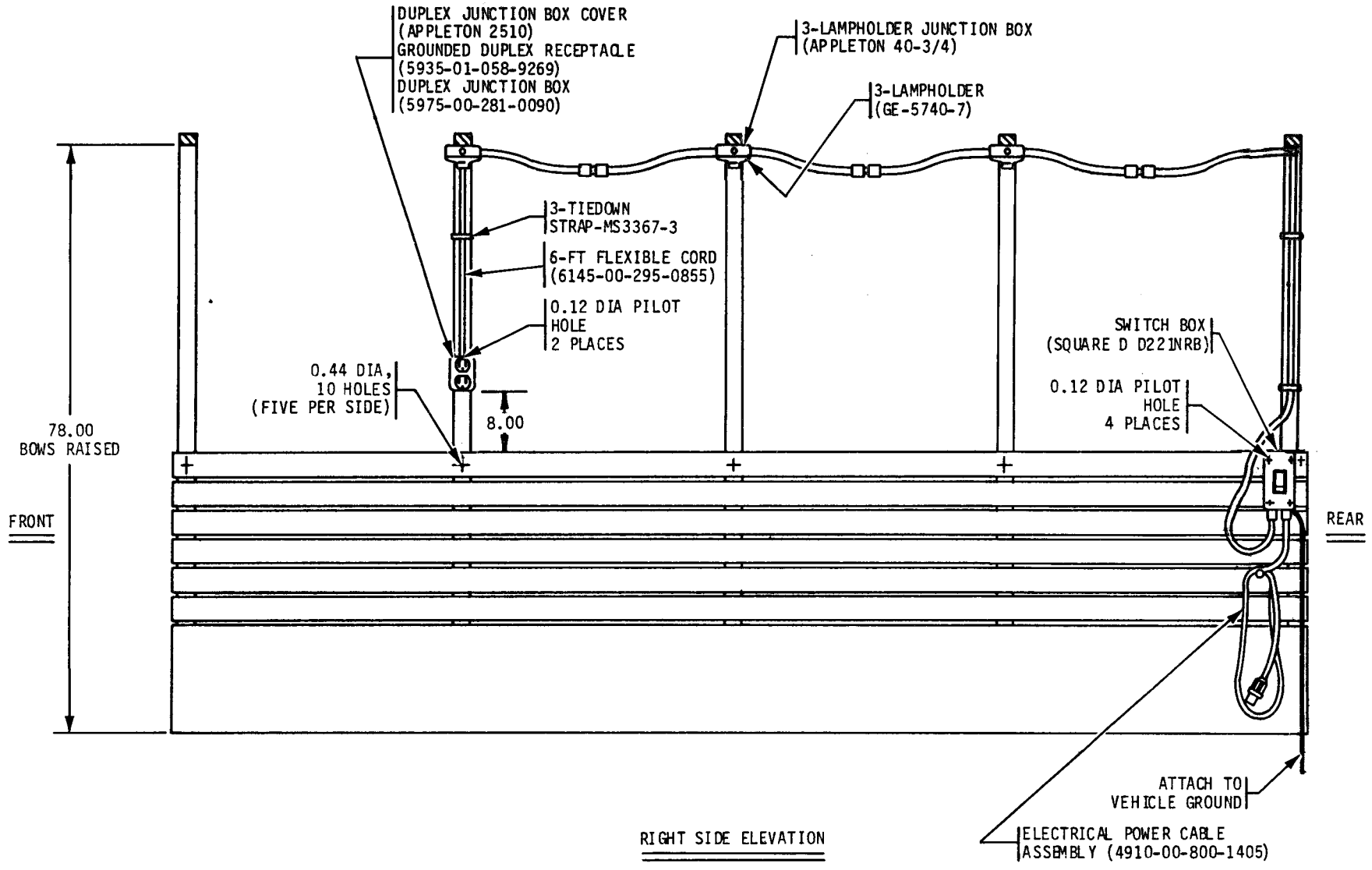


Figure 9. Electrical Components to be Mounted, M35A2, Right Side Elevation.

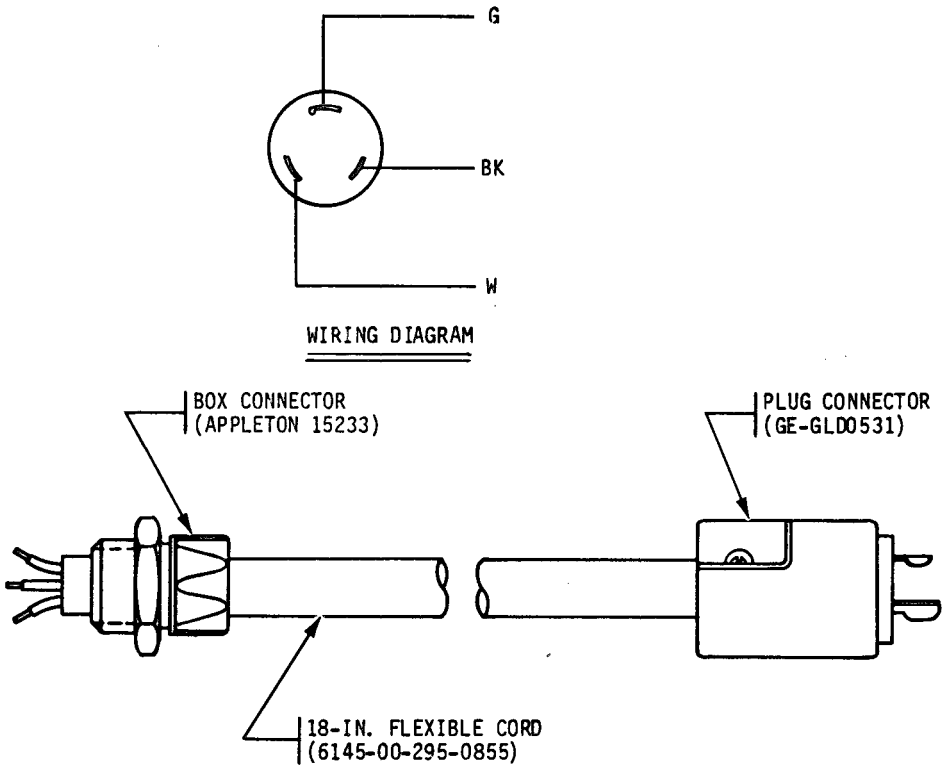


Figure 10. Power Cable Assembly, 11023000, M35A2.

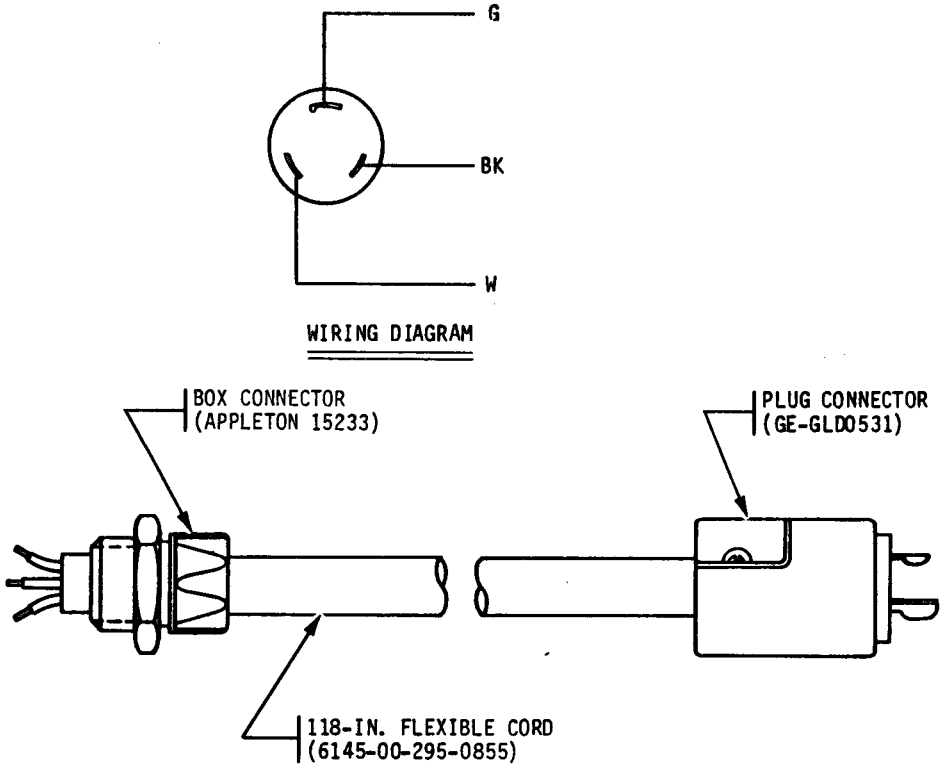


Figure 11. Power Cable Assembly, 11023001, M35A2.

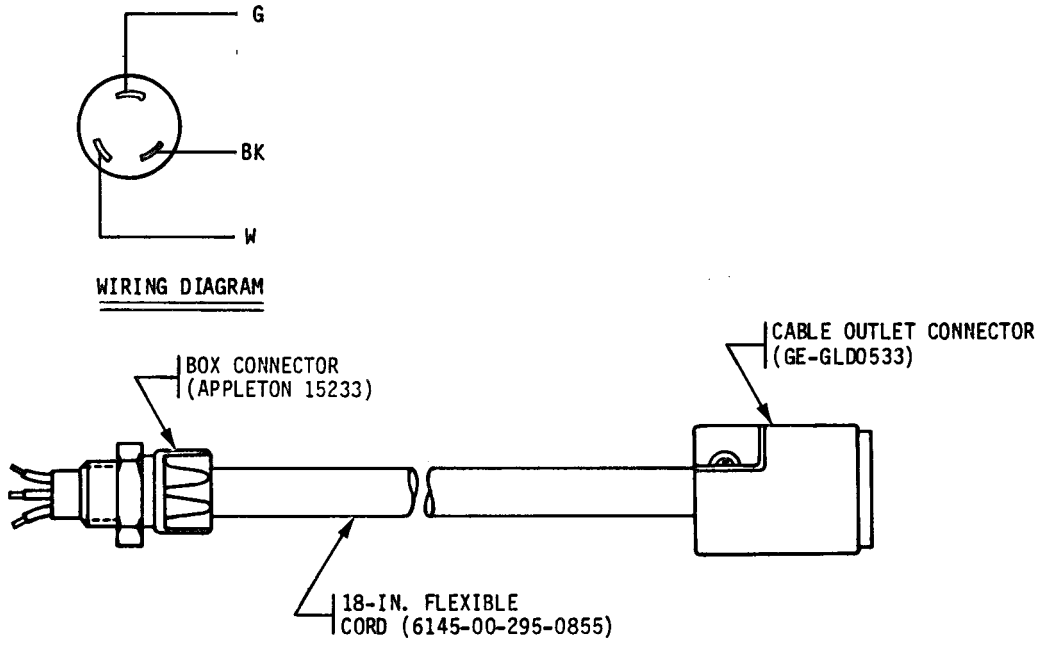


Figure 12. Power Cable Assembly, 11023002, M35A2.

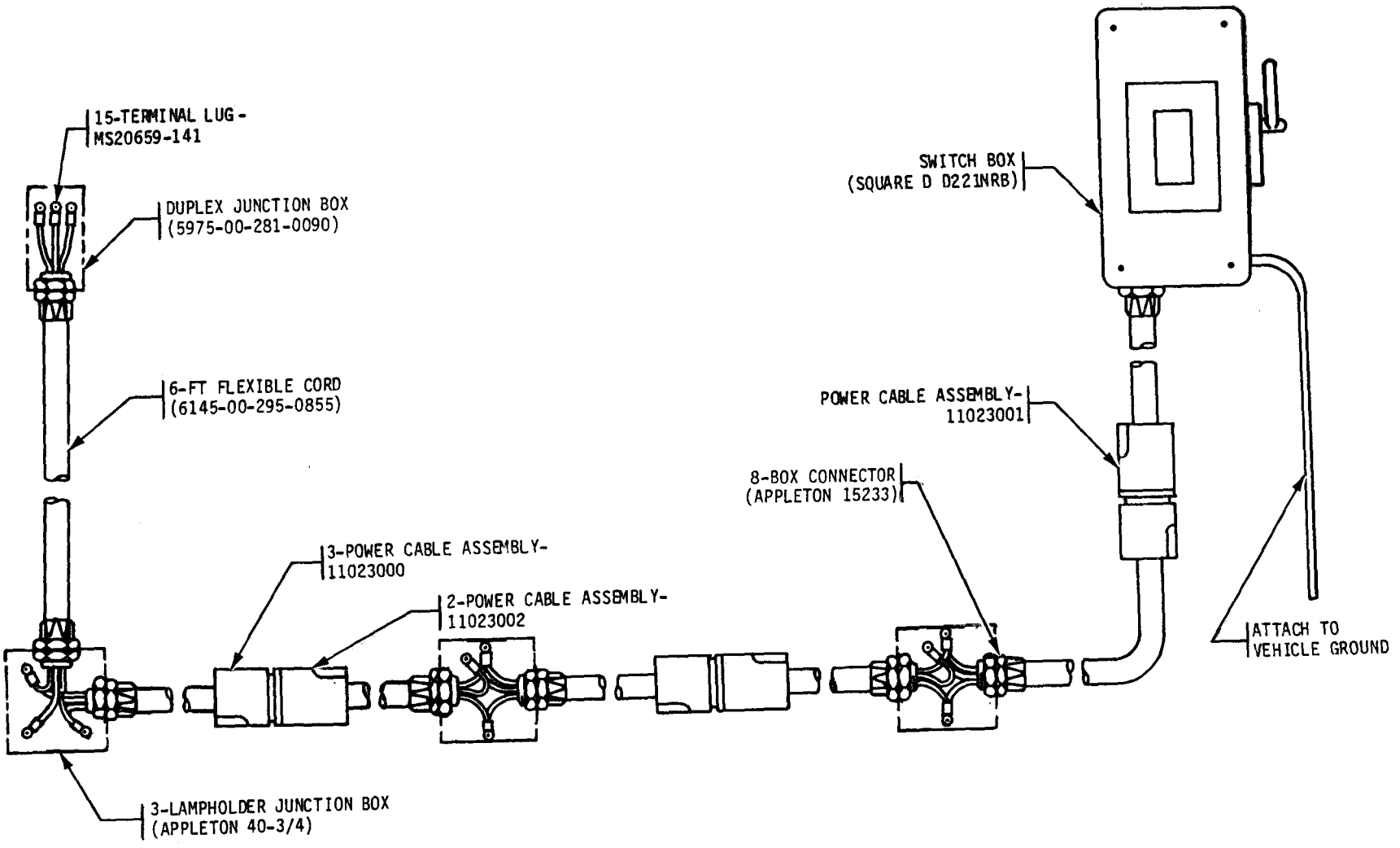


Figure 13. Electrical Installation, M35A2.

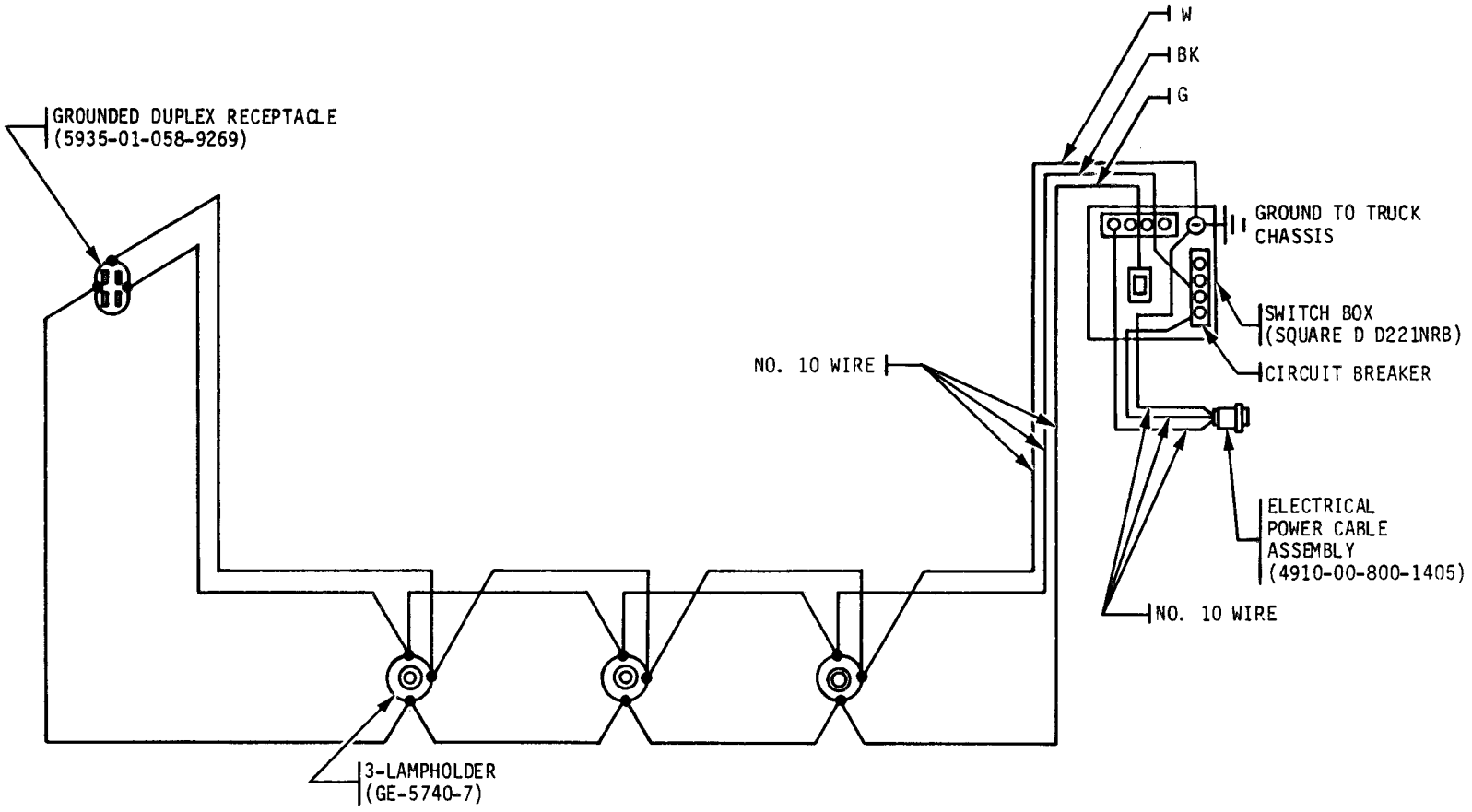


Figure 14. Electrical Schematic, M35A2.

Table 4. Standard Conversion Chart

Nominal size	Decimal size	Nominal size	Decimal size
1/16	0.06	35/64	0.55
5/64	0.08	9/16	0.56
3/32	0.09	37/64	0.58
7/64	0.11	19/32	0.59
1/8	0.12	39/64	0.61
9/64	0.14	5/8	0.62
5/32	0.16	41/64	0.64
11/64	0.17	21/32	0.66
3/16	0.19	43/64	0.67
13/64	0.20	11/16	0.69
7/32	0.22	45/64	0.70
15/64	0.23	23/32	0.72
1/4	0.25	47/64	0.73
17/64	0.27	3/4	0.75
9/32	0.28	49/64	0.77
19/64	0.30	25/32	0.78
5/16	0.31	51/64	0.80
21/64	0.33	13/16	0.81
11/32	0.34	53/64	0.83
23/64	0.36	27/32	0.84
3/8	0.38	55/64	0.86
25/64	0.39	7/8	0.88
13/32	0.41	57/64	0.89
27/64	0.42	29/32	0.91
7/16	0.44	59/64	0.92
29/64	0.45	15/16	0.94
15/32	0.47	61/64	0.95
31/64	0.48	31/32	0.97
1/2	0.50	63/64	0.98
33/64	0.52	1	1.00
17/32	0.53		

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 009217-000