

**GGG-F-601c**

May 15, 1964

**SUPERSEDING**

Int. Fed. Spec. GGG-F-00601b (GSA-FSS)

July 18, 1961 and

Fed. Spec. GGG-F-601a

March 12, 1947

**FEDERAL SPECIFICATION****FORK; HAY, MANURE, MILL, AND SPADING;  
HAND**

*This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.*

**1. SCOPE AND CLASSIFICATION**

**1.1 Scope.** This specification covers forks used in such operations as pitching hay, manure, pulp, etc., and spading.

**1.1.1 Federal specification coverage.** Federal specifications do not include all varieties of the commodity as indicated by the title of the specification, or which are commercially available, but are intended to cover only those generally used by the Federal Government.

**1.2 Classification.**

**1.2.1 Types, classes, and styles.** Forks in accordance with this specification shall be furnished in the following types, classes and styles, as specified, (see 6.1).

Type I.—Hay, regular.

Class A.—Three-tine.

Class B.—Four-tine.

Type II.—Manure, regular.

Class A.—Four-tine.

Class B.—Five-tine.

Class C.—Six-tine.

Type III.—Mill, heavy.

Class A.—Four-tine.

Class B.—Five-tine.

Type IV.—Spading.

Class A.—Four-tine.

Style 1.—Heavy.

Style 2.—Light.

**1.2.2 Handles.** Forks shall be furnished with handles as follows for the various types, and in the lengths listed in tables I, II, III, and IV, as specified; (see fig. 1 and paragraphs 3.3.5 and 6.1):

Type I.—Hay forks:

Class A.—Three-tine.

Bent long handles.

Straight long handles.

Class B.—Four-tine.

Bent long handles.

Type II.—Manure forks:

Bent long handles.

Bent D-handles.

Type III.—Mill forks:

Bent long handles.

Bent D-handles.

Type IV.—Spading forks:

Bent long handles.

Bent D-handles.

**2. APPLICABLE SPECIFICATIONS  
AND STANDARDS**

The following specifications and standards, of the issues in effect on date of invitation to bid, form a part of this specification:

*Federal Specification:*

NN-H-81—Handles; Ash.

**FSC 3750**

**GGG-F-601c***Federal Standards:*

Fed. Std. No. 102—Preservation, Packaging, and Packing Levels.

Fed. Std. No. 123—Marking for Domestic Shipment (Civil agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, and Seattle, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

*Military Specification:*

MIL-H-15424—Hand Tools, Packaging and Packing of.

*Military Standard:*

MIL-STD-129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring agency or as directed by the contracting officer.)

**3. REQUIREMENTS****3.1 Material.**

**3.1.1 Handles.** Handles shall be ash wood, and unless otherwise specified, (see 6.1) shall be grade XX, complying with the requirements of NN-H-81.

**3.1.2 Tines, tine bridge, and shank.** Tines, tine bridge, and shank shall be fabricated from good quality high-carbon steel suitable for the purpose.

**3.1.3 Ferrule and cap.** Ferrule and cap

shall be blanked and formed to proper shape from good quality cold-rolled sheet steel.

**3.2 Illustrations.** The illustrations shown herein are for convenience or identification and are not intended to preclude the purchase of forks otherwise in accordance with this specification.

**3.3 Construction.**

**3.3.1 Fork head.** Tines, tine bridge, and shank shall be made from a single piece of steel with the tines and tine bridge drawn out under heat. The tines, tine bridge, and shank shall be properly oil-tempered. The tines shall be evenly and uniformly tempered throughout their length so there will be no distortion of any one tine when in use.

**3.3.2 Cap and ferrule.** Each fork shall be fitted with a cap and ferrule. The cap shall be cupped to proper shape and slotted. Unless otherwise specified, (see 6.1) the ferrule shall be of tubular pattern or strap pattern, at the option of the contractor. Longitudinal seams of ferrules shall be closed by a continuous weld. The ferrule shall extend over the handle at least 8 inches back of the fork head.

**3.3.3 Fastening of handle.** The fork shank shall be forced into the handle and secured by means of a rivet. If the fork has a strap-pattern ferrule, (see 3.3.2) there shall be at least two rivets in the handle assembly; one rivet shall pass through one or both sides of the ferrule and through the fork-head shank, and the other rivet shall pass through both straps and the handle. If the fork has a tubular-pattern ferrule, (see 3.3.2) there shall be one or more rivets in the handle assembly, and one rivet shall pass through one or both sides of the ferrule and through the fork-head shank.

**3.3.3.1 Rivets.** Rivets shall be not less than 0.122 inch in diameter and shall be neatly headed. Heads of rivets shall be virtually flush with the ferrule.

**3.3.4 Tines.** Tines of all forks shall be moderately curved in the longitudinal direc-

tion. The tines of hay and manure forks shall be oval in cross section, and the ends of the tines shall taper to a sharpened point. The tines of mill forks shall be oval or diamond in cross section. The tine dimensions in table III are for oval-shaped tines; the diamond-shaped tines shall be at least equal in strength to the oval-shaped tines. The tines of spading forks shall be virtually triangular in cross section. Unless otherwise specified (see 6.1), the tine ends of spading forks shall be sharpened to a chisel point or a diamond point, at the option of the contractor.

**3.3.5 Handles.** Handles shall be circular in cross section and of proper size and shape to provide a comfortable grip. Straight long handles shall be without any bends. Bent long handles and bent D-handles shall be permanently bent at the tool end in such a manner as to provide a proper hang for the tool when used under service conditions. Long handles shall have the free end rounded. D-handles shall be of the bent type, and the free end shall terminate in a D-shaped hand grip of wood or a combination of wood hand-hold and a pressed metal frame with integral socket. All parts of D-handle grips shall be of substantial construction and so secured as to preclude their working loose in service. Split D-handle grips, if employed, shall be securely riveted at the junction of the split in such a manner as to prevent further splitting. The handles shall be similar to those shown in figure 1, as applicable to the shape specified (see 1.2.2 and 6.1).

### 3.4 Finish.

**3.4.1 Metal parts.** The tines of type I, hay forks, and type II, manure forks, shall be polished. The tines of type III, mill forks, shall be polished at least one-half their length from the pointed ends. The tines of type IV, spading forks, shall have polished faces and smoothly finished backs. The remainder of the metal parts of the fork, including tine bridge and ferrule, shall have a neatly applied coating of paint, lacquer, or enamel. The polished portions of the tines shall have

a coating of clear lacquer, or a grease or oil compound suitable for prevention of rust in storage without adversely affecting the material coated.

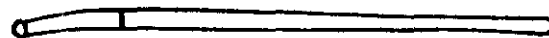
**3.4.2 Wood parts.** Wood parts shall be sanded smooth and neatly coated with a clear varnish, or lacquer. The finish shall not conceal the grain of the wood.

**3.5 Marking.** Handles shall be branded or otherwise marked in a plain and permanent manner with the manufacturer's name or trademark of such known character that the source of manufacture may be readily determined. When specified, (see 6.1) forks shall be marked in a plain and permanent manner with the capital letters "U.S."

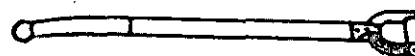
**3.6 Strength.** When subjected to the test loads specified in 4.4 the forks shall show no visible indication of failure, weakness, or looseness of the fork head, shall not fracture, and the permanent set shall not exceed 1/8 inch.



STRAIGHT LONG HANDLE



BENT LONG HANDLE



BENT D-HANDLE

FIGURE 1.—Handles.

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3.7 Hardness. The Rockwell C number of the tines, determined not less than 2 inches from the points, shall be not less than 35 nor more than 50 when tested as described in 4.4.2.

3.8 Type I, hay forks. Type I, hay forks, shall be similar to figure 2 and shall comply with the requirements of table I for the class of fork, kind of handle and length of handle specified, (see 6.1).

TABLE I.—Type I, hay forks

Class	Fork head				Handle	
	Tines			Spread at points, ± 1/4 inch	Diameter, ± 1/16 inch	Length, ± 1/2 inch
	Thickness, minimum	Width, minimum	Length, ± 3/8 inch			
	<i>Inch</i>	<i>Inch</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
A, three-tine .....	9/32	7/32	12	7-1/8	1-1/2	48, 54 or 60
B, four-tine .....	9/32	7/32	12	7-1/8	1-1/2	54 or 60

Note: Tine thickness and width measured 6 inches back of tine points as the dimensions of the major and minor axes of the cross section. Tine length measured in a straight line from the point of the center tine to the front of the tine bridge. Tine spread at points measured from outside point to outside point. Handle diameter measured 12 inches from the top of the tine bridge. Handle length measured in a straight line from top of the tine bridge to free end of handle.



FIGURE 2.—Type I, hay fork.



FIGURE 3.—Type II, manure fork.

3.9 Type II, manure forks. Type II, manure forks shall be similar to figure 3 and shall comply with the requirements of table II for the class of fork, kind of handle, and length of handle specified, (see 6.1).

3.10 Type III, mill forks. Type III, mill forks, shall be similar to figure 4 and shall comply with the requirements of table III for the class of fork, kind of handle, and length of handle specified, (see 6.1).

TABLE II.—Type II, manure fork

Class	Fork head				Handle		
	Tines			Spread at points, ± 3/8 inch	Diameter, ± 1/16 inch	Long handle, ± 1/2 inch	D-handle, ± 1/2 inch
	Thickness, minimum	Width, minimum	Length, ± 3/8 inch				
	<i>Inch</i>	<i>Inch</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
A, four-tine ....	5/16	7/32	12-1/4	9-5/8	1-1/2	48 or 54	32
B, five-tine ....	5/16	7/32	12-1/4	9-5/8	1-1/2	48 or 54	32
C, six-tine ....	5/16	7/32	13	9-5/8	1-1/2	48 or 54	32

Note: Tine thickness and width measured at midpoint of tines (between tine points and back of tine bridge) as the dimensions of the major and minor axes of the cross section. Tine length measured in a straight line from tine point to front of tine bridge. Tine spread at points measured from outside point to outside point. Handle diameter measured 12 inches from the top of the tine bridge. Handle length measured in a straight line from top of the tine bridge to free end of handle.

TABLE III.—Type III, mill forks

Class	Fork head				Handle	
	Tines			Spread at points ± 5/16 inch	Diameter ± 1/16 inch	Length ± 1/2 inch
	Thickness, minimum	Width minimum	Length ± 3/8 inch			
<i>Inch</i>	<i>Inch</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	
A, four-tine .....	13/32	5/16	15	10-11/16	1-1/2	30
B, five-tine .....	13/32	5/16	16	11-1/2	1-1/2	30

Note: Tine thickness and width measured 9 inches back of tine points as the dimensions of the major and minor axes of the cross section. Tine length measured in a straight line from tine point to front of tine bridge. Tine spread at points measured from outside point to outside point. Handle diameter measured 12 inches from the top of the tine bridge. Handle length measured in a straight line from top of the tine bridge to free end of handle.

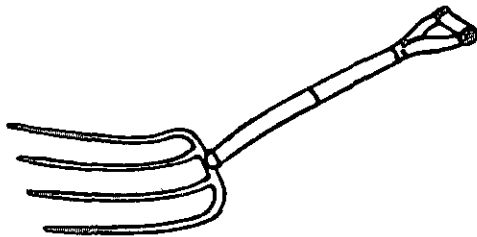


FIGURE 4.—Type III, mill fork.

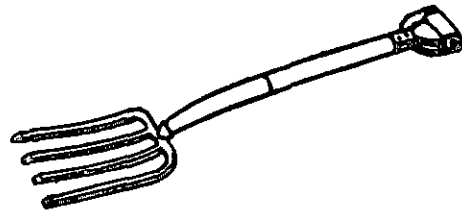


FIGURE 5.—Type IV, spading fork.

3.11 Type IV, spading forks. Type IV, spading forks, shall be similar to figure 5 and shall comply with the requirements of table IV for class and style of fork, kind of handle, and length of handle specified, (see 6.1).

3.12 Workmanship. Workmanship shall be first class throughout. Forks shall be free from rust and defects which may affect their serviceability, durability, or appearance.

TABLE IV.—Type IV, spading forks

Class and style	Fork head				Overall width of head, ± 1/2 inch	Handle	
	Tines			Diameter, ± 1/16 inch		Length	
	Thickness, minimum	Width, minimum	Length, ± 1/4 inch			Long handle, ± 1/2 inch	D-handle, ± 1/2 inch
<i>Inch</i>	<i>Inch</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	
Class A, four-tine:							
Style 1, heavy	9/32	5/8	11	7-3/8	1-1/2	48	30
Style 2, light	9/32	9/16	11	7-3/8	1-1/2	48	30

Note: Tine thickness and width measured at midpoint of tines between tine points and back of tine bridge. Tine length measured in a straight line from tine point to front of tine bridge. Overall width of head measured across fork midway between tine points and tine bridge. Handle diameter measured 12 inches from the top of the tine bridge. Handle length measured in a straight line from the top of the tine bridge to free end of handle.

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#### 4. SAMPLING, INSPECTION, AND TEST PROCEDURES

**4.1 Responsibility for inspection.** Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

**4.2 Sampling.** At least two forks of each type, class, and style shall be taken from each lot of 100 forks, or fraction thereof, for inspection and test.

**4.3 Inspection.** Forks shall be inspected to determine compliance with the requirements of this specification with respect to material, workmanship, construction, dimensions, finish, and marking. Paint and varnish remover may be used to remove all paint, varnish, and enamel coatings to ascertain existence of defects.

#### 4.4 Physical tests.

**4.4.1 Strength test.** Sample forks shall be supported as shown in figure 6 and a load of 40 pounds for hay and manure forks, 100 pounds for mill forks, and 250 pounds for spading forks, shall be applied for 1 minute.

**4.4.1.1** The handle of the fork shall be placed in the horizontal position and the lower support (rod, bar, or shaft) on which the handle rests shall be located at a point about one-third the length of the handle measured from the fork end. The stop against which the free end of the handle rests shall be located about 4 inches from the end of the handle in the case of the long handle forks and directly over the hand grip for the D-handle forks. In applying the test load, the wood block to which the weight is attached shall be located at mid-length of the tines. The longitudinal axes of the block

shall lie at right angles to the longitudinal axes of the tines (see fig. 6).

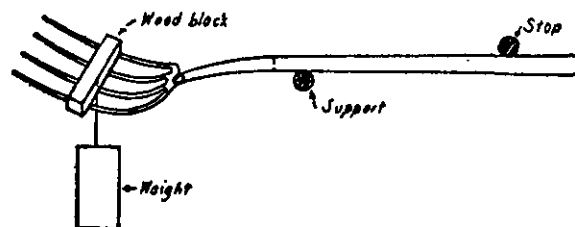


FIGURE 6.—Method of applying test load.

**4.4.1.2** The sample shall be inspected for visible indications of failure, weakness, or looseness of the fork head. The permanent set shall be determined by measuring the vertical distance from the tines where the load is applied to a flat horizontal surface before the load is applied and after it is removed. The difference between the two measurements shall represent the set (see 3.6).

**4.4.2 Hardness test.** The hardness shall be determined by means of a Rockwell tester with a diamond 120-degree cone penetrator and employing a 150-kilogram major load. Two or more determinations shall be made on at least two tines of each specimen fork and all values so determined shall be within the limits specified in 3.7.

**4.5 Failure of test samples.** If any test sample fails to pass the physical tests, two or more additional samples shall be taken from the same lot. If any additional sample so taken fails, the lot represented does not comply with the requirements of this specification. If more than 10 percent of the lots representing the entire submission or order fail, the entire submission or order shall be considered as not complying with the requirements of this specification.

#### 5. PREPARATION FOR DELIVERY

(Civil agencies. Fed. Std. No. 102 should be referred to for definitions and applications of the various levels of packaging protection for supplies and equipment.)

**5.1 Preservation and packaging.** Preservation and packaging shall be level A or C, as specified (see 6.1).

**5.1.1 Level A.** Level A preservation and packaging shall be in accordance with level A in MIL-H-15424.

**5.1.2 Level C.** Level C preservation and packaging may be the supplier's commercial practice.

**5.2 Packing.** Packing shall be level A, B, or C, as specified, (see 6.1).

**5.2.1 Level A.** Level A packing shall be in accordance with level A in MIL-H-15424.

**5.2.2 Level B.** Level B packing shall be in accordance with level B in MIL-H-15424.

**5.2.3 Level C.** Level C packing shall conform to applicable carrier rules and regulations and may be the supplier's commercial practice.

### 5.3 Marking.

**5.3.1 Civil agencies.** In addition to any special marking specified in the contract or order (see 6.1), shipping containers shall be marked in accordance with Fed. Std. No. 123.

**5.3.2 Military agencies.** In addition to any special marking specified in the contract or order (see 6.1), shipping containers shall be marked in accordance with MIL-STD-129.

## 6. NOTES

**6.1 Ordering data.** Purchasers should exercise any desired options offered herein, and procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type, class, and style required (see 1.2).
- (c) Kind of handle required (see 1.2.2, 3.3.5 and fig. 1).
- (d) Length of handle (see tables I, II and IV).

(e) Handle material, if different (see 3.1.1).

(f) Ferrule, if different (see 3.3.2).

(g) Tine ends of spading forks, if different (see 3.3.4).

(h) If forks are to be marked with the capital letters "U.S." (see 3.5).

(i) Level of preservation, packaging and packing required (see 5.1 and 5.2).

(j) Special marking, if required (see 5.3.1 and 5.3.2).

**6.2** It is believed that this specification adequately describes the characteristics necessary to secure the desired material, and that normally no samples will be necessary prior to award to determine compliance with this specification. If, for any particular purpose, samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid sample should be definitely stated, the specification to apply in all other respects.

**6.3 Transportation description.** Transportation descriptions and minimum weights applicable to this commodity are:

### TYPE I

*Rail:*

Hay forks.

Carload minimum weight 24,000 pounds, subject to Rule 34, Uniform Freight Classification.

*Motor:*

Hay forks.

Truckload minimum weight 24,000 pounds, subject to Rule 115, National Motor Freight Classification.

### TYPES II, III and IV

*Rail:*

Forks, tined, metal.

Carload minimum weight 24,000

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pounds, subject to Rule 34, Uniform Freight Classification.

***Motor:***

Forks, metal, tined.

Truckload minimum weight 24,000 pounds, subject to Rule 115, National Motor Freight Classification.

DOD coordination has been waived.



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DEPARTMENT OF THE NAVY

POSTAGE AND FEES PAID  
NAVY DEPARTMENT

                      
OFFICIAL BUSINESS

COMMANDING GENERAL  
U.S. ARMY MOBILITY COMMAND  
ATTN: AMSMO-RDS  
WARREN, MICHIGAN

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SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 119-R004	
<b>INSTRUCTIONS</b>			
This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity (as indicated on reverse hereof).			
SPECIFICATION			
ORGANIZATION (Of submitter)		CITY AND STATE	
CONTRACT NO.	QUANTITY OF ITEMS PROCURED	DOLLAR AMOUNT \$	
MATERIAL PROCURED UNDER A			
<input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT			
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?			
A. GIVE PARAGRAPH NUMBER AND WORDING.			
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.			
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID			
3. IS THE SPECIFICATION RESTRICTIVE?			
<input type="checkbox"/> YES <input type="checkbox"/> NO IF "YES", IN WHAT WAY?			
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)			
SUBMITTED BY (Printed or typed name and activity)			DATE