

APPENDIX D

MATERIALS USED FOR BRAZING, WELDING, SOLDERING
CUTTING, AND METALLIZING

D-1. GENERAL

This appendix contains listings of common welding equipment and materials used in connection with the equipment to perform welding operations. These lists are published to inform using personnel of those materials available for brazing, welding, soldering, cutting, and metallizing. These materials are used to repair, rebuild, and/or produce item requiring welding procedures.

D-2. SCOPE

The data provided in this appendix is for information and guidance. The listings contained herein include descriptions, identifying references, and specific use of common welding materials available in the Army supply system.

Table D-1. Common Welding Equipment
By Commercial and Government Entity Code (CAGEC)

CAGEC	Equipment
3436	ALIGNMENT TOOL, WELDING, PIPE
6830	ACETYLENE, TECHNICAL
8415	APRON, WELDER'S
6830	ARGON, TECHNICAL
3439	BAG, WELDING ROD
3439	BLOCK, CARBON (CARBON BLOCK)
3431	BONDING MACHINE, METALLIZING
3439	BRAZING ALLOY
3433	BRAZING & SOLDERING SET
7920	BRUSH, WIRE, SCRATCH
6151	CABLE ASSY, POWER, ELECTRICAL
3439	CARBON BLOCK
3439	CARBON PASTE
3439	CARBON ROD
3431	CHEST, WELDING
3436	CLAMP, PIPE WELDING (ALIGNMENT TOOL, WELDING, PIPE)
3439	CLEANER SET, WELDING & CUTTING TIPS
4940	CRANKSHAFT RECONDITIONING OUTFIT
3433	CUTTING ATTACHMENT, WELDING TORCH
3433	CUTTING MACHINE, OXYGEN
3439	DESOLDERING & RESOLDERING SET
3439	ELECTRODE, CHAMFERING
3439	ELECTRODE, CUTTING
3439	ELECTRODE, HEATING
3439	ELECTRODE, OVERLAY
3439	ELECTRODE, WELDING
5120	FLINT TIP, FRICTION IGNITER

Table D-1. Common Welding Equipment
By Commercial and Government Entity Code (CAGEC) (cont)

CAGEC	Equipment
5120	FRICTION IGNITER (IGNITER, FRICTION)
3439	FLUX (for brazing, soldering, welding)
8415	GLOVES (cloth or leather)
4240	GOGGLES, INDUSTRIAL
5120	HAMMER, WELDER'S
6830	HELIUM, TECHNICAL
4240	HELMET, WELDER'S
3439	HOLDER, ELECTRODE, WELDING
5120	IGNITER, FRICTION
6150	LEAD, ELECTRICAL
4240	LENS, GOGGLES, INDUSTRIAL
4240	LENS, HELMET, WELDER'S
3432	MANIFOLD, GAS CYLINDER
3433	METALLIZING GUN (SPRAY GUN, METALLIZING)
3431	METALLIZING MACHINE (BONDING MACHINE)
3433	METALLIZING OUTFIT
8415	MITTENS (cloth or leather)
3439	MOISTURE STABILIZER, WELDING ELECTRODE
6830	NITROGEN, TECHNICAL
3439	OVEN, WELDING ELECTRODES (MOISTURE STABILIZER)
6830	OXYGEN, TECHNICAL
3439	PASTE, CARBON (CARBON PASTE)
3439	REEL, WIRE, METALLIZING
....	REGULATOR, COMPRESSED GAS
....	REGULATOR, FLUID PRESSURE
....	REGULATOR, ARGON-HELIUM-NITROGEN-ETC (See VALVE, REGULATING, FLUID PRESSURE)
3433	REGULATOR & FILTER UNIT, AIR CONTROL (For use with metallizing gun)
3439	ROD, WELDING
3431	SCREEN, WELDING
4240	SHIELD, ARC VIEWING, HAND HELD
8415	SLEEVE, WELDER'S
3439	SOLDER
3433	SPRAY GUN, METALLIZING
3439	TAPE, WELD BACKUP
3433	TORCH, ARC-OXYGEN CUTTING
3431	TORCH, ARC WELDING, GAS SHIELDED (TIG TORCH set)
3433	TORCH, CUTTING
3433	TORCH, WELDING
3433	TORCH OUTFIT, AIR-ARC CUTTING
3433	TORCH OUTFIT, CUTTING-WELDING
3433	TORCH SET, CUTTING-WELDING

Table D-1. Common Welding Equipment
By Commercial and Government Entity Code (CAGEC) (cont)

CAGEC	Equipment
3433	TORCH OUTFIT, SOLDERING & HEATING
....	VALVE, REGULATING, FLUID PRESSURE (REGULATORS and VALVES are under the following Federal stock classes: 3431, 3432, 3433, 6685, and 6920)
3431	WELDING MACHINE, ARC
3432	WELDING MACHINE, RESISTANCE
3431	WELDING SET, METAL-ARC, GAS SHIELDED (MIG Gun set)
3439	WIRE, SPRAY GUN, METALLIZING
5120	WRENCH, TORCH & REGULATOR

Table D-2. Metallizing Wire

Wire material	Dia (inch)	Coil weight (pounds)	(CAGC 3439) NIIN	Identifying Reference	Use
18% Cr, 8% Ni	1/8	25	00-223-3695	MIL-W-6712, type 1 (18-8)	Metallizing Spray Gun
High carbon steel	"	50	00-265-7096	" (0.80C)	"
Medium carbon steel	"	50	00-223-3703	" (0.25C)	"
Mild steel	"	50	00-223-3707	" (0.10C)	"
99% Molybdenum	0.0907	20	00-903-7703	type 2 (Molybdenum)	"
99% Copper	1/8	50	00-223-3735	" (Copper)	"
60% Cu, 40% Zn	"	25	00-223-3731	" (Naval brass)	"
99% Aluminum	"	25	00-223-3728	" (Aluminum)	"

Table D-3. Welding Electrodes

Positions				Current		Shielded	Material	Dia	Length	(CAGEC 3439) NIIN	Identifying Reference	Use
Flat	Horizontal	Vertical	Overhead	AC	DC							
					Straight	Reverse	S & R	Yes	No			
X	X	X	X		X	X	Steel	3/32	12	00-262-2669	MIL-E-15599, type 6010, C11	Welding of zinc-coated, low & medium carbon steels; also medium carbon, high tensile steel plate up to 5/8-in. thickness
X	X	X	X		X	X	"	1/8	14	00-262-2670	" " " "	
X	X	X	X		X	X	"	5/32	14	00-262-2671	" " " "	
X	X	X	X		X	X	"	3/16	14	00-262-2672	" " " "	
X	X	X	X		X	X	"	1/4	18	00-262-2674	" " " " C12	
X	X	X	X	X	X	X	Steel	3/32	12	00-262-2652	MIL-E-15599, type 6011, C11	Welding of uncoated mild & medium carbon steels; electrodes suitable for poorly fitted joints
X	X	X	X	X	X	X	"	1/8	14	00-262-2653	" " " "	
X	X	X	X	X	X	X	"	5/32	14	00-262-2654	" " " "	
X	X	X	X	X	X	X	"	3/16	14	00-262-2655	" " " "	
X	X	X	X	X	X	X	"	1/4	18	00-262-2657	" " " " C12	
X	X	X	X	X	X	X	Steel	3/16	14	00-273-3719	MIL-E-15599, type 6012, C11	
X	X	X	X	X	X	X	"	1/4	18	00-262-3876	" " " " C12	

Table D-3. Welding Electrodes (cont)

Positions	Current				Shielded	Material	Dia	Length	(CAGEC 3439) Nitin	Identifying Reference	Use	
		AC	DC									
			Straight	Reverse S & R								
Flat	Horizontal	Vertical	Overhead		Yes	No						
X	X	X	X	X	X		Steel	1/8	14	00-262-2648	MIL-E-15599, type 6012, C11	Aircraft welding of mild and low alloy sheet steels; shallow penetration
X	X	X	X	X	X		"	5/32	14	00-262-2649	" " " "	
X	X	X	X	X	X		"	3/16	14	00-262-2650	" " " "	
X	X	X	X	X	X		Steel	5/32	14	00-061-2896	MIL-E-15599, type 6027, C12	Uncoated, medium carbon, high tensile steel; deep penetration; fast weld speed
X	X	X	X	X	X		"	3/16	18	00-061-2897	" " " "	
X	X	X	X	X	X		"	1/4	18	00-061-2898	" " " "	
X	X	X	X	X	X		Steel	3/16	14	00-853-2719	MIL-E-22200/1, type 7018, C11	Low hydrogen electrode; medium & high tensile steels of up to 5/8-in. thickness
X	X	X	X	X	X		"	7/32	18	00-542-0964	" " " "	
X	X	X	X	X	X		Steel	1/8	14	00-853-2716	MIL-E-22200/1, type 9018, C11	Low hydrogen electrode; low alloy, medium & high tensile steels (HY-80); fillet welds in high yield strength, low alloy structural steels (T-1 and RQ-100A)
X	X	X	X	X	X		"	5/32	14	00-853-2718	" " " "	
X	X	X	X	X	X		Steel	1/8	14	00-587-2412	MIL-E-22200/1, type 11018, C11	Low hydrogen electrode; groove butt joints in high yield strength, low alloy structural steels (HY-80, T-1, & RQ-100A)
X	X	X	X	X	X		"	5/32	14	00-587-2413	" " " "	
X	X	X	X	X	X		"	3/16	14	00-878-2158	" " " "	
X	X	X	X	X	X		Steel	5/32	14	00-287-7089	MIL-E-18038, type 10016, C11	Low hydrogen electrode; welding of low alloy, high tensile steels (HY-80)
X	X	X	X	X	X		"	3/16	14	00-287-7090	" " " "	
X	X	X	X	X	X		"	1/8	14	00-287-7088	" " " "	
X	X	X	X	X	X		Steel	5/32	14	00-984-4786	MIL-E-22200/1, type 10018, C11	Welding & surfacing carbon and low alloy steels
X	X	X	X	X	X	X	Steel	1/8	Coil	00-200-1583	MIL-E-18193, type A-1	

Table D-3. Welding Electrodes (cont)

Positions			Current		Shielded	Material	Dia	Length	(CAGEC 3439) NIIN	Identifying Reference	Use	
												DC
			Flat	Horizontal								Vertical
X	X	X	X			X	Steel	3/16	14	00-262-2639	MIL-E-19141, type A2C, C13	using submerged arc machines (use type "A" fluxes per MIL-F-18251)
X	X	X	X			X	"	3/16	14	00-752-7818	" type FeMn-A, C13	Corrosion & abrasion resistant surfacing (severe impact)
X	X	X	X			X	Steel	1/8	14	00-262-2746	MIL-E-16589, type 52-15, C11	Low hydrogen; 1-1/4% Cr, 1/2% Mo; high temperature service (950 °F)
X	X	X	X			X	"	1/8	14	00-204-3140	" type 202-16, C11	Low hydrogen; 5% Cr, 1/2% Mo; high temperature service (1200 °F)
X	X	X	X			X	"	5/16	14	00-204-4512	" " " "	Low hydrogen; 2-1/4% Cr, 1% Mo; high temperature service (1050 °F)
X	X	X	X			X	Steel	3/16	14	00-204-3277	MIL-E-16589, type 202-16, C12	High hardenability steels & armor
X	X	X	X			X	"	1/8	14	00-984-4778	" type 94-15, C11	
X	X	X	X			X	"	5/32	14	00-984-4779	" " " "	
X	X	X	X			X	"	3/16	14	00-984-4780	" " " "	
X	X	X	X			X	Steel	1/8	14	00-246-9544	MIL-E-13080, type 307L-15, C11	
X	X	X	X			X	"	5/32	14	00-246-9545	00- " " "	
X	X	X	X			X	"	3/16	14	00-266-9752	" " " "	
X	X	X	X			X	Steel	1/16	9	00-245-6630	MIL-E-22200/2, type 308-15, C11	
X	X	X	X			X	"	1/8	14	00-277-7550	" " " "	
X	X	X	X			X	"	5/32	14	00-528-9064	type 308-16, C11	Weld 18% Cr, 8% Ni corrosion resistant steel (18-8)
X	X	X	X			X	"	5/32	14	00-262-2696	" type 347-15, C12	
X	X	X	X			X	"	1/8	14	00-262-2695	" " " "	
X	X	X	X			X	"	3/16	14	00-262-2697	type 347-15	
X	X	X	X			X	Monel	5/32	10-14	00-204-3247	MIL-E-22200/3, type 3N10, C12	Wrought nickel-copper alloys
X	X	X	X			X	"	3/16	14	00-262-2644	" " " "	
X	X	X	X			X	Nickel	1/8	14	00-901-7637	type 4N11, C11	Wrought commercially pure Ni to steel
X	X	X	X			X	Steel	5/32	14	00-984-4768	MIL-E-22200/6, type 7015, C11	Weld mild & medium strength steels
X	X	X	X			X	"	3/16	14	00-984-4770	" " " "	

Table D-3. Welding Electrodes (cont)

Positions	Current				Shielded	Material	Dia	Length	(CAGEC 3439) NLIN	Identifying Reference	Use
	Flat	Horizontal	Vertical	Overhead							
					AC	DC					
						Straight	Reverse	S & R	Yes	No	
X	X	X	X		X	Steel	5/32	14	00-465-1923	MIL-E-22200/6, type 8015-C3, C11	Weld low alloy, medium strength steels
X	X	X	X		X	"	3/16	14	00-984-4776	" "	
X	X	X	X		X	"	5/32	14	00-262-2678	MIL-E-22200/7, type 7010-A1, C11	Molybdenum alloy steel pipe, forging & casting
X	X	X	X		X	"	3/16	14	00-262-2679	" "	
X	X	X	X		X	"	1/4	18	00-262-2681	" "	
X	X	X	X		X	High Speed steel	1/8	14	00-255-8922	ASTM A339-56T, type EFe5-A	Cutting tool repair & buildup; for 1100 °F use
X	X	X	X	X	X	Mild Steel	1/8	14	00-293-4716	ASTM A398-65T, type EST	Cast iron nonmachinable weld
X	X	X	X	X	X	Nickel	1/8	14	00-640-2351	ASTM A398-65T, type ENiFe-C1	Grooving and roughing prior to metallizing
X	X	X	X		X	97% Ni, 1% Co	1/8	18	00-449-6558	MEICO Co. "FUSE BOND"	
X	X	X	X		X	Bronze	1/8	14	00-200-1376	MIL-E-13191, type CuSn-A	Welding of phosphor bronze, brass, copper & cast iron
X	X	X	X		X	Bronze	3/16	14	00-255-8910	" "	
X	X	X	X		X	"	1/8	14	00-262-2738	" type CuSn-C	
X	X	X	X		X	"	5/32	14	00-262-2739	" "	
X	X	X	X		X	"	3/16	14	00-262-2740	" "	
X	X	X	X	X	X	Copper	5/32	14	00-618-5797	MIL-E-278, type CuAl-B	Aluminum bronzes, high strength Cu-Zn alloys
X	X	X	X	X	X	Copper	5/32	14	00-247-5157	MIL-E-278, type CuAl-D	Wear-resistant bearing surfaces
X	X	X	X		X	Aluminum	3/32	14	00-262-2597	MIL-E-15597, type 4043, C12	
X	X	X	X		X	"	1/8	14	00-262-2598	" "	
X	X	X	X		X	"	5/32	14	00-262-2599	" "	
X	X	X	X		X	"	3/16	14	00-262-2600	" "	
X	X	X	X	X	X	Aluminum	3/16	14	00-974-7079	EUTECTIC #2101E	Welding of aluminum & aluminum alloys
											Heavy aluminum castings, long joints & filler

Table D-4. Overlay, Welding and Cutting, Chamfering, and Heating Electrodes

Positions			Current		Shielded	Material	Dia	Length	(CAGEC 3439) Nitin	Identifying Reference	Use
Flat	Horizontal	Vertical	Overhead	Straight	Reverse	S & R	Yes	No			
	Horizontal	Vertical	Overhead	Straight	Reverse	S & R					
E	L	E	C	T	R	D	E		00-902-4215	EUTECTIC Co. "EUTECTRODE 10"	Overlay on ferrous metals
X	O	V	E	R	O	Y	1		00-902-4216	"	
X	X	X	X	X	X	X	1		00-902-4208	EUTECTIC Co. "EUTECTRODE #680"	
X	X	X	X	X	X	X	1		00-902-4209	"	
X	X	X	X	X	X	X	X		00-262-2639	MIL-E-19141, type A2C, C13	Overlay on tool & die steels Corrosion and abrasion resistant surfacing (tough, forgeable) (severe impact)
X	X	X	X	X	X	X	X		00-752-7818	" type FeMn-A, C13	
X	X	X	X	X	X	X	X		00-255-7711	MIL-E-17764	Underwater arc-oxygen cutting Carbon-arc welding process
X	X	X	X	X	X	X	X		00-262-4227	MIL-E-17777, type C	
X	X	X	X	X	X	X	X		00-262-4228	"	
X	X	X	X	X	X	X	X		00-262-4229	MIL-E-17777, type C	Welding aluminum, mag- nesium, copper, or titanium Cutting without air Chamfering & grooving
X	X	X	X	X	X	X	X		00-262-4230	"	
X	X	X	X	X	X	X	X		00-262-4294	"	
X	X	X	X	X	X	X	X		00-814-6030	ASTM B297-55T, class FWP	
X	X	X	X	X	X	X	X		00-814-6031	"	Welding aluminum, mag- nesium, copper, or titanium
X	X	X	X	X	X	X	X		00-814-6029	"	
X	X	X	X	X	X	X	X		00-814-6028	"	Cutting without air
X	X	X	X	X	X	X	X		00-766-7749	EUTECTIC Co. "CUTTRODE #1"	
X	X	X	X	X	X	X	X		00-902-4213	EUTECTIC Co. "CHAMFERTRODE"	Chamfering & grooving

Table D-4. Overlay, Welding and Cutting, Chamfering, and Heating Electrodes (cont)

Positions	Current			Material	Dia	Length	(CAGEC 3439) NIIN	Identifying Reference	Use
		DC	Shielded						
	Horizontal								
	Vertical								
	Overhead								
Flat									

¹Flux-coated.²Covered for underwater use.³5/16 od, 0.112 id, 14 in. long.⁴See TB 9-3439-201/1 for application using standard electrode holders.⁵Copper-coated carbon electrode. Exothermic coating effects arc blow without air source.⁶Flat shape, 1/2 in. wide by 1-1/2 in. long.⁷Curved surface, 1/2 in. wide by 1-1/2 in. long.

Table D-5. Welding Rods

Positions	Process			Material	Dia	Length	(CAGEC 3439) NIIN	Identifying Reference	Use					
	Flat	Horizontal	Vertical							Overhead	Oxyacetylene	Carbon & Tungsten-Arc	Metal-Arc	Coated
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X</						

Table D-5. Welding Rods (cont)

Positions			Process		Coated	Material	Dia	Length	(CAGEC 3439) Nitin	Identifying Reference	Use
Flat	Vertical	Overhead	Carbon & Tungsten-Arc	Metal-Arc							
					Oxyacetylene						
X	X	X	X	X	No	"	3/16	36	00-246-0568	"	Aircraft & welding of low and medium carbon steels
X	X	X	X	X	Yes	"	1/4	36	00-246-0569	"	Aircraft welding of low alloy steels (heat treat after weld)
X	X	X	X	X		Cast Iron	1/8	24	00-247-2981	MIL-R-908, C12	Welding of stainless steel 309
X	X	X	X	X		Medium Carbon	1/16	36	00-294-6910	MIL-R-5632, C11	"
X	X	X	X	X		Steel	1/8	36	00-163-4362	"	"
X	X	X	X	X			1/8	36	00-204-3592	MIL-R-5632, C12	"
X	X	X	X	X		"	1/4	36	00-262-4279	"	"
X	X	X	X	X		AISI #309	1/8	36	00-288-1469	MIL-R-5031, C13	"
X	X	X	X	X		AISI #316	1/16	36	00-246-0575	"	"
X	X	X	X	X		AISI #316	3/32	36	00-246-0576	"	"
X	X	X	X	X		AISI #316	1/8	36	00-246-0577	"	"
X	X	X	X	X		AISI #316-L	1/16	36	00-163-4360	MIL-R-5031, C16	Welding of stainless steel 316-L
X	X	X	X	X		75Ni, 18Cr	1/4	18	00-542-0411	MIL-R-17131, C1 NiCr	Corrosion & abrasion resistant overlays
X	X	X	X	X		70Ni, 15Cr, 30Cu	5/16	18	00-542-0412	"	"
X	X	X	X	X		93Cu, 6Sn	1/16	36	00-273-8824	QQ-R-571, type 2, C1 NiCrFe-4	Nickel-chrome-iron alloy (use flux)
X	X	X	X	X		1-0Fe	1/8	36	00-246-0560	"	Nickel-copper alloy (use flux)
X	X	X	X	X		30Cu	3/16	36	00-246-0562	"	"
X	X	X	X	X		"	1/4	36	00-254-5039	"	"
X	X	X	X	X		60Cu, 40Zn	1/8	36	00-255-8943	QQ-R-571, type 1, C1 CuSn-A	Phosphor bronze (use flux for carbon-arc)
X	X	X	X	X		60Cu, 40Zn	3/16	36	00-255-8944	"	"
X	X	X	X	X		60Cu, 40Zn	1/16	36	00-268-9668	"	"
X	X	X	X	X		60Cu, 40Zn	3/32	36	00-262-7565	"	"
X	X	X	X	X		60Cu, 40Zn	1/8	36	00-247-2978	"	"
X	X	X	X	X		60Cu, 40Zn	1/16	36	00-255-7757	"	"
X	X	X	X	X		60Cu, 40Zn	3/16	36	00-254-5033	"	"
X	X	X	X	X		60Cu, 40Zn	1/8	36	00-244-4540	"	"
X	X	X	X	X		60Cu, 40Zn	3/16	36	00-244-4541	"	"
X	X	X	X	X		99% Al	1/4	36	00-244-4542	"	"
X	X	X	X	X			1/8	36	00-268-9652	QQ-R-566, C1 1100	Pure aluminum & manganese aluminum

Table D-5. Welding Rods (cont)

Positions		Process		Coated	Material	Dia	Length	(CAGEC 3439) NIIN	Identifying Reference	Use
Plat	Horizontal			Yes						
	Vertical			No						
	Overhead									
	Oxyacetylene									
	Carbon & Tungsten-Arc									
X	X	X	X	X	93% Al, 6 Si	1/16	36	00-178-8590	QQ-R-566, C1 4043	Pure aluminum & silicon & manganese aluminums
X	X	X	X	X	"	3/32	36	00-268-9654	" "	
X	X	X	X	X	"	1/8	36	00-247-2982	" "	
X	X	X	X	X	"	3/16	36	00-247-2983	" "	
X	X	X	X	X	"	1/4	36	00-255-8942	" "	
X	X	X	X	X	87Mg, 9Al, 2Zn	3/32	36	00-204-3280	MIL-R-6944, C1 AZ92A	Magnesium-aluminum-zinc alloys
X	X	X	X	X	"	1/8	36	00-204-3203	" "	
X	X	X	X	X	"	3/16	36	00-262-4285	" "	
X	X	X	X	X	"	1/4	36	00-204-3279	" "	

Table D-6. Brazing Alloys

Temper- atures (degrees F)	Chemistry						Dimensions				Coil Spool pkg lb oz	(CAGEC 3439) NIIN	Iden- tifying Reference	Use
	Melting	Brazing	Copper	Silver	Zinc	Cadmium	Phosphorus	Nickel	Dia	Length	Width	Thickness		
1250	1370	30	45	25							3/4	0.003	1 oz pkg	Small delicate parts--OK for dissimilar metals
1280	1325	20	65	15						A/A	3/4	0.003	00-238-3077	Gr 1 ML-B-15395,
1185	1500	80	15				5			20	1/8	0.050	00-247-6926	Gr 2 ML-B-15395,
										36	1/8	1/8	00-188-6982	Gr 2 ML-B-15395,
1185	1500	80	15				5				1/8	0.050	00-204-2555	Gr 2 ML-B-15395,
1430	1500	45	20	35						3/4	0.003	0.003	00-247-6927	Gr 2 ML-B-15395,
1250	1370	30	45	25					1/16				00-224-3573	Gr 2 ML-B-15395,
1160	1175	15	50	17	18				1/32				00-184-8952	Gr 2 ML-B-15395,
1160	1175	15	50	17	18				1/16				00-184-8948	Gr 2 ML-B-15395,
1170	1270	15.5	50	15.5	16			3	3/32				00-224-3561	Gr 2 ML-B-15395,

Table D-7. Soldering Materials

Temp	Chemistry						Form		Dimensions				(CAGEC 3439) NLIN	Identifying reference	Use		
	Tin	Lead	Zinc	Antimony	Bismuth	Silver	Solid	Cored (plastic or dry)		Diameter	Length	Width				Thickness	Spool or bar
								Acid Rosin									
Flow (deg F)																	
490	30	67		2							14	5/8	3/8		00-247-6970	Automotive dents & seams	
460	40	60									14	5/8	3/8		00-247-6968	Dip & wiping solder	
460	40	60										(Any Shape)		1 lb bar	00-247-6921	"	
420	50	50										(Any Shape)		1-1/4 lb bar	00-163-4347	Sweated joint; copper, cast iron, steel	
375	60	40									14	5/8	3/8		00-254-8437	Electrical con- nections & coating	
475	35	60		2							5-1/2	2	1-1/2		00-247-6969	plumber's wiping solder	
260	25	38			37						14	1/4	1/4		00-239-8506	Low temperature melting appli- cation	
570	10	87				2			P	1/16				1 lb spool	00-265-7102	Electrical con- nections, high temperature	
460	40	60							P	0.090				1 lb spool	00-188-6988	Dip & wiping solder	
460	40	60						P		3/32				5 lb spool	00-188-6986	"	
															WRAP3 QQ-S-571, SN-40, WACP6		

Table D-7. Soldering Materials (cont)

Temp	Chemistry						Form		Dimensions					(CAGEC 3439) NIIN	Identifying reference	Use	
	Tin	Lead	Zinc	Antimony	Bismuth	Silver	Solid	Cored (plastic or dry)		Diameter	Length	Width	Thickness				Spool or bar
								Acid	Rosin								
Flow (deg F)																	
460	40	60						P		3/32				1 lb spool	QQ-S-571, SN-40, WACP3	"	
460	40	60						P		1/8				1 lb spool	QQ-S-571, SN-40, WACP6	"	
460	40	60							P	1/8				1 lb spool	QQ-S-571, SN-40, WRP3	"	
460	40	60								1/8				5 lb spool	QQ-S-571, SN-40, WS	"	
420	50	50								1/16				5 lb spool	QQ-S-571, SN-50, WS	Sweated joint; copper, cast iron, steel	
420	50	50							P	1/16				1 lb spool	QQ-S-571, SN-50, WRAP3	"	
420	50	50							P	0.090				1 lb spool	QQ-S-571, SN-50, WRAP3	"	
460	40	60							P	1/16				1 lb spool	QQ-S-571, SN-40, WRP2	"	
420	50	50							P	3/32				1 lb spool	QQ-S-571, SN-50, WRP2	"	
420	50	50								1/8				1 lb spool	QQ-S-571, SN-50, WS	Sweated joint; copper, cast iron, steel	

Table D-7. Soldering Materials (cont)

Temp	Chemistry						Form		Dimensions				(CAGEC 3439) NIIN	Identifying reference	Use	
	Tin	Lead	Zinc	Antimony	Bismuth	Silver	Solid	Cored (plastic or dry)								
								Acid	Rosin							
Flow (deg F)																
375	60	40						P	1/32				1 lb spool	00-555-4629	QQ-S-571, SN-60, WRAP3	Electrical con- nections & coating
375	60	40						D	1/16				5 lb spool	00-163-4351	QQ-S-571, SN-60, WRD3	"
375	60	40							3/32				5 lb spool	00-224-3567	QQ-S-571, SN-60, WRAP3	"
375	60	40						P	1/8				1 lb spool	00-273-2536	QQ-S-571, SN-60, WRP2	"
375	60	40						P	0.162				1 lb spool	00-254-8439	QQ-S-571, SN-60, WACP3	Electrical con- nections & coating
475	35	60		2				P			3/16	1/8	5 lb spool	00-224-3562	QQ-S-571, SN-35, RACP6	Plumber's wiping solder
500	35	60	4				X		1/8				1 lb spool	00-528-9616	MIL-S-12204, type 1, comp A	Aluminum & alu- minum alloys
N/A			Plastic Aluminum				(Paste solder-- 5-1/2 oz. tube)							00-726-9822	(WOODHILL CHEMICAL Co. "P-AL")	Aluminum and aluminum alloys

Table D-8. Fluxes, Welding, Brazing, and Soldering

Process	Form					Unit of issue	(CAGEC 3439) NITN	Identifying reference	Use	Type of solder used with (solder flux only)
	Liquid	Paste	Stick	Powder	Granular					
Gas Welding				X		1 lb	00-255-4580	MIL-F-16136, type C	Cast iron	
Gas Welding		X				5 lb	00-255-9940		Cast iron & corrosion resistant steels	
Gas & Arc Welding				X		1 lb	00-255-4577	MIL-F-16136, type A, C11	Copper	
Arc Welding					X	100 lb	00-068-5058	MIL-F-18251, A760	Steel	
Arc Welding				X		100 lb	00-200-1581	MIL-F-18251, 840	Steel	
Brazing		X		X		1 lb	00-255-4572	(Alcoa #33)	Aluminum	
Brazing						1 lb	00-640-3713	O-F-499, type B	All except aluminum bronze	
Soldering	X					4 oz	00-250-2629	O-F-506, type 2, form B	Heat resisting steel	Sn-Pb
Soldering	X					4 oz	00-250-2635	O-F-506, type 1, form B	All except aluminum & heat resisting alloys	Sn-Pb
Soldering		X				1/4 lb	00-255-4566	O-F-506, type 1, form A		Sn-Pb
Soldering		X				2 oz	00-260-1264	O-F-506, type 1, form A		Sn-Pb
Soldering		X				8 oz	00-288-0868	O-F-499, type B	All except aluminum bronze	Ag-Cu
"		X				2 oz	00-529-0621	O-F-506, type 1, form A	All except aluminum & heat resisting alloys	Sn-Pb
"			X			1/4 lb	00-270-6050	MIL-F-12784, Camp IC-3	Lead joints of telephone cable splices (see TM 11-372)	Sn-Pb

Table D-9. Carbon Blocks, Rods, and Paste

Form	Measurements	Identifying Reference	(CAGEC 3439) NIIN	Use
Carbon Block	1/2 T, 6W, 12L	MIL-C-1143	00-262-4159	Block, plug, or dike to restrict flow of molten metal
Carbon Block	1 T, 6W, 12L	"	00-262-4163	"
Carbon Rod	1/4 diam, 12 long	MIL-C-1143	00-262-4160	"
Carbon Rod	1/2 "	"	00-262-4161	"
Carbon Rod	5/8 "	"	00-262-4164	"
Carbon Rod	3/4 "	"	99-262-4162	"
Carbon Rod	7/8 "	"	00-262-4165	"
Carbon Rod	1-1/4 "	"	00-262-4166	"
Carbon Rod	1-1/2 "	"	00-262-4167	"
Carbon Paste	5 lb pail	MIL-C-1143	00-255-9943	"