

Cutlass Fasteners, Inc.

83 Vermont Ave., Unit 6, Warwick, RI 02888
Tel: (401) 732-6333 Fax: (401) 732-6336
cutlass-studwelding.com

Stud Welding...

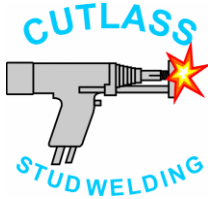
- Fasteners
- Equipment
- Service

PHM-12 ARC WELD GUN MANUAL

MODEL : PHM-12 ARC WELD GUN
PART NO. : PHM-12 (PHM-12-RS)
SERIAL NO. :



PLEASE READ THIS OPERATION AND MAINTENANCE MANUAL
CAREFULLY BEFORE USING YOUR NEW CUTLASS STUD WELDER.



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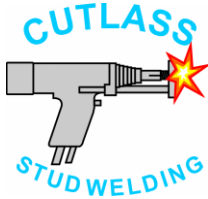
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WARRANTY

The electrical and mechanical components of the Cutlass Stud Welders are thoroughly performance inspected prior to assembly in the Welder. The assembled Welder is completely performance checked. The Welder is delivered to you in perfect electro-mechanical condition. All parts used in the assembly of the Welder are fully warranted for a period of three (3) months from the date of delivery.

Under this warranty, the manufacturer reserves the right to repair or replace, at its option, defective parts which fail during the warranty period. Notice of any claim for warranty repair or replacement must be furnished to the manufacturer, by the purchaser, within five (5) days after the defect is first discovered. The manufacturer does not assume any liability for paying shipping costs, or for any labor or material furnished where such costs are not expressly authorized in writing.

We do not warrant the Cutlass Stud Welders, parts or accessories against failures resulting from misuse, abuse, improper installation, normal wear and tear, maladjustment or use not in accordance with the operating instructions furnished by the manufacturer. Cutlass shall never be liable for any consequential damages.



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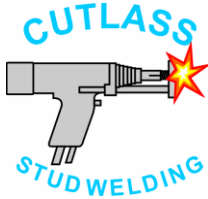
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SUGGESTED SAFETY PRECAUTIONS

In any welding operation, it is the responsibility of the welder to observe certain safety rules to insure his personal safety and to protect those working near him.

Reference is directed without endorsement or recommendation, to ANSI Z49.1, Safety in Welding and Cutting, and to AWG Publication A6, 1-66 Recommended Safe Practices for Gas-Shielded Arc Welding.

1. Always treat electricity with respect. Under open circuit conditions, the welding machine output may be dangerous.
2. Do not work on live circuits and conductors. Disconnect the main power line before checking the machine or performing any maintenance operations.
3. Ensure the welding machine cabinet is properly grounded to a good electrical ground.
4. Do not stand in water or on damp floors while welding or weld in the rain. Avoid wearing wet or sweaty clothes when welding.
5. Do not operate with worn or poorly connected cables, and do not operate weld gun with loose cable connections. Inspect all cables frequently for insulation failures, exposed wires, loose connections and repair as needed.
6. Do not overload weld cables or continue to operate with hot cables.
7. Do not weld near flammable materials or liquids, in or near atmospheres, or on ducts carrying explosive gases.
8. Do not weld on containers which have held combustible or flammable materials, or on materials which give off flammable or toxic vapors when heated, without proper cleaning, purging, or inerting.
9. Ensure adequate ventilation is provided when welding in confined spaces.
10. Never look at the electrical arc without wearing eye shields.
11. Always use proper protective clothing, gloves etc. Never weld close to a bystander who is unaware of the possible dangers of ultraviolet light and weld splatter on their eyes.
12. Installation, servicing and trouble shooting should only be done by qualified personnel, familiar with this type of equipment.



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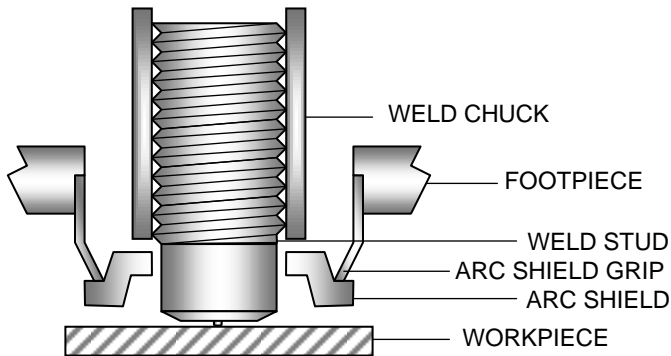
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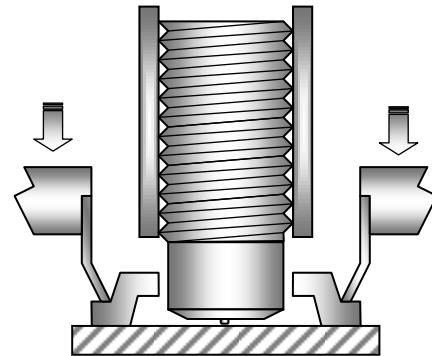
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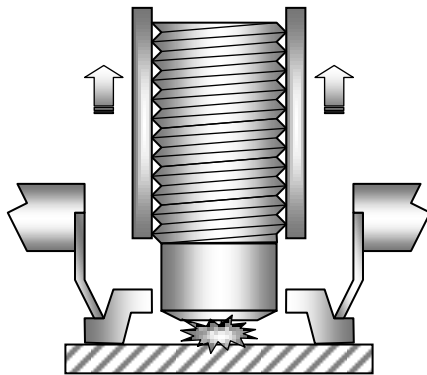
THE ARC STUD WELDING PROCESS...HOW THE STUD WELD IS MADE:



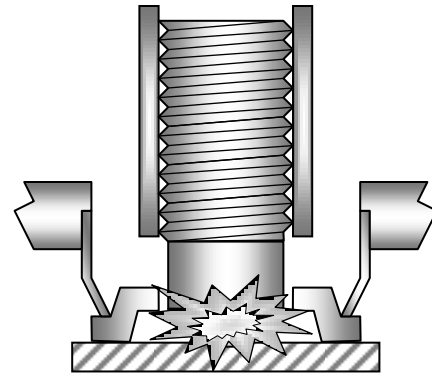
The Stud is located on the spot to which it is to be welded.



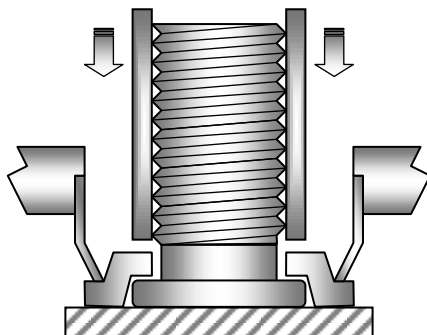
Pressure on the stud weld gun seats the arc shield firmly with the work.



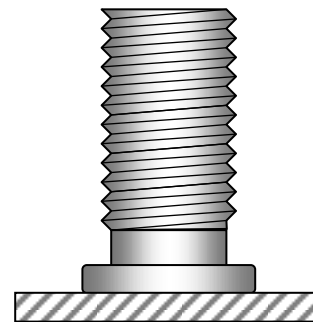
Upon pulling the trigger, the stud is withdrawn from the work plate drawing a pilot arc.



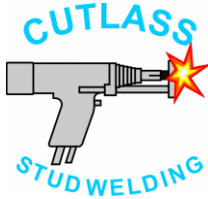
The welding arc strikes, puddling the metal directly under the stud and melting the end of the stud.



After a preset time, the welding arc is turned off and the stud plunges into the molten area of the work plate.



The molten metal solidifies, fusing the stud and work plate in a permanent bond. A uniform weld fillet is formed around the base of the stud.



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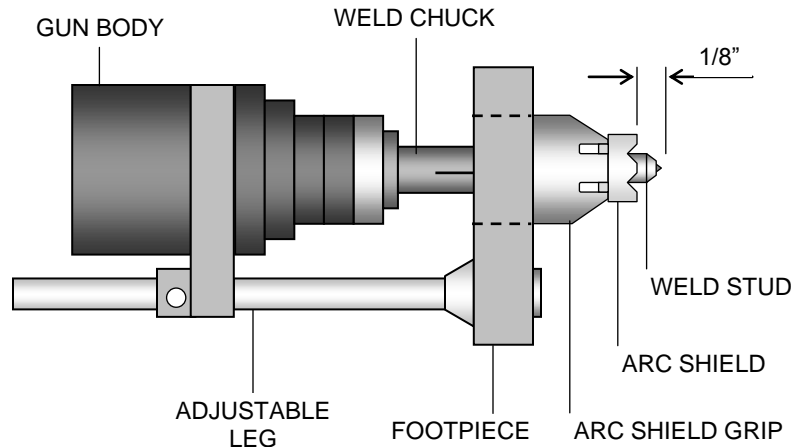
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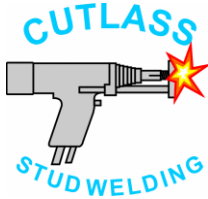
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WELD GUN SETUP



1. Lay out accessories; chuck, legs footpiece, screws, washers and arc shield grip.
2. Seat chuck firmly in end of gun.
3. Place two legs in holes in faceplate of gun and extend to just beyond end of chuck. Lock by tightening socket head screws in faceplate.
4. Assemble arc shield grip in footpiece by tightening set screws in footpiece. Do not over tighten or arc shield grip will distort. Mount the footpiece on the legs, place screws in special washers, insert in legs and tighten.
5. Insert stud in chuck and place an arc shield in grip. Adjust leg length so that end of weld stud protrudes approximately 1/8 inch beyond the arc shield held in the grip. Lock the legs firmly. Adjust the position of footpiece to center stud through arc shield. Ensure there is free movement of the stud through the arc shield. If there is any binding, loosen footpiece screws and re-adjust until stud moves freely through arc shield.

CAUTION: Under no circumstances should the spindle assembly or lifting assembly be held with pliers, vice grips or any other tool. Any burring of these components will cause binding and the Stud Welder will not operate properly. Do not oil or lubricate any parts of the Stud Welder. Use a soft dry cloth to wipe parts clean. Clean filtered air may be used to clean inaccessible areas.



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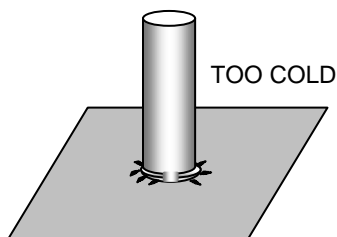
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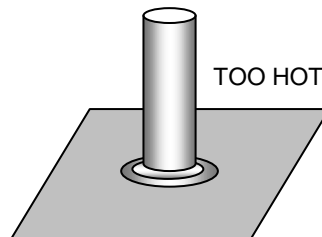
TEST WELDING

Before making your first weld, check the ground clamp. It is essential that no power be lost through a poor connection. The surface under the ground should be free from oil, scale, grease and rust. The test should be on a piece of scrap material similar to the material to be used during actual production.

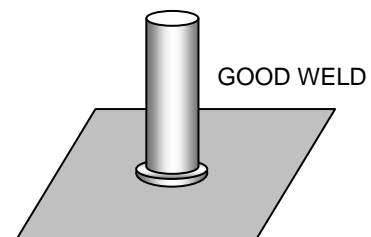
1. Ensure all weld and ground cables are uncoiled before welding.
2. Set up the gun in accordance with the procedure on the previous page.
3. Adjust the weld and current settings on the Stud Welding controller to the required settings for the diameter of the stud being welded.
4. Turn on the main circuit breaker and turn the controller on.
5. Insert a stud in the chuck and a ferrule in the ferrule grip.
6. Hold the gun perpendicular to the work surface, and depress gun until ferrule is firmly seated against the work surface.
7. Press the gun trigger to initiate the weld cycle. **DO NOT TRIGGER AGAIN.**
8. Do not move the gun during the welding cycle. After the weld cycle is completed, wait a moment to allow the molten metal to solidify, then withdraw the gun from the welded stud.
9. Inspect weld results and adjust settings as required.



Incomplete weld around base of weld stud. Low dull-grey fillet with 'stringers'.

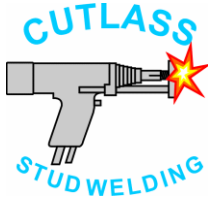


Low, shiny, concave weld fillet. Little or no fillet build up around base of weld stud.



Complete weld fillet around base of weld stud. Weld fillet should be shiny and blue in color.

NOTE: IF WELD APPEARS COLD, DO NOT PLACE GUN ON WELDED STUD AND TRIGGER AGAIN.
DAMAGE TO WELD CHUCK OR CONTROLLER WILL OCCUR.



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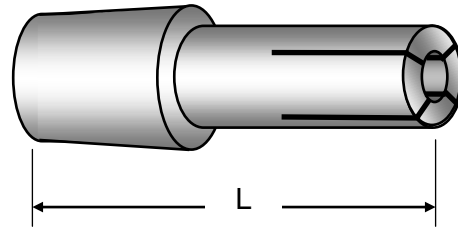
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STANDARD ACCESSORIES

STANDARD ADJUSTABLE WELD CHUCK



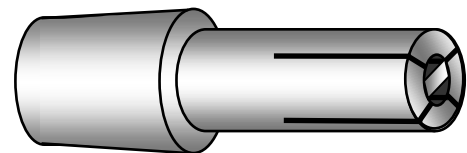
STUD SIZE	STANDARD LENGTH "L"	PART NO.
1/8"	2.1/2"	015-511
10GA, 6-32UNC	2.1/2"	602-451A
8-32UNC	2.1/2"	602-452A
4MM	2.1/2"	602-423A
#10, 3/16"	2.1/2"	605-101A
5MM	2.1/2"	605-102
0.217"	2.1/2"	605-112
6MM	2.1/2"	605-103
1/4"	2.1/2"	605-104A
5/16", 8MM	2.1/2"	605-105A
3/8"	2.1/2"	605-106A
10MM	2.1/2"	605-106
7/16"	2.1/2"	015-529
1/2"	2.1/2"	605-109A

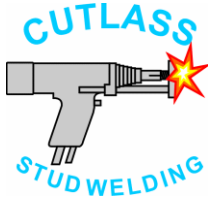
LONG LENGTH "L"	PART NO.
3.7/8"	700-511
3.7/8"	700-451A
3.7/8"	700-452A
3.7/8"	700-423A
3.7/8"	700-101A
3.7/8"	700-102
3.7/8"	700-112
3.7/8"	700-103
3.7/8"	700-104A
3.7/8"	700-105A
3.7/8"	700-106A
3.7/8"	700-106A
3.7/8"	700-529
3.7/8"	700-109A

CHUCKS 4.3/4" LONG ALSO AVAILABLE – USE PART NO. PREFIX 701 eg. 701-451A

RECTANGULAR CHUCKS

1/8 X 1/4	3.0"	003-477
1/8 X 3/8	3.0"	000-183
1/8 X 5/8	3.0"	000-185





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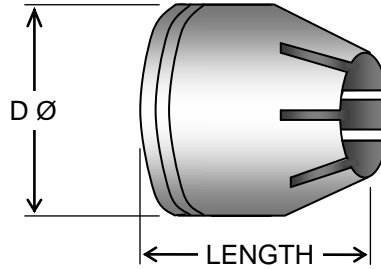
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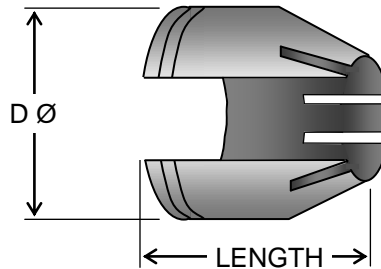
STANDARD ACCESSORIES

STANDARD ARC SHIELD GRIP

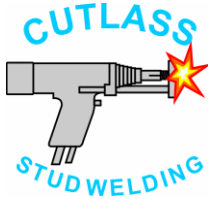


STUD DIAMETER	GRIP SIZE	D	STANDARD LENGTH 1"	LONG LENGTH 2"
			PART NUMBER	PART NUMBER
10GA THRU' 1/2	SMALL	0.875"	003-038	003-041
1/2 THRU' 3/4	MEDIUM	1.150"	003-039	003-042
* SPECIFY REQUIRED SIZE WHEN ORDERING				

SPLIT (OPEN) ARC SHIELD GRIP



STUD DIAMETER	GRIP SIZE	D	STANDARD LENGTH 1"	LONG LENGTH 2"
			PART NUMBER	PART NUMBER
10GA THRU' 1/2	SMALL	0.875"	003-038S	003-041S
1/2 THRU' 3/4	MEDIUM	1.150"	003-039S	003-042S
* SPECIFY REQUIRED SIZE WHEN ORDERING				



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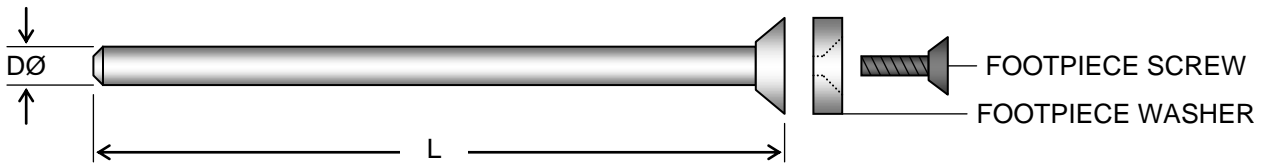
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STANDARD ACCESSORIES

ADJUSTABLE LEG ASSEMBLY

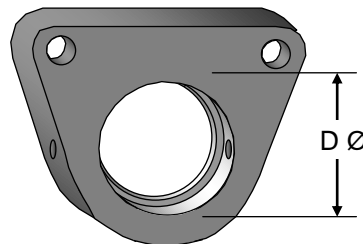


STUD LENGTH	L	D	PART NO.
3/4" TO 5"	7"	5/16"	504-037
5" TO 8"	10"	5/16"	504-038
8" TO 11"	13"	5/16"	504-039

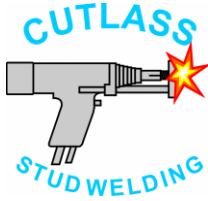
*LONGER LENGTHS AVAILABLE ON REQUEST

FOOTPIECE WASHER	L-031-1
FOOTPIECE SCREW	L-031-2

ARC FOOTPIECE



STUD DIAMETER	SIZE	A	PART NO.
10GA THRU' 1/2"	SMALL	0.880"	023-256
1/2" THRU' 3/4"	MEDIUM	1.160"	023-257



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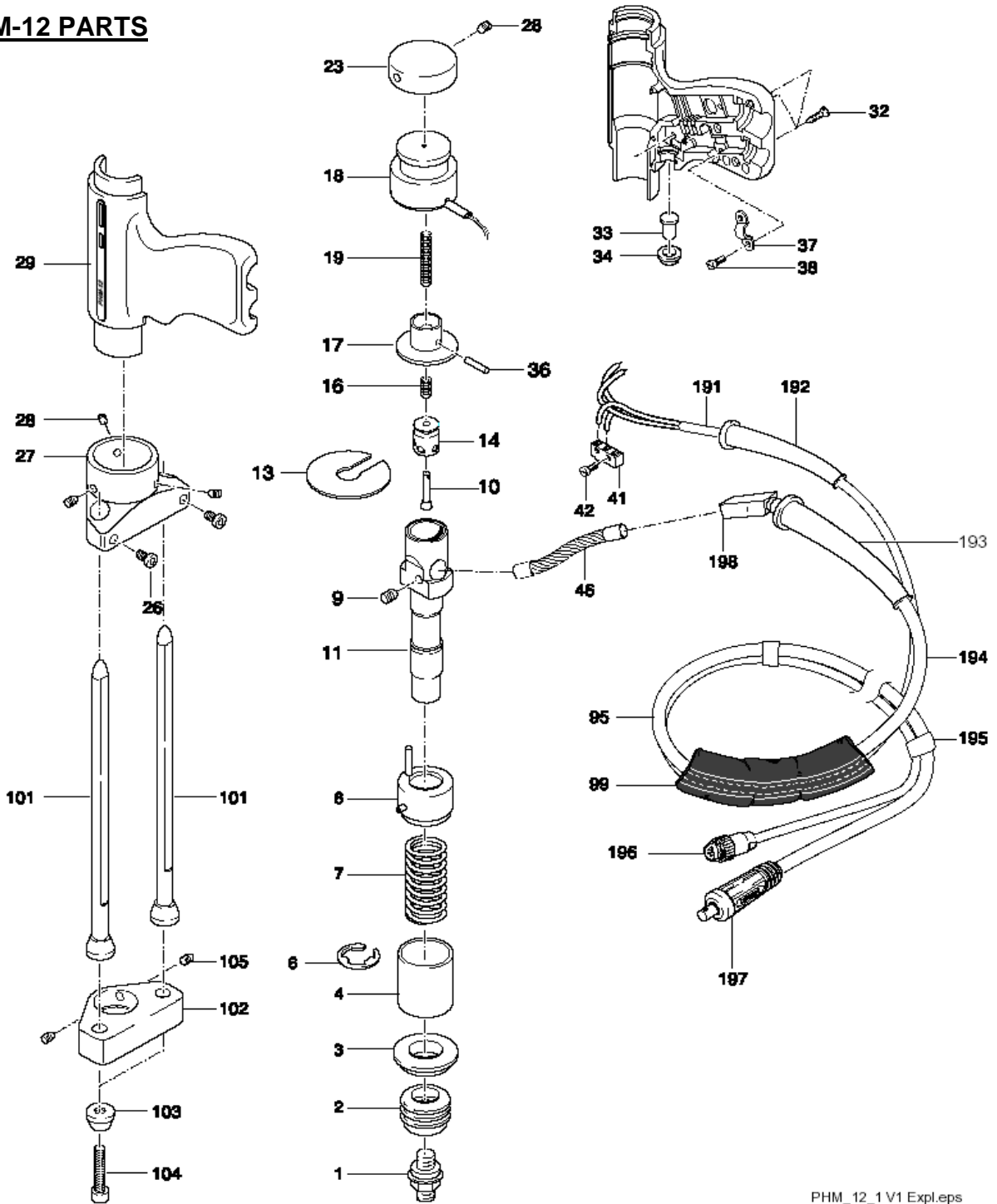
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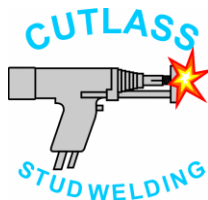
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PHM-12 ARC WELD GUN MANUAL

PHM-12 PARTS



PHM_12_1 V1 Expl.eps



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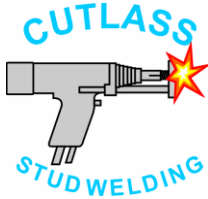
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PHM-12 PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
	PHM-12		1
1	80-40-1738	TAPER CHUCK ADAPTOR	1
2	80-40-1097	BELLOWS	1
3	80-40-1023	INSULATING BUSH	1
4	80-40-1021	GUIDE BUSH	1
6	80-15-1023	CIRCLIP	1
7	80-40-1115	MAIN SPRING	1
8	80-40-1022	SPINDLE SLEEVE	1
9	80-15-1011	M5 X 8 SET SCREW	1
10	80-40-1568	SOLENOID PIN	1
11	80-40-1455	SPINDLE	1
13	80-40-1159	SPLIT LIFT WASHER	1
14	80-40-1489	BALL CARRIER	1
16	80-10-1240	LIFT SPRING	1
17	80-40-1491	LIFT BODY	1
18	80-30-1040	SOLENOID	1
19	80-40-1416	SOLENOID SPRING	1
23	80-40-1189	BACK CAP	1
26	80-15-1085	M5 X 10 SET SCREW	3
27	80-40-1113	T/L FACEPLATE	1
28	80-15-1010	M5 X 4 SET SCREW	5
29	80-40-1602	GUN BODY	1
32	80-15-1013	HANDLE SCREW	3
33	80-40-1016	TRIGGER BUTTON	1
34	80-40-1017	TRIGGER SLEEVE	1
36	80-15-1078	LIFT PIN	1
37	80-10-1015	CABLE CLAMP	1
38	80-15-1076	M2.5 X 6 SCREW	2
41	80-50-1013	TRIGGER SWITCH	1
42	80-15-1015	M2 X 10 SCREW	2
46	80-72-1135	INTERNAL WELD CABLE	1
95	80-72-1018	COMPLETE CABLE ASSY. DINSE	1
95 *	80-72-1075	COMPLETE CABLE ASSY. CAMLOK	1



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ITEM	PART NO.	DESCRIPTION	QTY
	PHM-12		1
191	80-72-1029	CONTROL CABLE ASSY. EURO	1
191 *	80-72-1076	CONTROL CABLE ASSY. R/S	1
192	80-10-1011	CONTROL CABLE SLEEVE	1
193	80-30-1019	WELD CABLE SLEEVE	1
194	80-50-1350	#2 WELD CABLE ASSY.	1
195	600-627	CABLE SLEEVE	10
196	80-50-1010	CONTROL PLUG	1
196 *	000-594	CONTROL PLUG R/S	1
197	80-50-1080	WELD PLUG DINSE	1
197 *	000-568	WELD PLUG CAMLOK	1
198	80-35-1135	CONTACT BLOCK	1