## MODEL 9-4500 IPB Notice and Revision History

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WARNING



The nature of the GTAW process creates some POTENTIAL HAZARDS. In accordance with international safety regulations the EXCLAMATION SYMBOL indicates that this equipment is considered HAZARDOUS. The LIGHTNING FLASH SYMBOL indicates that there are potential electrical hazards. The display of these symbols makes it the OPERATOR'S RESPONSIBILITY TO ENSURE THAT THEY HAVE BEEN MADE AWARE OF and shall observe the hazardous conditions.



**WARNING**: AMI factory training is essential for all Maintenance Technicians who operate AMI equipment. Do not operate or service this equipment without proper AMI approved training.



**WARNING:** Keep hands and fingers clear from moving parts such as fans, gears, rotors, Wire Feed, Weld Head Travel, i.e. Oscillation (OSC) and Arc Voltage Control (AVC) mechanisms



Weld Head AVC and Oscillator Slide Assemblies develop high forces and it is possible, by their nature of operation, to harm any object or body part that may get into these areas. **USE EXTREME CAUTIONI** 



**Electrical Shock Hazard:** Always disconnect weld heads when servicing internal components or opening housing covers for access.

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REV	ECO#	CHANGE DESCRIPTION	DATE	BY	APR
Α	4678	On 090119 Change Item 6 & 23	7 Mar 2008	SO	BF
В	4779	Added rev D of 750015	26 May 2008	SO	BF
С	5579	Added rev F 750015 and wiring diagram	18 Jan 2010	СВ	DC
D	5753	Deleted pg 4 of 8 from IPB 090119, removed all cable parts from 090119, updated TOC	10/6/10	GB	DC

## To be used for reference only



### **TABLE OF CONTENTS**

DATE EFFECTIVE: 26 April 1993

PRODUCT MODEL: 9-4500 MANUAL NUMBER: 730030

IPB NUMBER	DESCRIPTION
750015	MODEL 9 ELECTRODE DIMENSIONS
090119	MAIN ASSEMBLY
090516	LOCATING ARM KIT
090105	MODEL 9E CONFIGURATION
750031	MODEL 9 CONVERSION TO MODEL 9E INSTRUCTIONS
090800	CABLE ASSEMBLY M9
175144-04	MODEL 9 WELD HEAD WIRING DIAGRAM

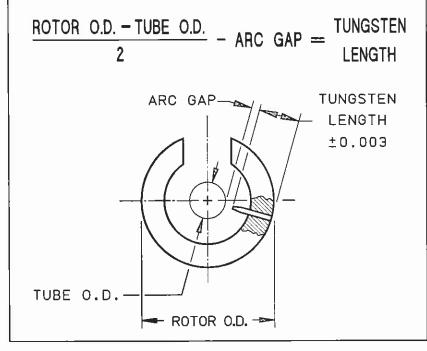
# To be used for reference only

#### ELECTRODE DIMENSIONS

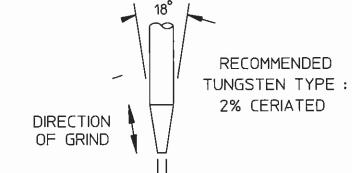
ROTOR D	IAMETER					
MODEL NO.	ROTOR O.D					
9-250	0.802					
9-500/4-500	1.388					
9-675	1.715					
9M-750	1,312					
9-750	2.000					
9-1500	3.187					
9AF-1500	2.252					
9E-1500	2.687 3.450					
8-2000	4,380					
9-2500	3.156 4.280					
9AF-2500						
9E-2500						
* 9-3500	5.380					
9E-3500	5.310					
8-4000	5.310					
* 9-4500	6.875					
9ER-4500	5.776					
8-6625	8.094					
* 9-7500	10,440					
9E-7500	9.375					
* FOR HEADS USING						

OPTIONAL TUNGSTEN

EXTENDER, SEE PAGE 2.



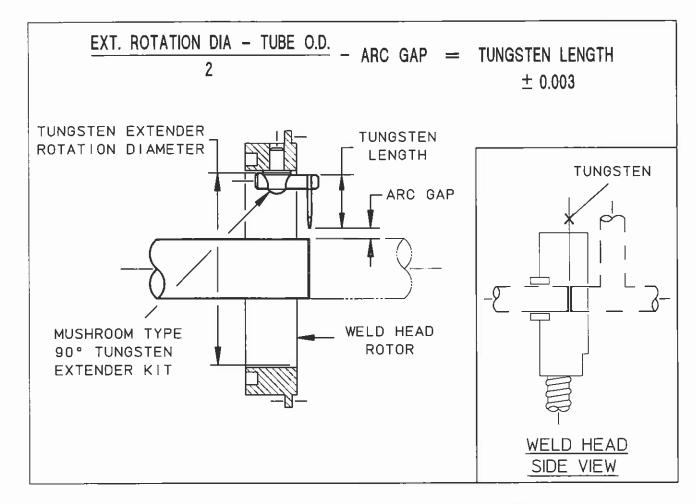
TUBE/PIPE WALL THICKNESS	RECOMMENDED ARC GAP	RECOMMENDED TIP DIA.
0.020/0.035	0.030	0.020
0.049/0.085	0.050	0.030
0.091/0.154	0.070	0.040



REV F

- NOTES: 1. RECOMMENDED ARC GAP FOR MODELS 4-500, 9-250 & 9-500 IS 0.045 MAXIMUM.
  - 2. IN INSTANCES WHERE OUT-OF-ROUNDNESS ON THIN-WALLED TUBING OCCURS (NORMALLY 2.500 O.D. OR LARGER), A 0.070 ARC GAP IS RECOMMENDED.
  - 3. DIMENSIONS ARE IN INCHES.

### TUNGSTEN LENGTH CALCULATION FOR TUNGSTEN EXTENDERS



		WELD HEAD	KIT WITH 1/16 TUNGSTEN	KIT WITH 3/32 TUNGSTEN	TUNGSTEN EXTENDER
1		MODEL NO.	HOLDER PART NO.	HOLDER PART NO.	ROTATION DIA.
		9-1500	13090796-01	13090796-02	2.031
:		9-2500	13090796-05	13090796-06	3.156
		9–3500	13090796-05	13090796-06	4.031
		9-4500	13090796-03	13090796-04	4.920
for	re	9–7500	13090796-05	13090796-06	8.280
		NOTES:		7	

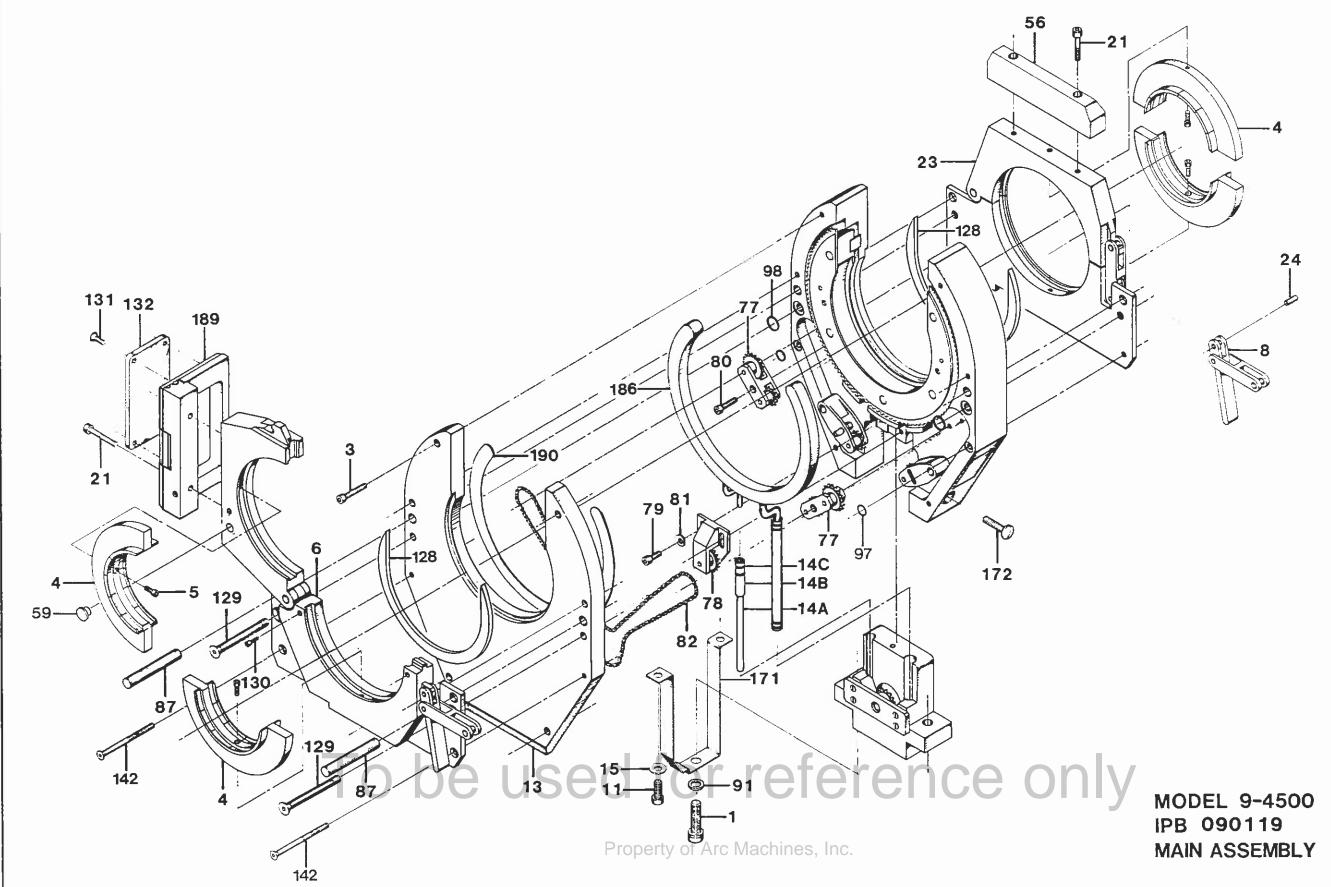
Property of Arc Machines, 2. CONTACT AMI SALES OR SERVICES FOR SPECIFIC PART NUMBER.

Doc No. 750015

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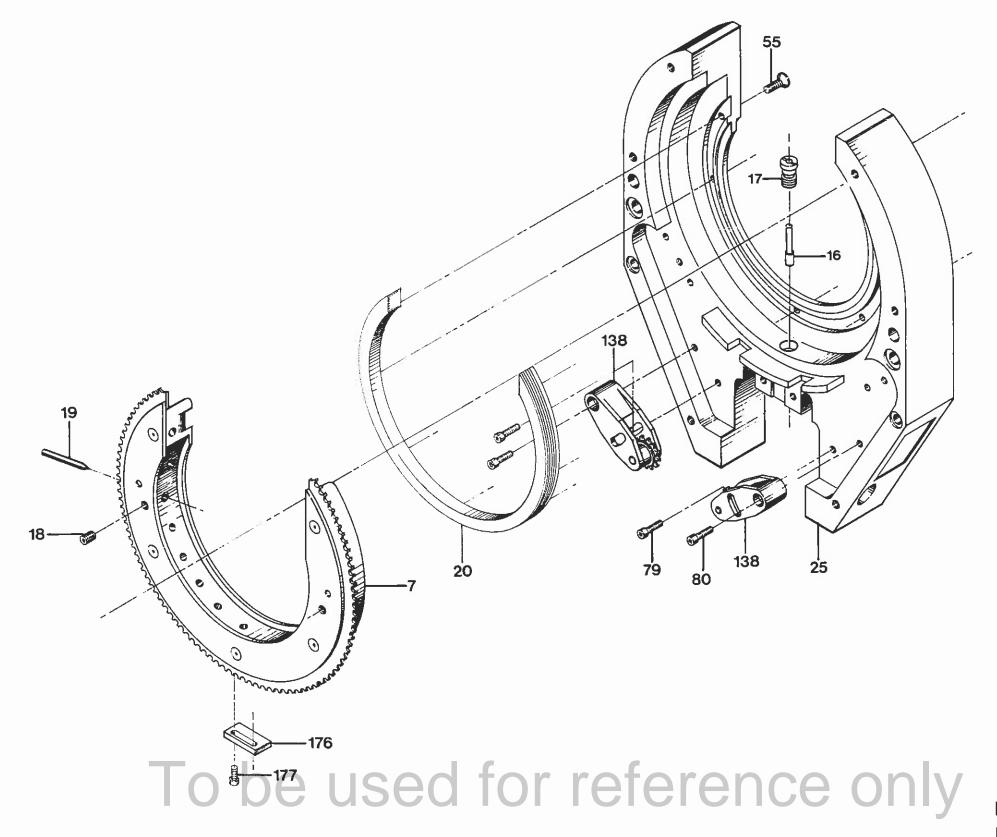
Doc No. 750015 REV F





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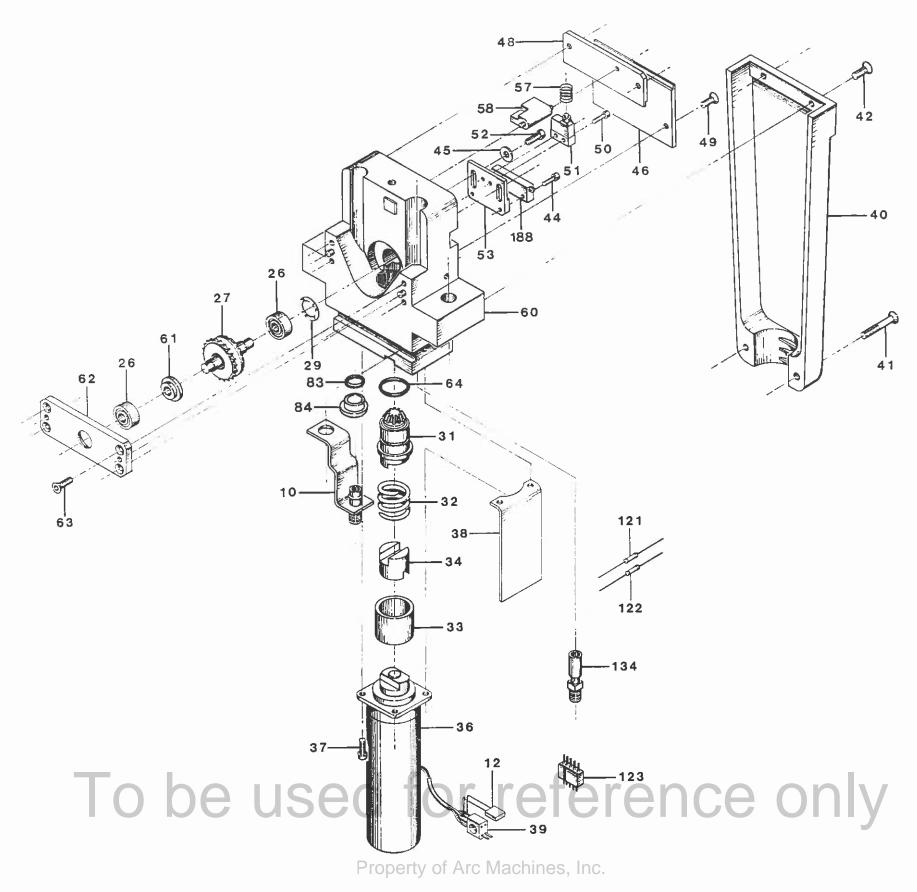


Property of Arc Machines, Inc.

MODEL 9-4500 IPB 090119 HOUSING ASSEMBLY

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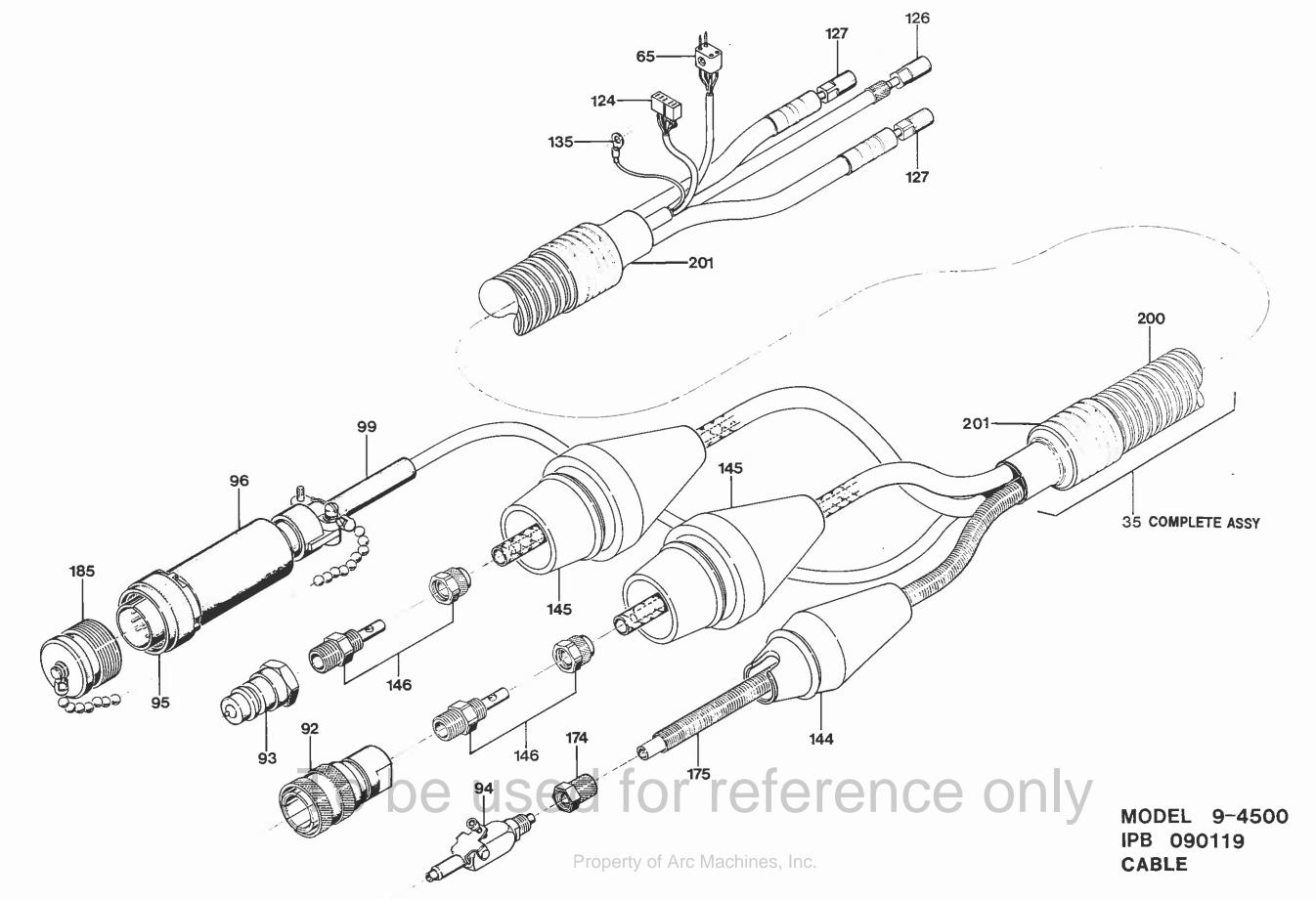




MODEL 9-4500 IPB 090119 DRIVE ASSEMBLY

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ARC MACHINES, INC. IPB NUMBER: 090119 TO ORDER

> USE PART NUMBER DO NOT USE IPB

PRODUCT MODEL: 9-4500 ITEM NUMBER DESCRIPTION: MAIN ASSEMBLY

MANUAL NUMBER: 730030

NOTES:

IPB ITEM NUMBER	QTY	U/M	PART NUMBER	DESCRIPTION				
1	2	EA	SCS31-18-1.25NP	SCREW CAP SKT 5/16-18 1-1/4 L				
2	0	_	_					
3	4	EA	SCS08-32-0.87NP	SCREW CAP SKT 8-32 7/8 L				
4	0	-	-		TUBE CLAMP INSERT-ORD BY SIZE			
5	4	EA	SCS06-32-0.37NP	SCREW CAP SKT 6-32 3/8 L				
6	1	EA	130905275-01	CLAMP HSG COVER SIDE 9-4500	ITEMS 8, 24, AND 59 INCLUDED			
7	1	EA	13090790-01	ROTOR MOD 9-4500	ITEMS 18, 176, AND 177 INCLUDE			
8	2	ĖA		LATCH ASSY M9-4500 M9E-4500				
10	1	EA	13090723-01					
11	2	EA	SCS25-20-0.62SP	SCREW CAP SKT 1/4-20 5/8 L SP				
12	1	EA	CK06BX104K	CAP 0.1MF 100V 10%				
13	1	EA		HOUSING COVER MAIN				
14A	0.5	FT		TBG SILICONE 1/8ID 1/4OD RED				
14B	0.08	${f FT}$	FP-301-0.25	TBG SHRINK				
14C	18	IN		LOCKWIRE 1LB SPOOL .025D 304SS				
15	2	EA	W25NP-FL					
16	1	EA	42091108-02	PIN ACT				
17	1	EA		BUSHING HOUSING UPPER M9-4500				
18	2	EA	SSS06-32-18NPCU	SCREW SET SKT 6-32 3/16 L CUPT				
19	0		-					
20	1	EA	42090746-02	GUIDE RING				
21	4	EA	SCS10-32-1.25NP	SCREW CAP SKT 10-32 1-1/4 L				
22	0	EA	<del>-</del>		TODAY O AND OA THOUSAND			
23	1	EA	130905274-01	CLAMP HSG HSG SIDE 9-4500	ITEMS 8 AND 24 INCLUDED			
24	2	EA	PD18-0.37SS	PIN DOWEL 3/16D 3/8L SST HOUSING UPPER				
25	1	EA	42090144-01	HOUSING UPPER				
26	2	EΑ		BEARING BALL .18 .50 [5LY-101]				
27	1	EA	13090613-01	GEAR BEVEL				
28	0	-	-	CORTING WAVE WAVED CEID AA				
29	1	EA	SV-8	SPRING WAVE WASHER .351D .44				
30	0	-	12000600 07	GEAR RIMIAN PRIM				
31	1	EA		GEAR PINION DRIVE				
32	1	EA	15156	SPRING CPRSN .81D .70L .067W				
33	1	EA		SPACER SPRING				
34	1	EA	42090602-03	COUPLING INSULATING DELRIN				
35	1	EA	13090800-01	CABLE M9 10 FT	ITEMS 12 AND 39 INCLUDED			
36		EA	13090602-03	MOTOR DRIVE PINION 81 RPM	TIEMS 12 AND 39 INCHODED			
10 DE USERICE, PART NUMBER AND TELECH ONLY								
			0 0 0		Page 5 of 8			

CHANGE WITHOUT NOTICE

IPB NUMBER: 090119 TO ORDER ARC MACHINES, INC.

USE PART NUMBER
DO NOT USE IPB
ITEM NUMBER

PRODUCT MODEL: 9-4500
DESCRIPTION: MAIN ASSEMBLY

MANUAL NUMBER: 730030

IPB ITEM NUMBER	QTY	U/M	PART NUMBER	DESCRIPTION
37	4	EA	SCS04-40-0.31NP	SCREW CAP SKT 4-40 5/16 L
38	1	EA	42091102-04	INSULATOR SKIRT
39	1	EA	JF2P2SCD	CONN 4 PIN PLUG MINIATURE
40	2	EA	42090104-01	HANDLE
41	2	EA	SFS04-40-1.00NP	SCREW FLH SKT 4-40 1.00 L
42	4	EA	SFS04-40-0.37NP	SCREW FLH SKT 4-40 3/8 L
43	0	-	-	
44	2	EA	SCS02-56-0.25NP	SCREW CAP SKT 2-56 1/4 L
45	2	EA	WO4-FL	WASHER FLAT #4
46	1	EA	42090619-02	COVER PLATE BOT LIMIT SW
47	0		-	
48	1	EA	42090619-01	
49	4	EA	SFS04-40-0.31NP	
50	2	EA	SCS02-56-0.25NP	
51	1	EA	MMGGD1D0C	
52 53	2	EA	SCS04-40-0.25NP	
53	1	EA	42090616-05	PLATE LIMIT SWITCH
54	0	-	- GET 00 32 0 CONT	CODEM BIT CIT O 22 E/O I NOT
55 56	7 1	EA	SFL08-32-0.62NY 42090585-02	SCREW FLH SLT 8-32 5/8 L NYL CLOSURE 9-4500
56 57	1	EA EA	L-14	SPRING CPRSN .25D .43L .020W
5 / 58	1	EA		
56 59	1	EA	42091108-03 651	PLUG 5/16 DIA HOLE
60	1	EA	42090146-01	
61	1	EA	42090617-02	
62	1	EA	42090517-02	
63	4	EA	SFS04-40-0 37NP	SCREW FLH SKT 4-40 3/8 L
64	i	EA	2-014	O RING .489 ID .070 W
<del>65 -</del>		- EA	<del>- JP2G2PCD</del>	CONN 4 SOCKET RECEDENCIE MINTE
66	0	_	-	
67	ō	_	_	
77	2	EA	13090625-01	BRACKET H R/H
78	1	EA	13090626-01	BRACKET TENSIONER
79	4	EA	SCS08-32-0.37NP	SCREW CAP SKT 8-32 3/8 L
80	4		SCS08-32-0.75NP	
81	2	EA	WO8NP-FL	WASHER FLAT #8
82	1	EA	RC14SS-177	OBS USE P/N 475S-177

IPB NUMBER:

090119

TO ORDER

ARC MACHINES, INC.

USE PART NUMBER DO NOT USE IPB ITEM NUMBER

PRODUCT MODEL: 9-4500

DESCRIPTION: MAIN ASSEMBLY MANUAL NUMBER: 730030

PB ITEM NUMBER	QTY	U/M	PART NUMBER	DESCRIPTION
83	1	EA	2-010-S604-70	O RING .238 ID .070 W SILICONE
84	î	EA	420901126-02	
87	2	EA	42090164-05	PIN .375D 2.45L 9-4500
88	Ō	_	-	
89	0	_	_	
91	2	EA	W31SS-FL	WASHER FL 5/16 SIZE SST
92	<del>- 1 -</del>	EA	<del>12060800 02</del>	-COUPLING O/D-CONN-(SM-251B)
93	<del>- 1</del>	- EA	SM252B	COUPLING
94	<del></del>	EA	394-PMD-04	DO NOT SELL USE: 1351109-01
<del>95</del>	1-	- EA	M93106B10 1P	CONN 10 PIN PLUG
96 —	1	BA	G1501N106A3A	CONN BACKSHELL
97	2	EA	2-106-S604-70	O RING .174 ID .103 W SILICONE
98	2	EA	2-108-S604-70	O RING .237 ID .103 W SILICONE
99	1	EA	MS39056-3	CONN TELESCOPIC BUSHING
105	0	-		
106	0	-	_	*****
107	0	-	_	
121	1	EA	RN55D1300F	RES 130 OHMS 1/4W
122	1	EA	RN55D7871F	RES 7.87K
123	1	EA	5PM	OBS USE 7051
124	<del>- 1</del>	EA	<del>-5PF</del>	OBS USE 7052
125	0	-	_	
126	1	EA	2PF1	FTG 1/4-28 FEMALE
27	2	- DA	42060800 01	OBS (USB ARC-1881)
128	2	EA	420907168-02	HEAT SHIELD 9-4500
129	2	EA	13090124-05	SCREW INSULATED UPPER
130	4	EA	SCS04-40-0.50NP	SCREW CAP SKT 4-40 1/2 L
131	4	EA	SFL06-32-0.50NY	SCREW FLH \$LT 6-32 1/2 L NYL
132	1	EA	42090585-03	WINDOW 9-4500
134	1	EA	13090803-01	TUBE FTG GAS
135	-1	EA	<del>R61002GGB</del> —	TERM 16 14 AWG #6
136	0	-	_	
138	2	EA	13090636-01	BRACKET TENSIONER
139	0	-	-	******
140	0	-	_	
142	2	EA	13090124-04	SCREW INSULATED LOWER
143	0	_	_	

IPB NUMBER: 090119 TO ORDER ARC MACHINES, INC.

M23053/5-111-0

201

USE PART NUMBER

DO NOT USE IPB PRODUCT MODEL: 9-4500

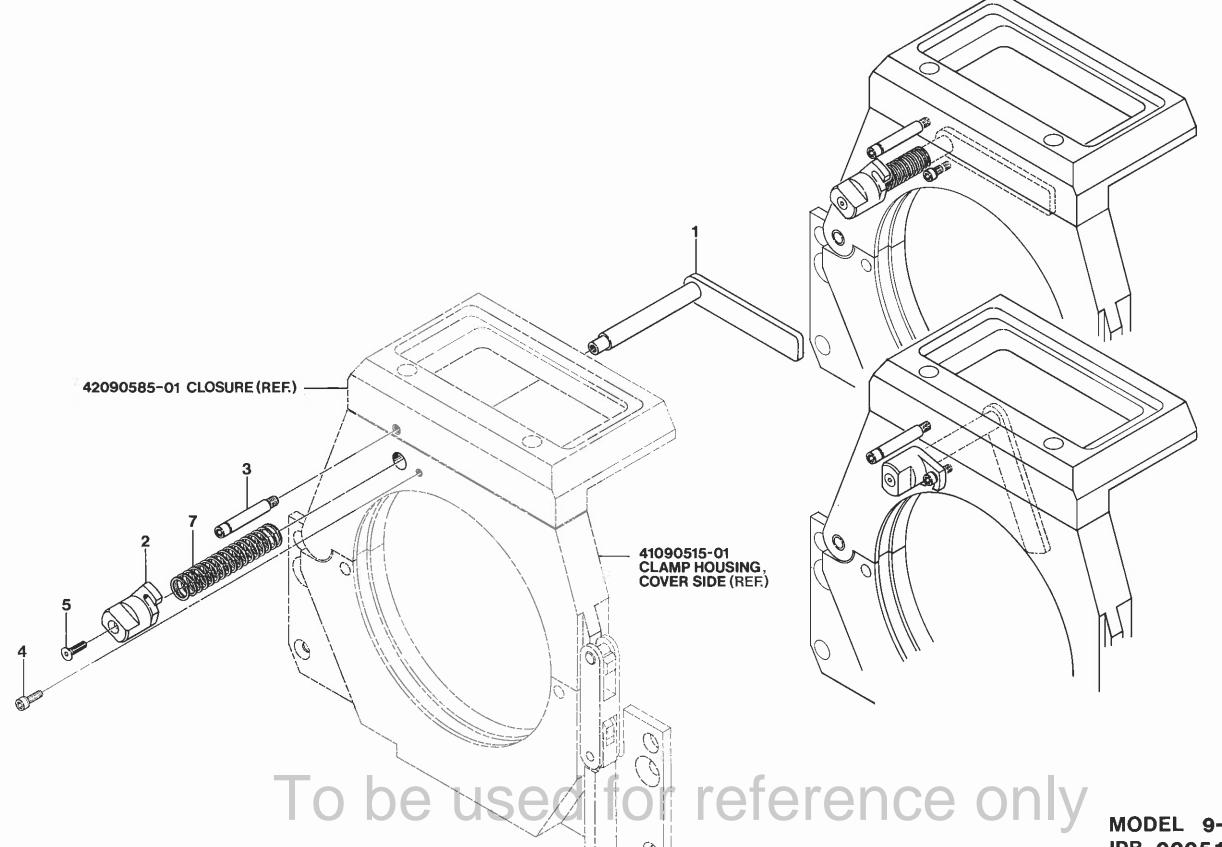
ITEM NUMBER DESCRIPTION: MAIN ASSEMBLY

MANUAL NUMBER: 730030 NOTES:

IPB ITEM U/M PART NUMBER DESCRIPTION NUMBER 42060805-04 BOOT MALE CAS BOOT MALE POWER/CROUND 145 42060804 01 FTG-COUPLING HOSE/CABLE BA 42060800 07 146 147 0 -----148 CONDUCTOR GND STRAP 171 EA 42090749-01 SCREW PNH SLT 1/4-20 1/2 L NYL 172 EA SPL25-20-0.50NY 173 0 FTG NUT/SLEEVE SPRING 1/4 TUDE 174 261 PG 04 AC200718 SPRING CUARD .34 OD 18.00 LG 176 1 EA 42090548-05 CAM SWITCH 177 2 EA SCS04-40-0.31NP SCREW CAP SKT 4-40 5/16 L DUST CAP ASSY W/CHAIN(MALE18D) EA 185 <del>1350110 04</del> 186 EA 13090770-01 CONDUCTOR RING 9-4500 1 187 0 188 EA 3057L-1-202 POT TRIM 2K OHM 5% 1 189 130905214-04 CLOSURE FLIP-TOP 9-4500 1 EA 190 1 EA 420907212-01 PLATE BACKING M9-4500 CONDUIT WHT 0.87 ID 200 DUCT 0.87 50

TEG CHEINK 1-1/2 ID BLK





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MODEL 9-4500 IPB 090516 ARM LOCATING KIT IPB NUMBER:

090516

TO ORDER

ARC MACHINES, INC.

USE PART NUMBER

DO NOT USE IPB ITEM NUMBER

PRODUCT MODEL: 9-4500

DESCRIPTION:

LOCATING ARM KIT

MANUAL NUMBER: 730030

	IPB ITEM NUMBER	QTY	U/M	PART NUMBER	DESCRIPTION
•	1 2 3 4 5	1 1 1 1 0	EA EA EA EA	130905123-03 130905108-01 420905277-05 SCS04-40-0.37NP SFS02-56-0.31NP	ARM LOCATING BRAZED  KNOB ASSY 1500 2500 3500 4500  STOP (44D23)  SCREW CAP SKT 4-40 3/8 L  SCREW FLH SKT 2-56 5/16 L
		0 1	- EA	- S-3048	SPRING CPRSN .36D 2.25L .029W

**IPB NUMBER:** 090196

TO ORDER

ARC MACHINES, INC.

USE PART NUMBER

DO NOT USE IPB

PRODUCT MODEL: 9-4500

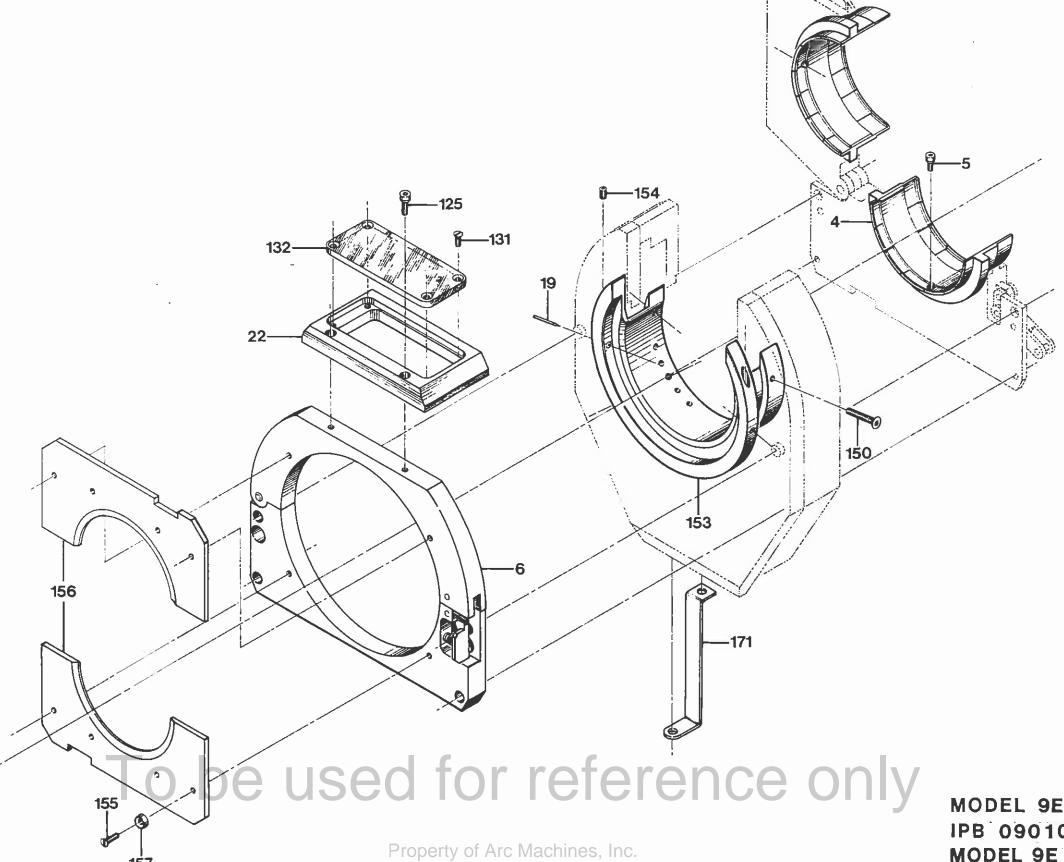
ITEM NUMBER DESCRIPTION:

MODEL 9ER-4500 COFIGURATION

MANUAL NUMBER: 730030

	IPB ITEM NUMBER	QTY	U/M	PART NUMBER	DESCRIPTION	
-	1	 1	EA	420907185-01	HOLDER ELECTRODE.094D 9ER-4500	
	2	2	EA	SCS06-32-0.25NP	SCREW CAP SKT 6-32 1/4 L	
	3	1	EA	SCS04-40-0.31NP		
	4	ō	_	-		WIDE CLAMP INSERT-ORD BY SIZE
	5	2	EA	SCS06-32-0.37NP	SCREW CAP SKT 6-32 3/8 L	
	6	1	EA	13090552-01	HOUSING GAS SEAL 9E-4500	
	7	Ō	_	_		
	13	1	EA	420901115-01	COVER HOUSING MAIN 9ER-4500	
	14	0	_	<del>-</del>		
	19	0	_	_		TUNGSTEN
	20	0	_	_		
	22	1	EA	420905194-01	CLOSURE 9E-4500	
	23	0	_	-		
	125	2	EA	SCS10-32-0.75NP	SCREW CAP SKT 10-32 3/4 L	
	126	0	_	_		
	131	4	EA	SFL06-32-0.31NY	SCREW FLH SLT 6-32 5/16 L NYL	
	132	1	EA	42090585-03	WINDOW 9-4500	
	133	0	-	-		
	155	4	EA	SFL08-32-0.50NY	SCREW FLH SLT 8-32 1/2 L NYL	
	156	0	_	_		GAS SEAL-ORD BY SIZE
	157	1	EA	11SFW0008	WASHER NYLON FINISHING #8	
	158	0	-	-		
	171	1	EA	42090749-04	GROUND STRAP	





MODEL 9E-4500 IPB 090105 MODEL 9E CONFIGURATION

PAGE 1 OF 2

IPB NUMBER: 090105 TO ORDER ARC MACHINES, INC.

USE PART NUMBER

DO NOT USE IPB PRODUCT MODEL: 9-4500

ITEM NUMBER DESCRIPTION: MODEL 9E COFIGURATION

MANUAL NUMBER: 730030

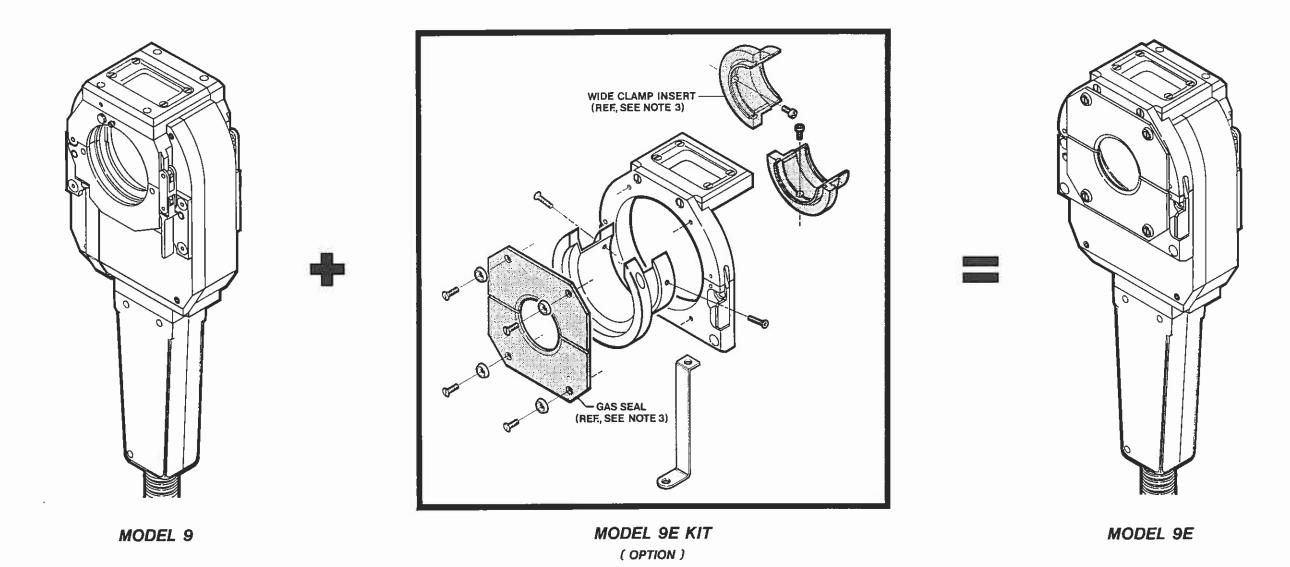
IPB ITEM NUMBER	QTY	U/M	PART NUMBER	DESCRIPTION	
1	0	_	-		
4	0	-	_		CLAMP INSERT-ORD BY SIZE
5	2	EA	SCS06-32-0.37NP	SCREW CAP SKT 6-32 3/8 L	
6	1	EA	13090552-01		
7	0	-	_		
19	0	-	-		
22	1	EA	420905194-01	CLOSURE 9E-4500	ITEMS 131 AND 132 INCLUDED
23	0	-	_		
125	2	EA	SCS10-32-0.75NP	SCREW CAP SKT 10-32 3/4 L	
126	0	-	_		
131	4	EA	SFL06-32-0.31NY	SCREW FLH SLT 6-32 5/16 L NYL	
132	1	EA	42090585-03	WINDOW 9-4500	
133	0	-	-		
150	3	EA	SFS08-32-1.00NP	SCREW FLH SKT 8-32 1.00 L	
151	0	-	-		
153	1	EA	13090739-01	ROTOR EXTENSION 9E-4500	
154	2	EA	420907144-12	SCREW SET SKT 6-32 3/8 L FLPT	
155	4	ĒΑ	SFL08-32-0.50NY	SCREW FLH SLT 8-32 1/2 L NYL	
156	0	-	_		GAS SEAL-ORD BY SIZE
157	4	ĒΑ	11SFW0008	WASHER NYLON FINISHING #8	
158	0	-	_		
171	1	EA	42090749-04	GROUND STRAP	
172	0	-	-		
180	1	EA	13090158-04	KIT CVRSN M9-4500 TO M9E-4500	



### **MODEL 9 CONVERSION TO MODEL 9E INSTRUCTIONS**

P/N 750031

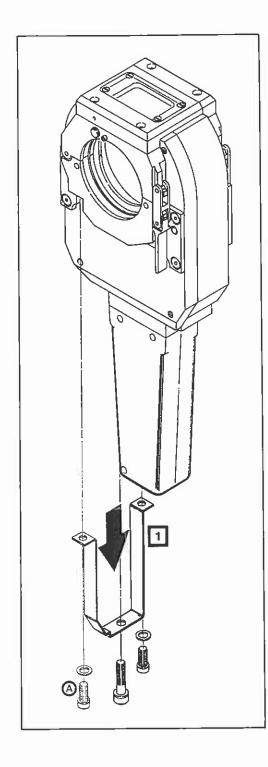
(MODELS 9-1500, 9-2500, 9-3500, 9-4500 AND 9-7500)

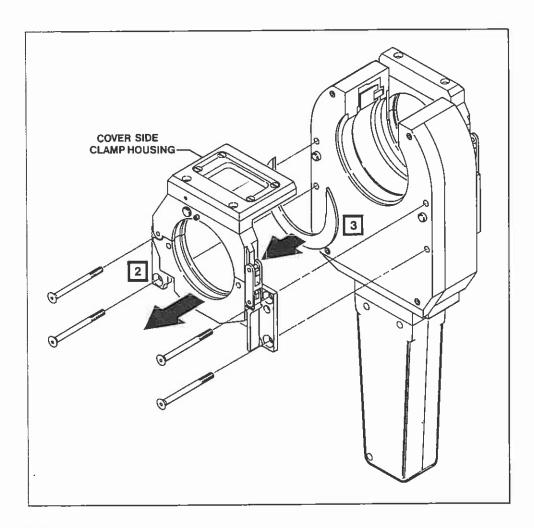


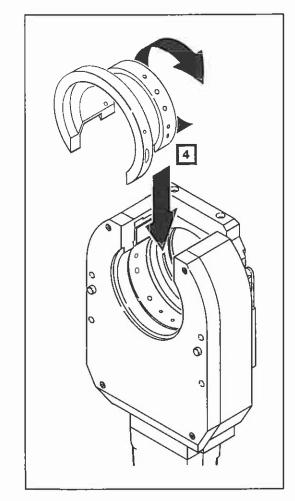
- NOTES: 1. TO ORDER MODEL 9E KIT SPECIFY WELD HEAD MODEL NUMBER.

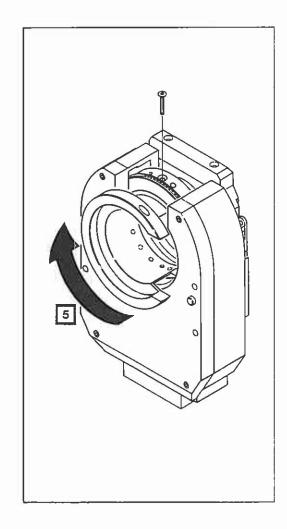
2. MODEL 9-2500 USED FOR ILLUSTRATION.
3. WIDE CLAMP INSERT AND GAS SEAL ARE NOT INCLUDED IN KIT.
TO ORDER WIDE CLAMP INSERT AND GAS SEAL SPECIFY TUBE SIZE (O.D.).





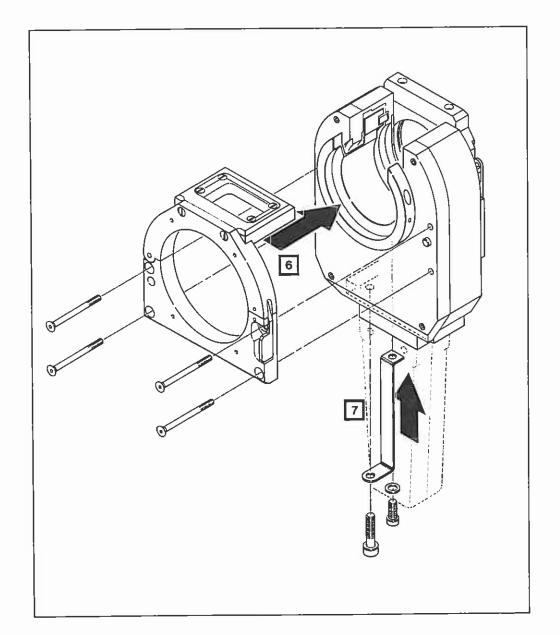


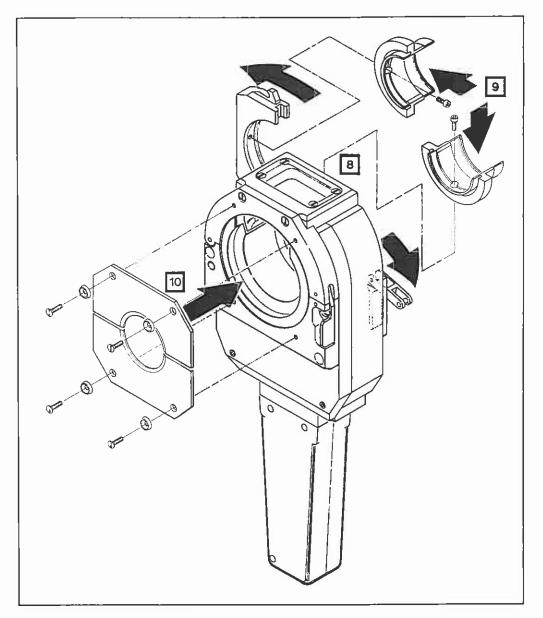




- 1 REMOVE ORIGINAL GROUND STRAP EXCEPT ON MODEL 9-1500 REMOVE SCREW (A) ONLY ( ORIGINAL GROUND STRAP IS USED ).
- 2 REMOVE COVER SIDE CLAMP HOUSING.
- 3 REMOVE HEAT SHIELD.
- 4 INSTALL ROTOR EXTENSION FROM THE KIT.
- 5 CONNECT WELD HEAD TO POWER SUPPLY AND JOG ROTOR UNTIL ROTOR EXTENSION MOUNTING SCREW HOLE IS ACCESSIBLE. INSTALL MOUNTING SCREWS ( 2 TO 4 EACH DEPENDING ON MODEL # ) AND TIGHTEN.

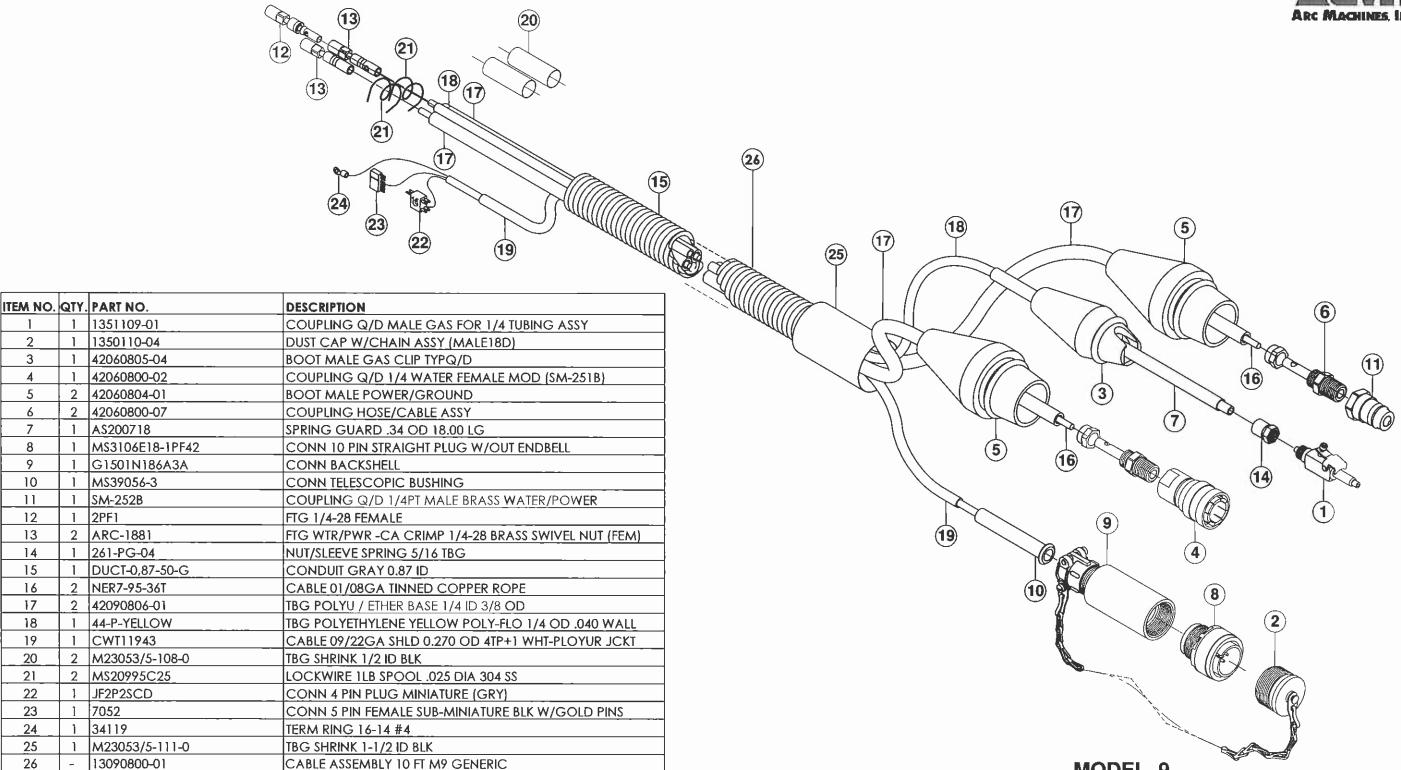






- 6 MOUNT THE GAS SEAL HOUSING ASSEMBLY FROM THE KIT TO THE WELD HEAD USING ORIGINAL SCREWS.
- 7 INSTALL GROUND STRAP FROM THE KIT USING ORIGINAL SCREWS, EXEPT FOR MODEL 9-1500 USE ORIGINAL GROUND STRAP AND SCREWS.
- 8 OPEN HOUSING SIDE CLAMP.
- 9 INSTALL WIDE CLAMP INSERT ASSEMBLY (NOT PROVIDED IN CONVERSION KIT).
- 10 INSTALL GAS SEAL ASSEMBLY (NOT PROVIDED IN CONVERSION KIT). CECCOOL





be used for reference only IPB 090800 CABLE ASSEMBLY

Property of Arc Machines, Inc.

THIS IPB SUPERSEDES ALL OTHER IPB'S REFERENCING 13090800-01 CABLE ASSEMBLY

**ISSUED: 3 JAN 2005** REVISED: 5 OCT 2010

PAGE 1 OF 1

TO ORDER USE PART NUMBER. PRICE, PART NUMBER AND DESCRIPTION SUBJECT TO CHANGE WITHOUT NOTICE.

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