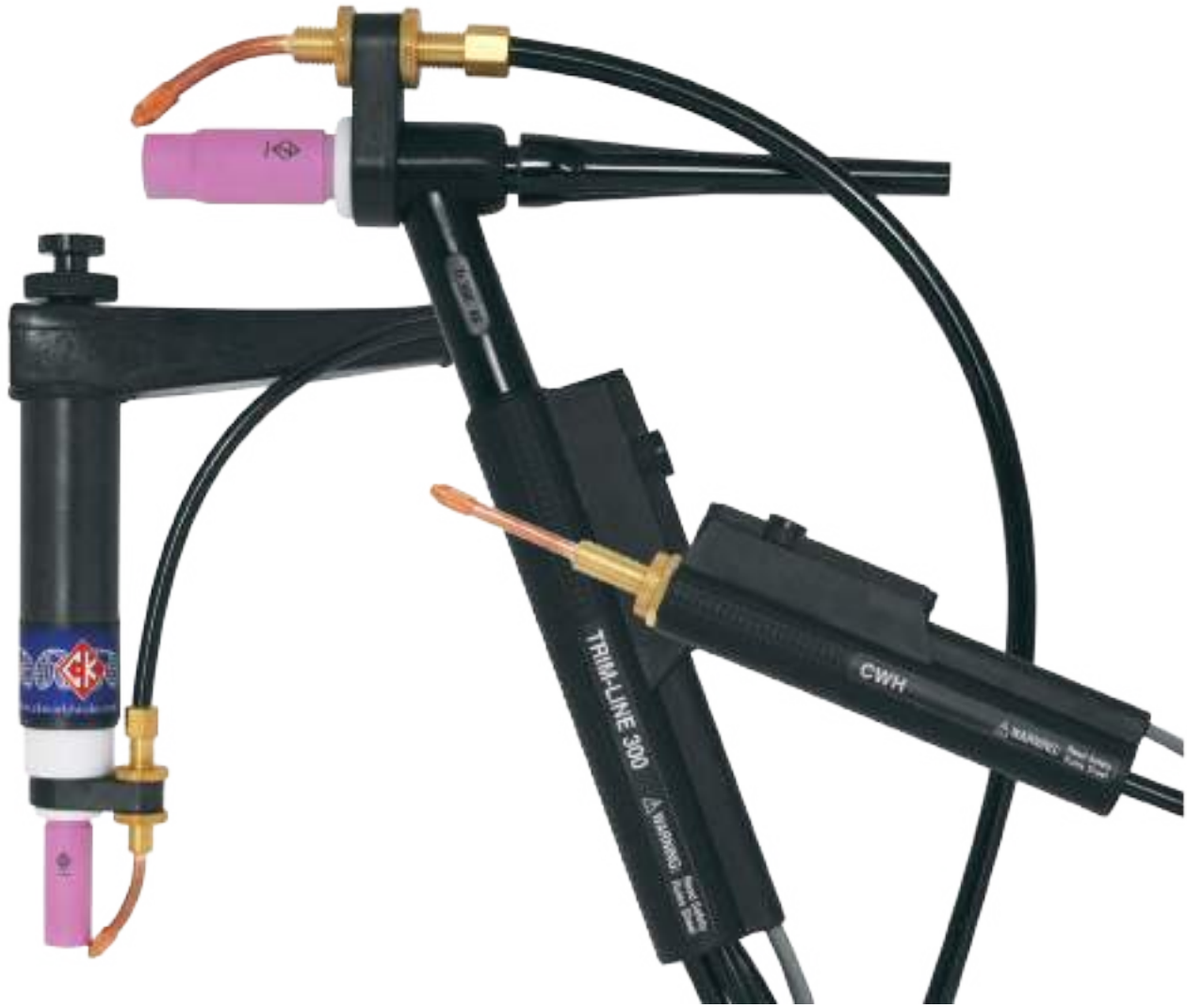
Cold Wire TIG Torch Manual



Torch:	Page:
CWH180	1
CWH230	1
CWHTL300	2
CWH350	2
CWM230	3
CWM350	3
CWMT400	4
CWMT500	4
CWH	5
CWM	5
CWMES	5

CK Worldwide, Inc.
P.O. Box 1636 Auburn, WA. 98071
tel: (800) 426-0877
fax: (800) 327-5038
www.CKWORLDWIDE.com

DESCRIPTION:

TORCH OUTFIT:

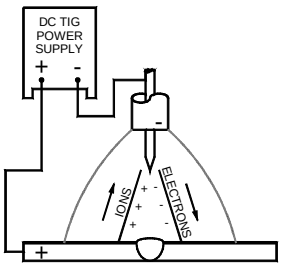
The CK Cold Wire TIG Torch Outfit is a hand held or machine mounted CK TIG torch with the built in added capacity of delivering a filler wire directly to the weld puddle. The torch outfit includes torch, power cable, feed cable, wire guide and wire guide bracket. The feed cable is fitted with a replaceable, low-friction cable liner. Various torch configurations are available. All models use standard CK collets, collet bodies and gas cups. See pages 19 through 23 for parts and order numbers.

TIG WELDING PROCESS:

The TIG welding process uses a nonconsumable tungsten electrode secured in the TIG torch. The welding arc is produced between the tungsten electrode and the work. The weld is shielded by a stream of argon gas, helium gas, or a mixture of the two, which is fed through the torch, around the electrode and to the molten weld puddle. Filler metal is added to the weld puddle as required. The Cold Wire TIG System mechanizes the addition of the filler metal to ensure consistent, high quality welds.
The TIG welding process is the first choice for welding thin sections, welding thin-wall tubing, making pipe joint root passes, and other similar critical welding applications.

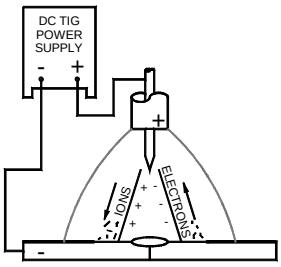
NOTE: Cold Wire TIG welding of tubing under 2-1/2 inch diameter requires CWH pendant style feed unit and separate TIG torch, unless being used with turn table or pipe roller.

The TIG welding process requires a constant current welding power source. Power sources designed specifically for TIG welding may include a built in high frequency arc stabilizer, shielding gas control solenoid, cooling water control solenoid and other special equipment. They may be AC or DC or a combination of AC/DC units. The proper current for TIG welding depends on the material being welding speed of application and on the desired weld characteristics.



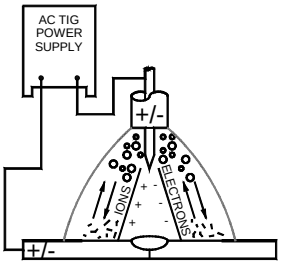
DIRECT CURRENT STRAIGHT POLARITY (DCSP):

DC straight polarity produces the deepest penetration because the heat of the weld is concentrated at the work or joint. Straight polarity provides no cleaning action (removal of surface oxides). This polarity is generally used to weld most materials except aluminum and magnesium. May be used with or without high frequency starting.



DIRECT CURRENT REVERSE POLARITY (DCRP):

DC reverse polarity provides good cleaning action. The combining force of the shielding gas ions striking the work surface and the flow of electrons from the work, cause the surface oxides to be broken away. Penetration is shallow because the heat of the weld is concentrated at the electrode. The use of DCRP is limited to special applications. May be used with or without high frequency starting.



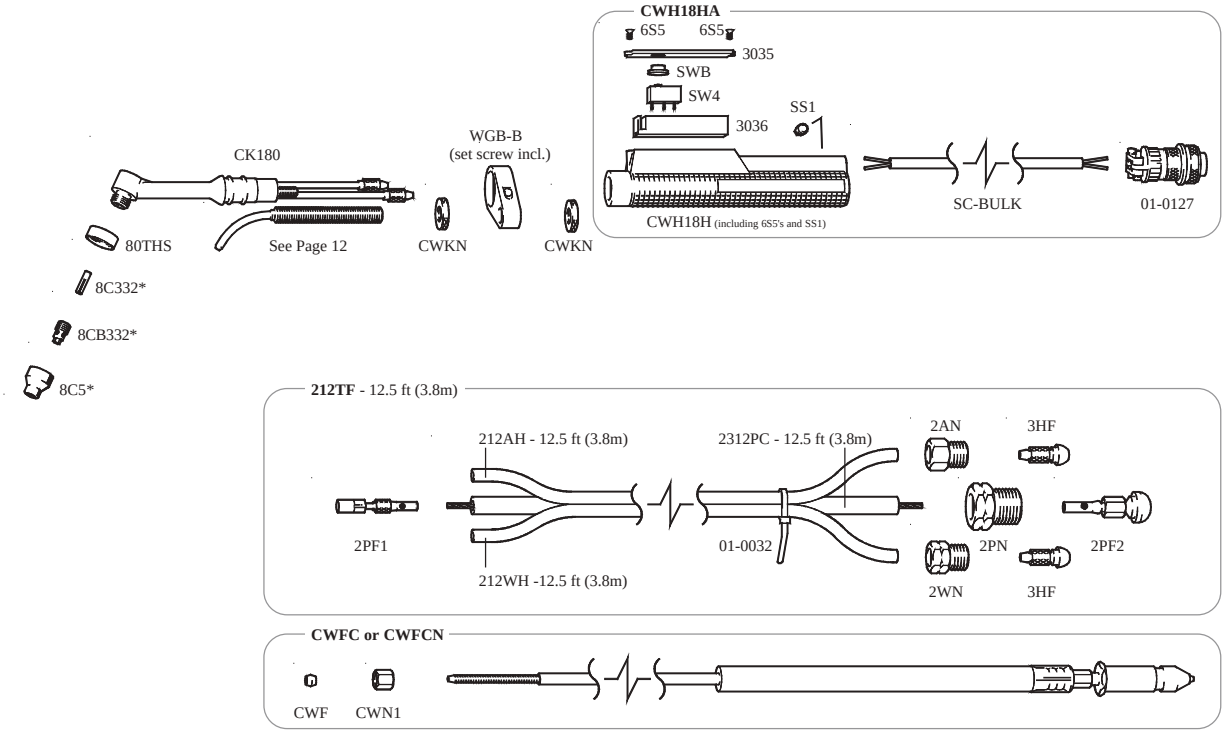
ALTERNATING CURRENT HIGH FREQUENCY (ACHF):

AC combines the good penetration of straight polarity (electrode negative half cycle) and the good cleaning action of reverse polarity (electrode positive half cycle). Continuous high frequency is necessary to re-establish the arc which breaks between each half cycle. ACHF current is generally used to weld aluminum and magnesium.

PARTS LIST:

* Note: See Page 6 for additional options on head consumables.

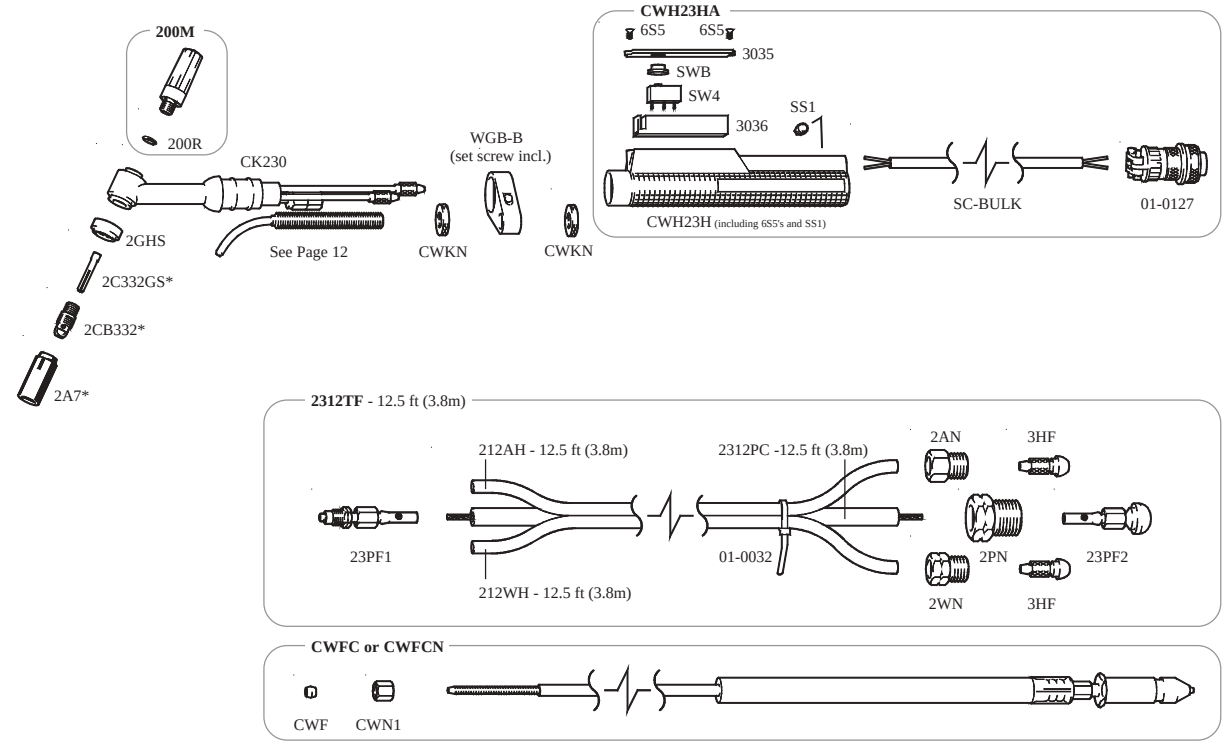
CWH1812 HAND TORCH:



PARTS LIST:

* Note: See Page 6 for additional options on head consumables.

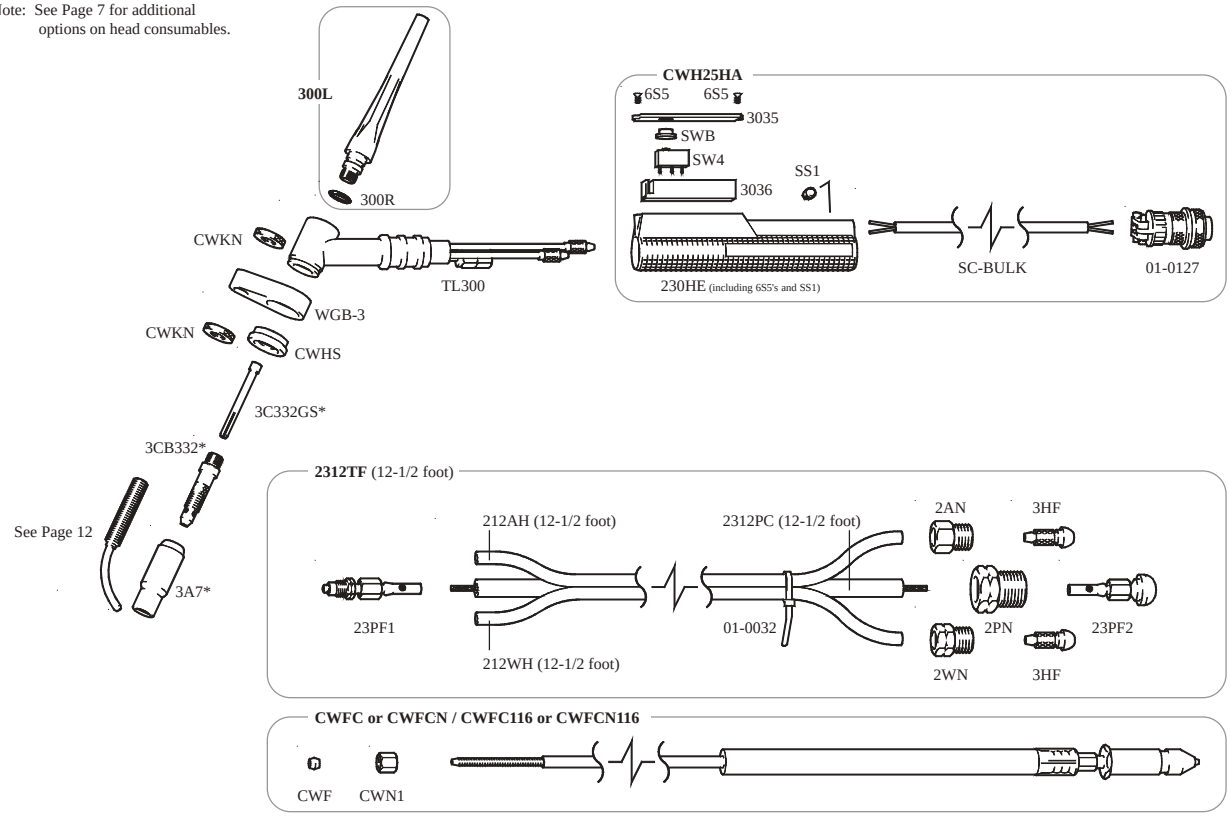
CWH2312 HAND TORCH:



PARTS LIST:

* Note: See Page 7 for additional options on head consumables.

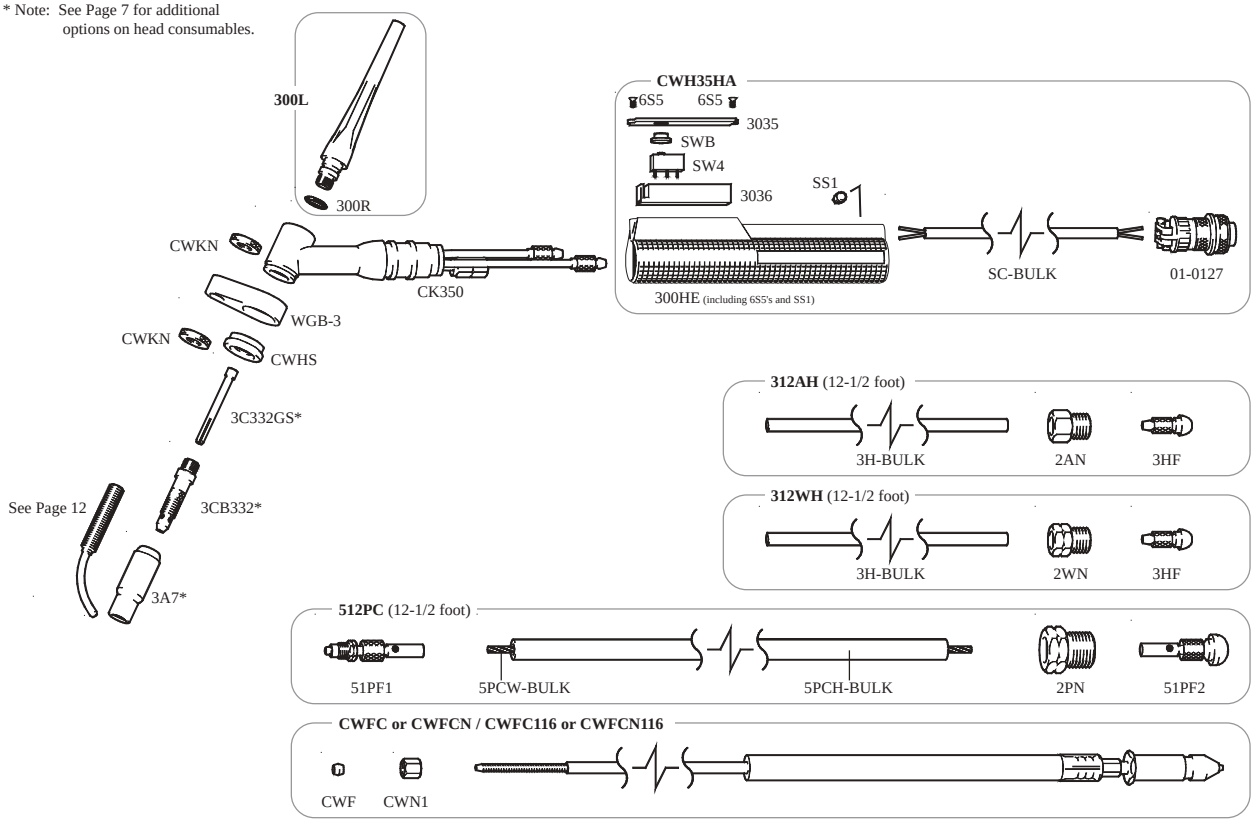
CWHTL312 HAND TORCH:



PARTS LIST:

* Note: See Page 7 for additional options on head consumables.

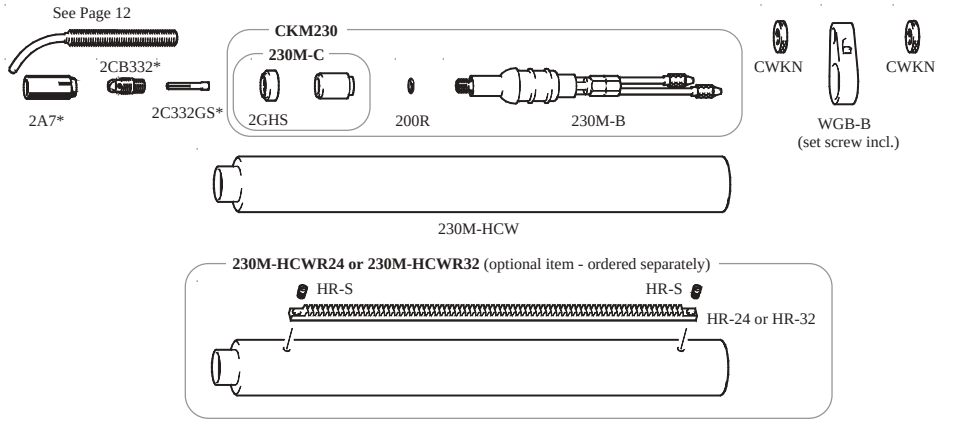
CWH3512 HAND TORCH:



PARTS LIST:

* Note: See Page 8 for additional options on head consumables.

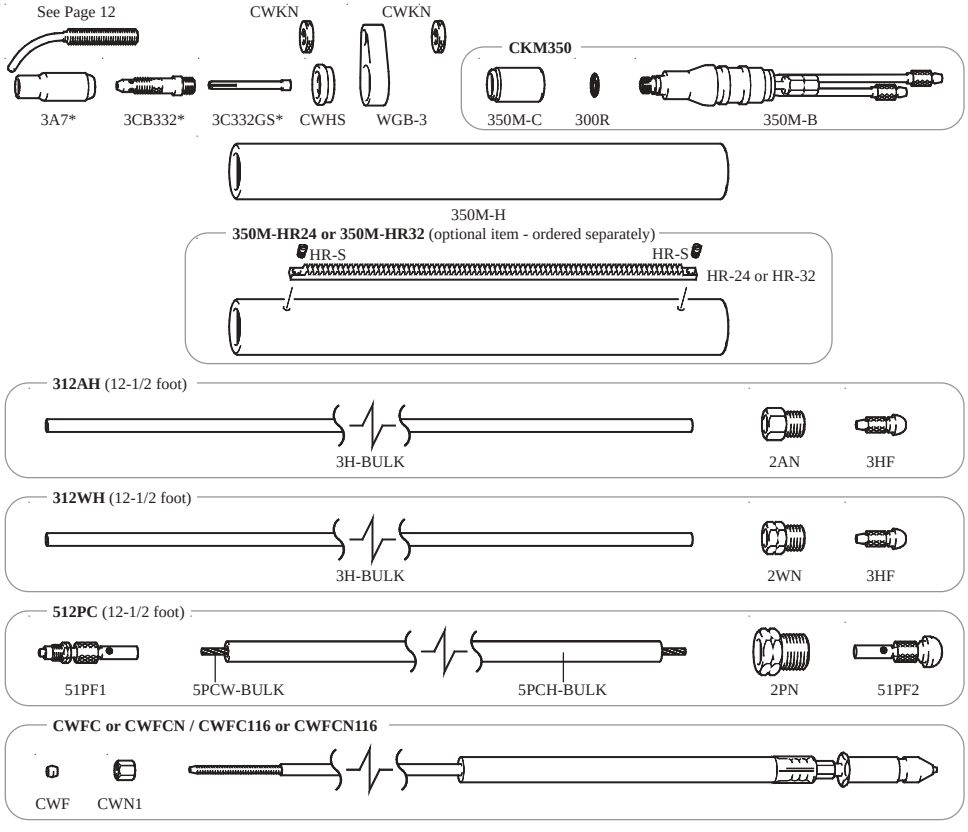
CWM2312 MACHINE TORCH:



PARTS LIST:

* Note: See Page 9 for additional options on head consumables.

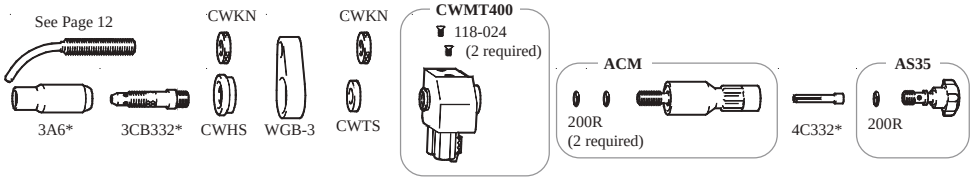
CWM3512 MACHINE TORCH:

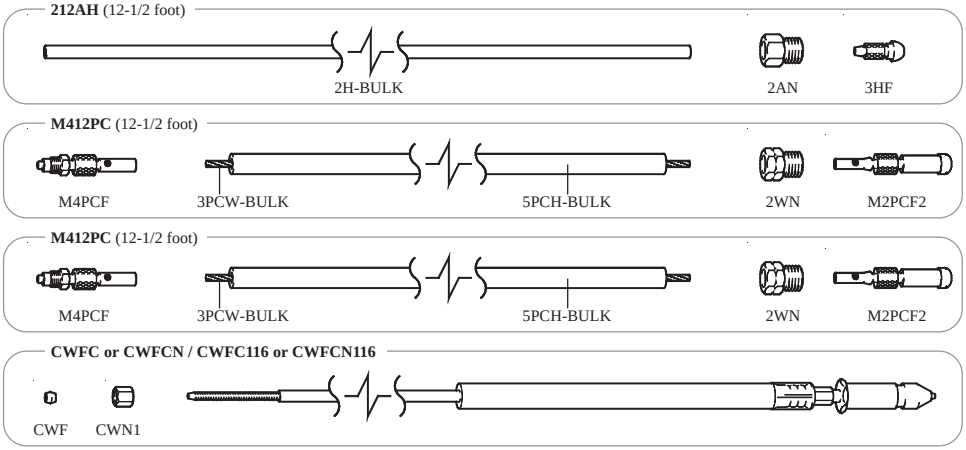


PARTS LIST:

* Note: See Page 10 for additional options on head consumables.

CWMT412 MACHINE TORCH:

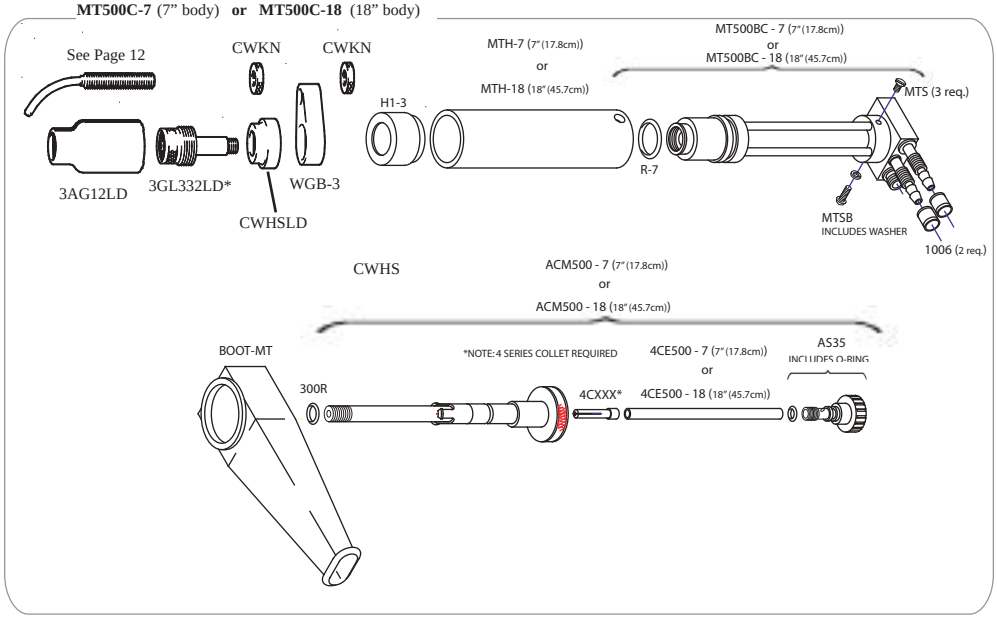


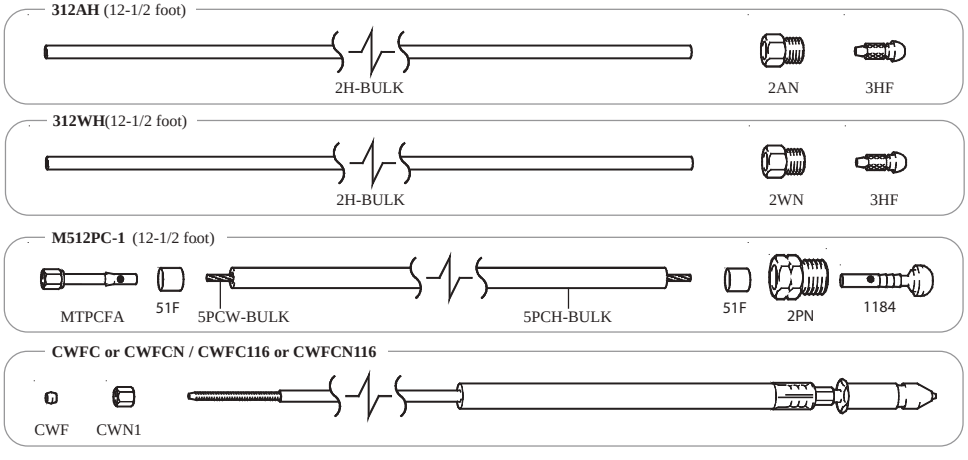


PARTS LIST:

* Note: See Page 11 for additional options on head consumables.

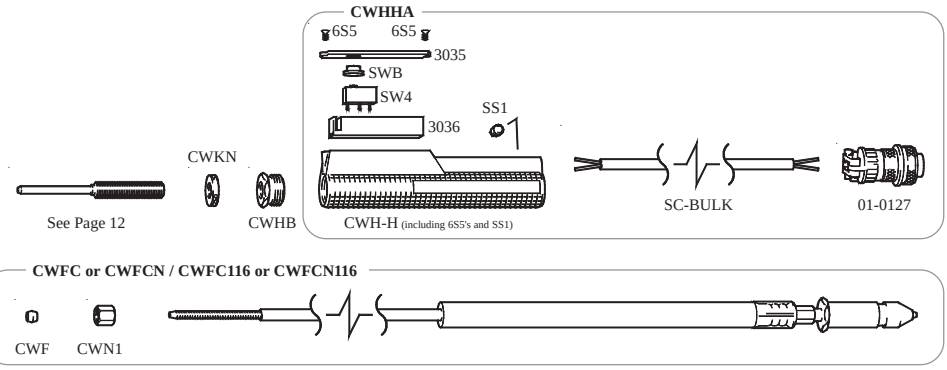
CWMT512 MACHINE TORCH:





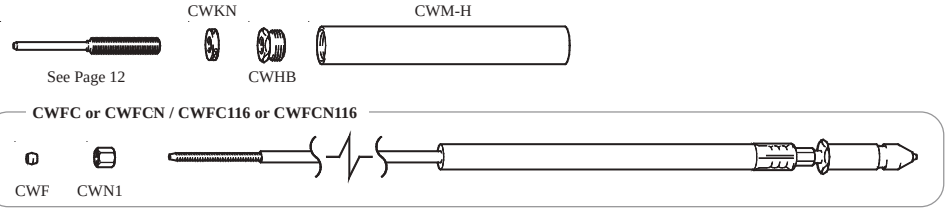
PARTS LIST:

CWH WIRE FEED HAND UNIT:



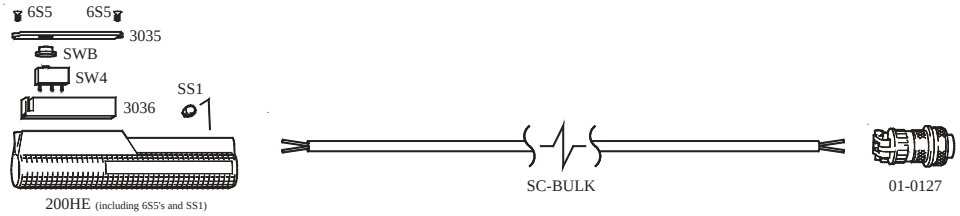
PARTS LIST:

CWM FEED ASSEMBLY:



PARTS LIST:

CWMES REMOTE SWITCH:



DRIVE ROLLS:

DRIVE ROLL SELECTOR CHARTS:

PART NUMBER	SIDES INCLUDED
20-35DR	A and B
30-45DR	B and C
45-564DR	C and D

SIDE	WIRE SIZES
A	.020" - .025"
B	.030" - .035"
C	.045" - .047"
D	1/16" - 5/64”

SPARE PARTS:

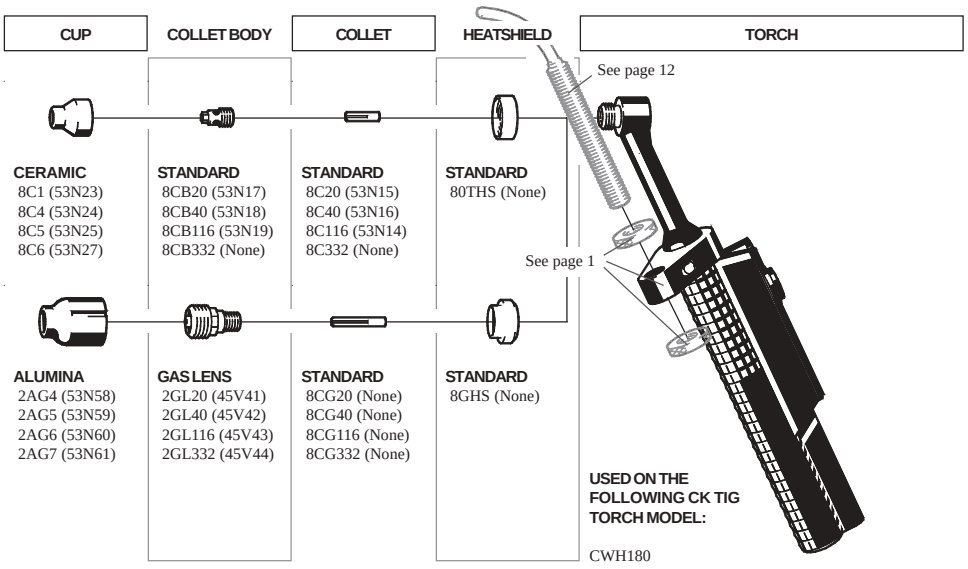
RECOMMENDED SPARE PARTS LIST: (recommended qty.)

Feed cables (1) ..... See page 12
Wire guides (2) ..... See page 12
Adjusting nuts (2) ..... See torch parts list
Heat shields (1) ..... See torch parts list
Cups (10) ..... See head accessories
Collets (10) ..... See head accessories
Collet bodies (6) ..... See head accessories
Backcaps (2) ..... See head accessories
Wire guide bracket extensions (1*) ..... See page 12

*If bracket is used in application

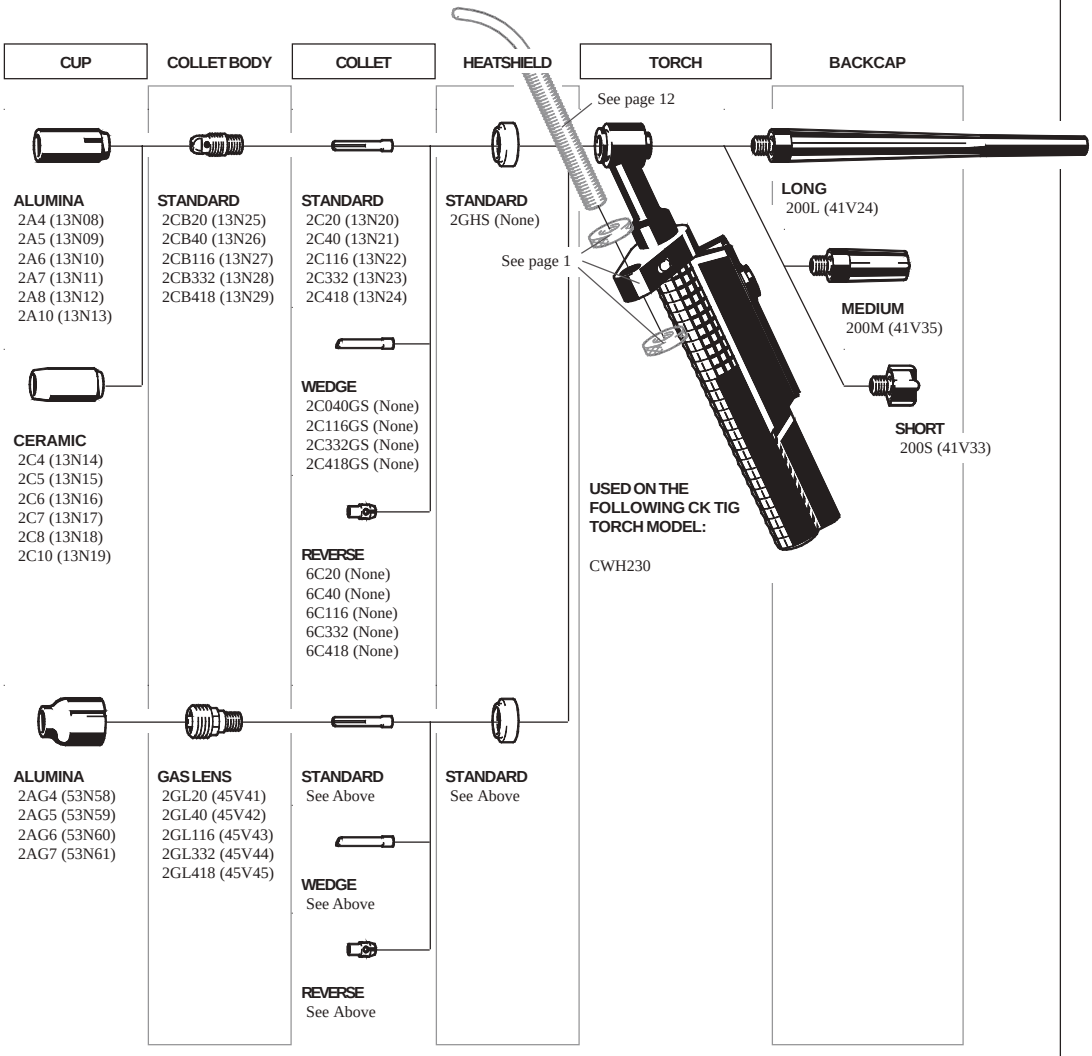
HEAD ACCESSORIES:

8 SERIES: (CWH180)



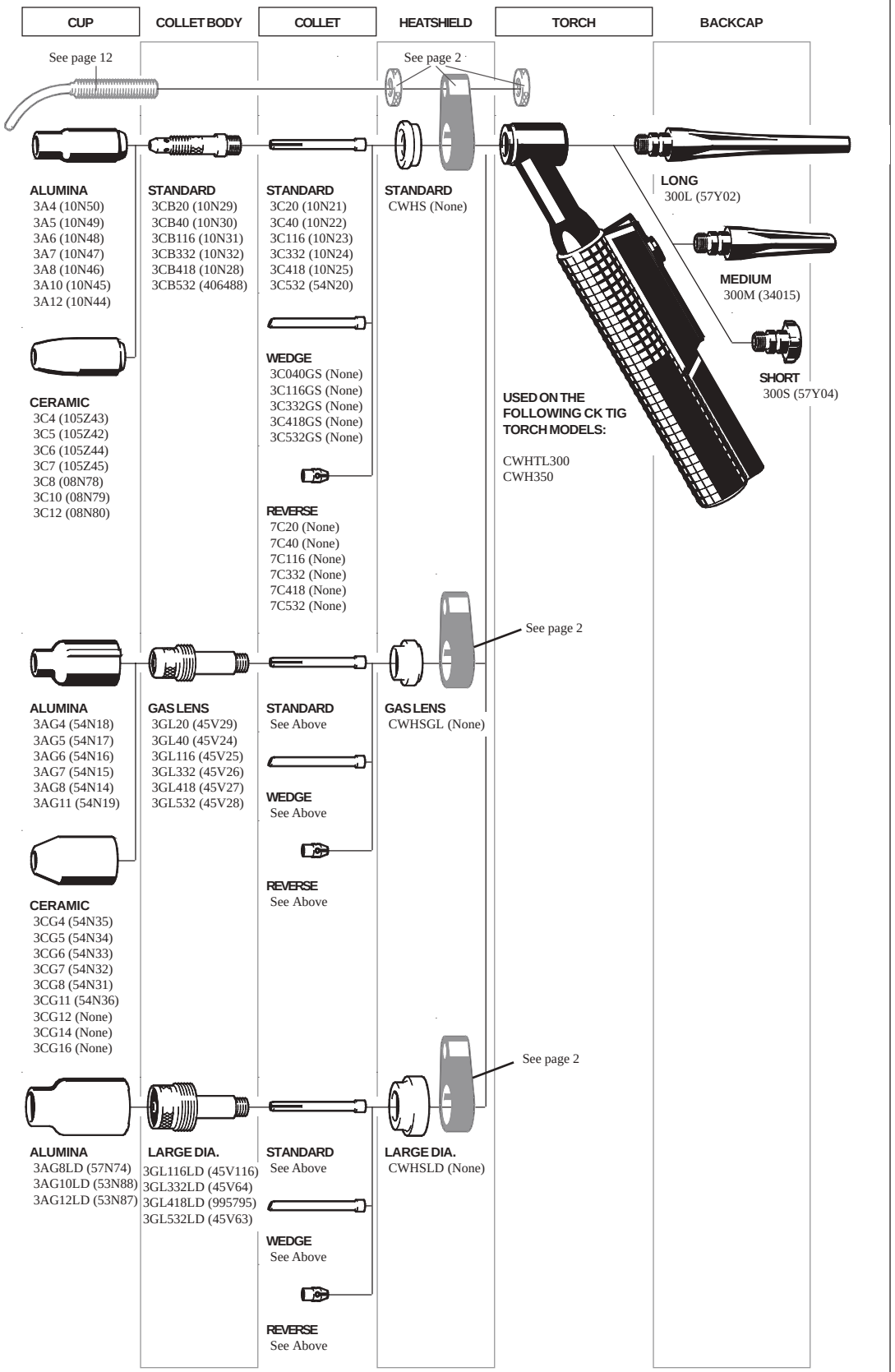
HEAD ACCESSORIES:

2 SERIES: (CWH230)



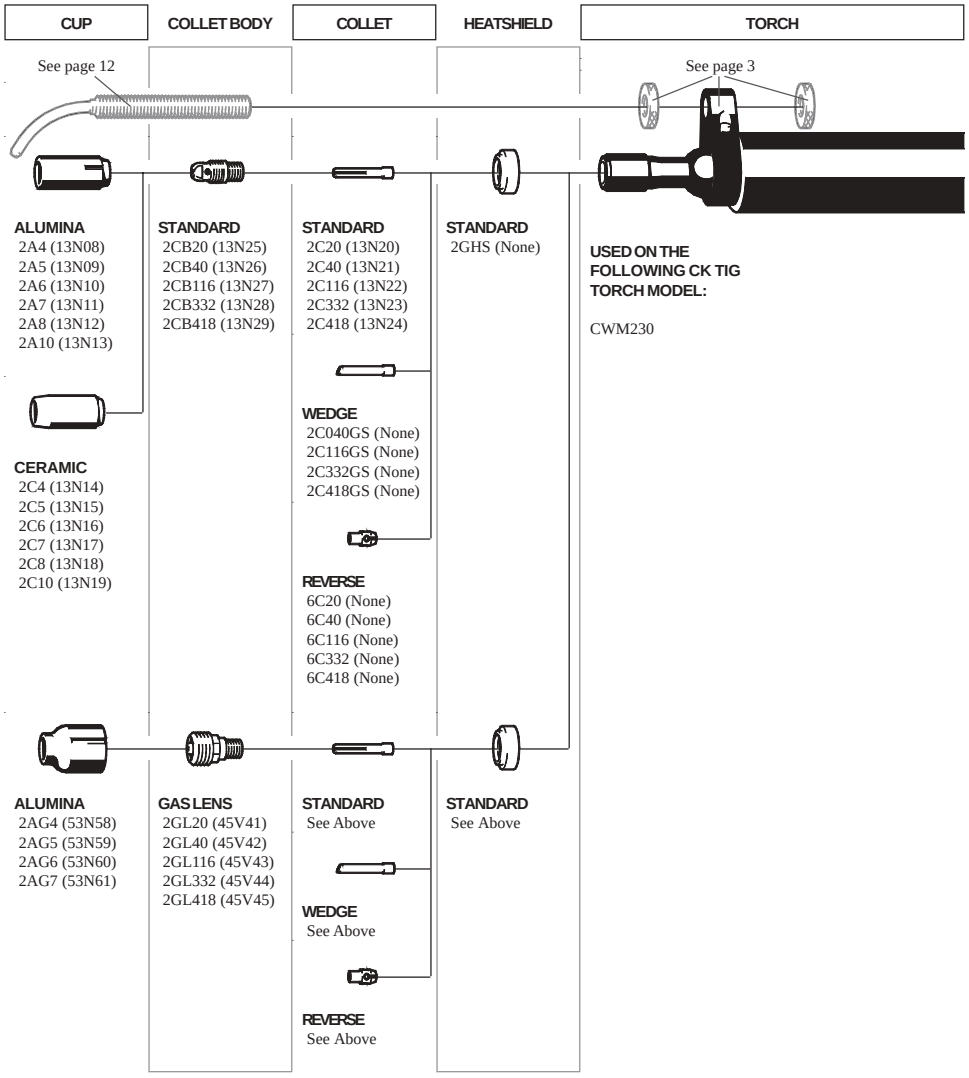
HEAD ACCESSORIES:

3 SERIES: (CWHTL300 and CWH350)



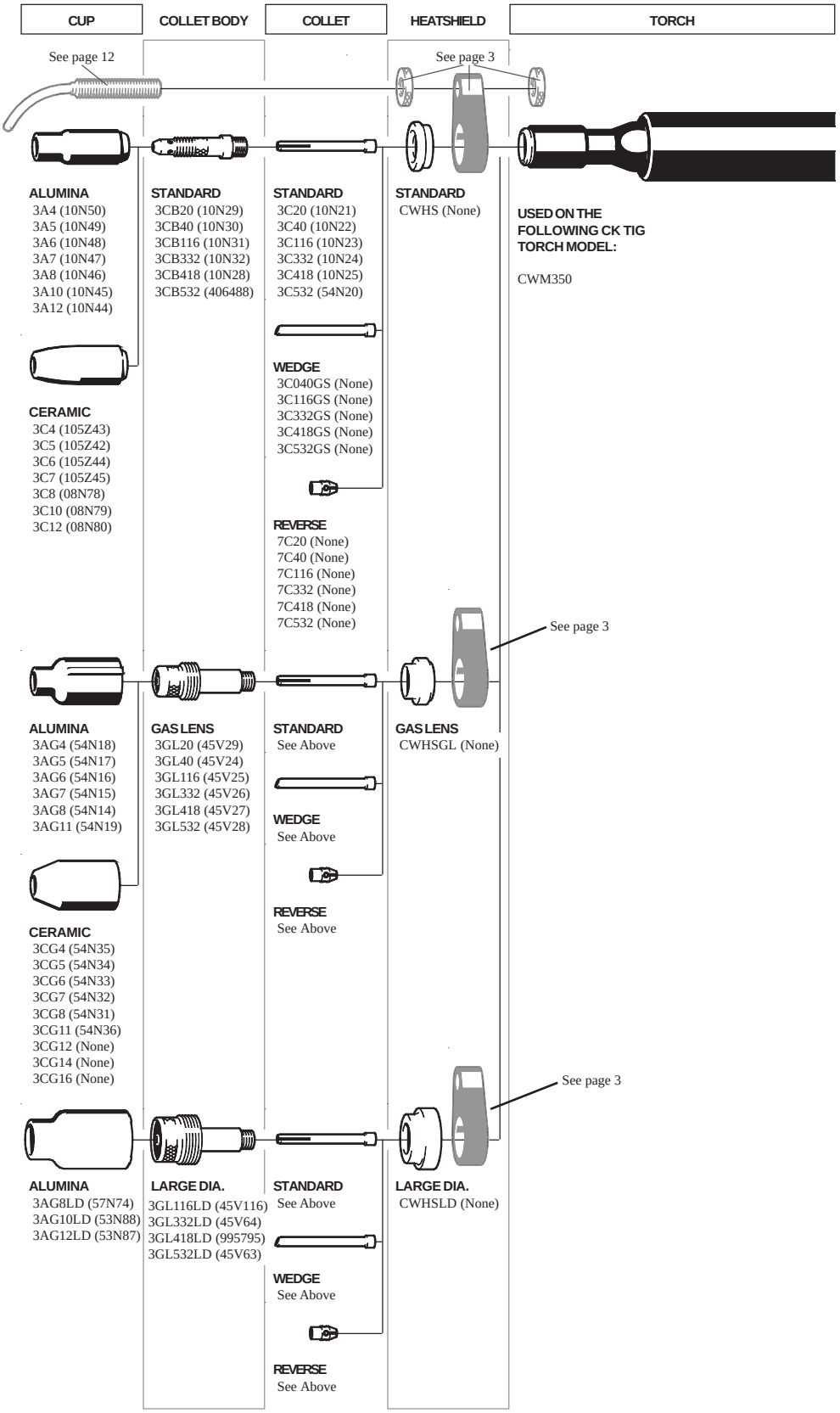
HEAD ACCESSORIES:

2 SERIES: (CWM230)



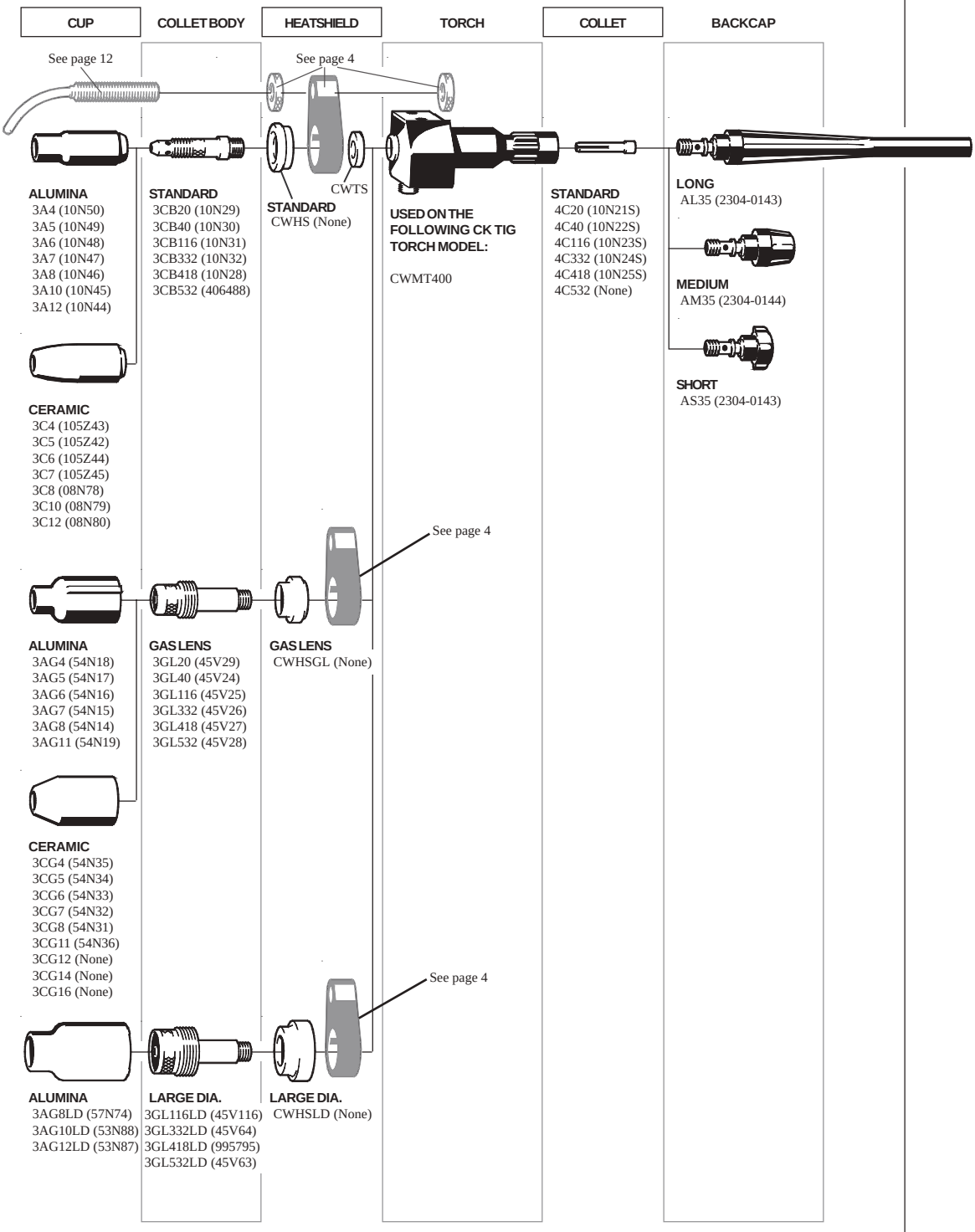
HEAD ACCESSORIES:

3 SERIES: (CWM350)



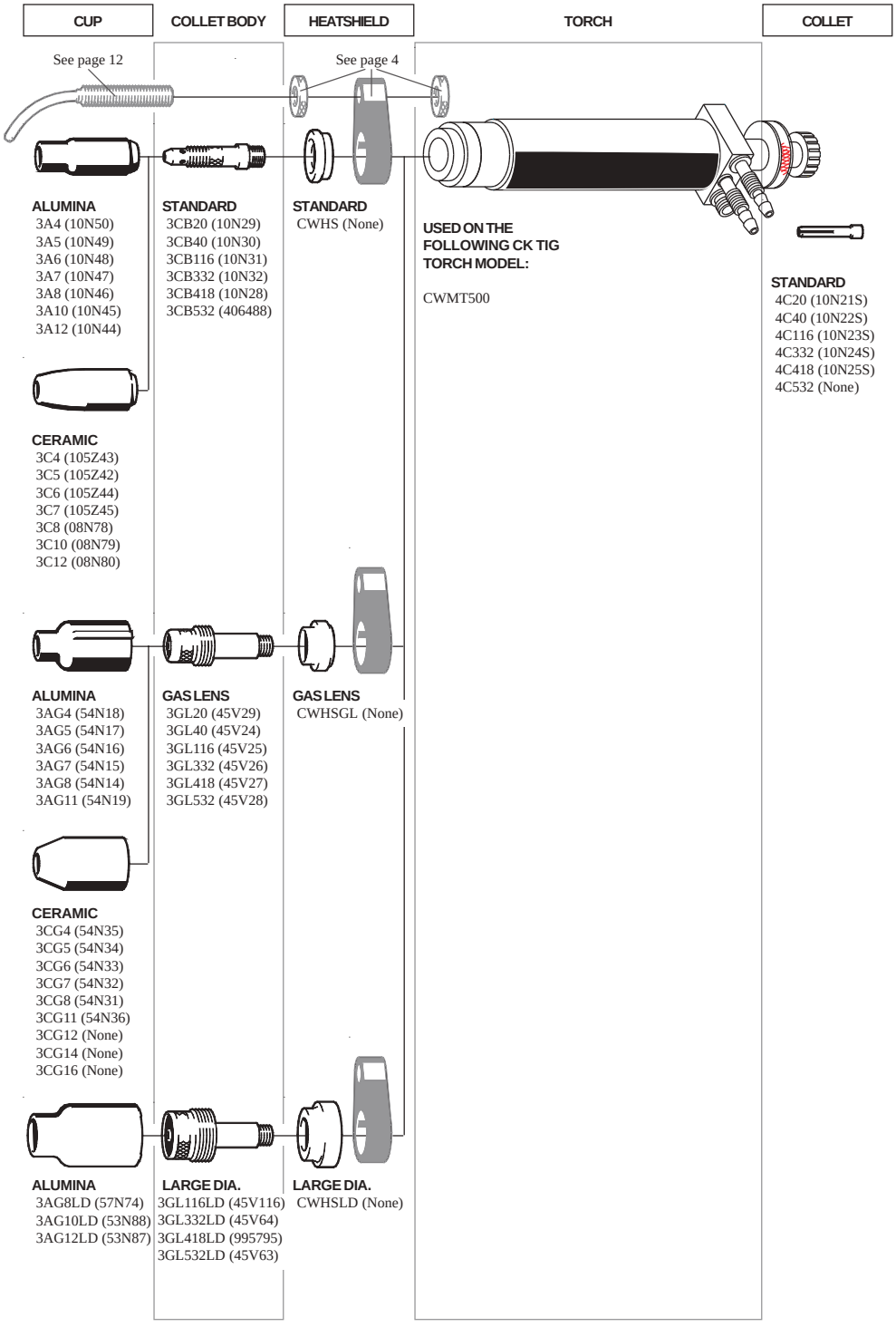
HEAD ACCESSORIES:

3 SERIES: (CWMT400)



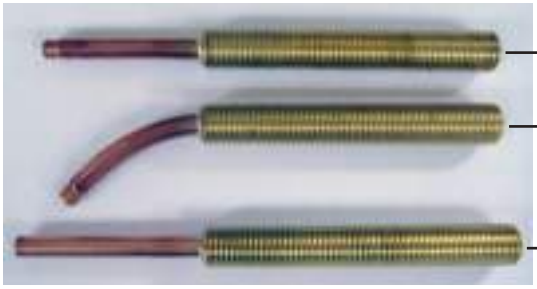
HEAD ACCESSORIES:

3 SERIES: (CWMT500)



TUBE





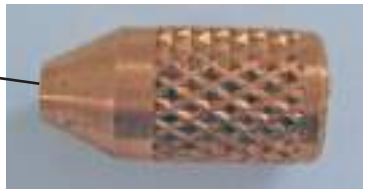
FEED CABLE

WIRE TYPE	WIRE SIZE	FEED CABLE
Hard Wire: (10 ft.) for Stainless Steel.	.023	**CW-FC**
	.030	**CW-FC**
	.035	**CW-FC**
	.045	**CW-FC**
	1/16	**CW-FC116**
Soft Wire: (8 ft.) for Aluminum.	.023	**Not Recommended**
	.030	**Not Recommended**
	.035	**CW-FCN**
	.045	**CW-FCN116**
	1/16	**CW-FCN116**

TIP

CWTXXX
(see table below)

(Not used for 1/16)



TORCHES:	WIRE SIZE:	REPLACEMENT TIP	REPLACEMENT TUBE	WIRE GUIDE (TUBE & TIP)
Body Mount: (CWH180), (CWH230), (CWM230) (CWMT500)	.023	CWT023	CWGB (Curved)	**CWG023B**(S)
	.030	CWT030		**CWG030B**(S)
	.035	CWT035	CWGBS (Straight)(S)	**CWG035B**(S)
	.045	CWT045		**CWG045B**(S)
	1/16	NO TIP		**CWG116B**(S)
Head Mount: (CWH), (CWM) (CWH150), (CWH210) (CWHTL300), (CWH350) (CWM350), (CWMT400),	.023	Same as Above	CWGH (Curved)	**CWG023H**(S)
	.030			**CWG030H**(S)
	.035			**CWG035H**(S)
	.045		CWGHS (Straight)(S)	**CWG045H**(S)
	1/16			**CWG116H**(S)

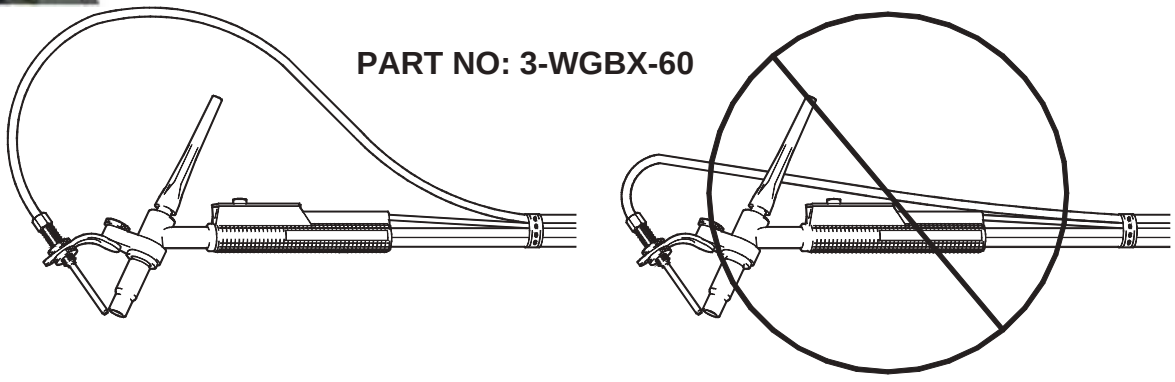
FEEDING DIFFICULT WIRES / BRACKET EXTENSIONS:



Note: stainless steel wire guides available (contact factory)

Due to the nature of certain wires it may be difficult to feed a wire through the length of the feed cable and through the curved wire guide. Friction and drag may put too much resistance on the wire when it is forced through the curved wire guide. Typically this is encountered when using very small diameter soft wires and large diameter hard wires. To alleviate this problem a wire guide extension bracket is recommended. This will allow the use of a straight wire guide in place of the curved wire guide. This will eliminate resistance on the wire. In addition to the use of the wire guide extension bracket, it is important to keep the feed cable as straight as possible.

PART NO: 3-WGBX-60



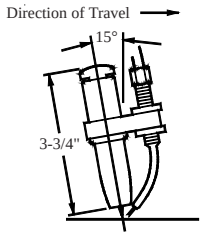
OPERATION:

Prior to commencing welding, the following preparations should be made to ensure optimum performance of the system.

1. Make sure that the pieces of metal to be welded are free of grease, dirt, paint and scale. Use a wire brush to remove dirt and scale. Use a stainless steel wire brush on stainless or aluminum. Paint must be completely removed to bare metal. Failure to clean the metal properly will result in porous and contaminated welds.
2. Check that the system has been properly installed per the installation instructions.
3. Check the control cable and weld cables for proper connection. Make sure the ground clamp is firmly attached to a cleaned area on the piece to be welded.
4. Prepare the torch for welding. Check the gas supply and adjust the flowmeter for the recommended flow rate. Check the water circulator for proper operation.
5. Set the controls on the power source and the Cold Wire TIG Feed Unit.

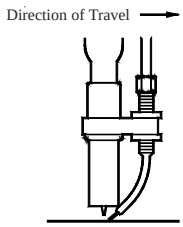
WELDING:

With the shielding gas flowing, initiate an arc between the tungsten electrode and the workpiece. When the desired weld pool has formed, depress the switch on the torch to start the wire feeding. Adjust the Wire Speed and, if in Pulse mode adjust the Drive time and Dwell time to produce the desired bead.



HAND HELD:

The recommended torch angle for hand held welding is 15º from perpendicular. The filler wire is fed into the leading edge of the molten pool.



MACHINE:

The recommended torch angle for machine welding is 0º from perpendicular. The filler wire is fed into the leading edge of the molten pool.

MAINTENANCE:

1. Blow foreign matter from the feed cable with compressed air before loading a new spool of welding wire.
2. Replace the wire guide tube if it has been arced, bent, or is badly worn.
3. Wire drive motor brushes should be inspected at regular intervals and replaced if worked to a 1/4 inch length.

NOTE: Whenever a brush is removed for inspection, be sure it is put back in the same position. It must not be turned around in the brush holder. Excessive arcing and loss of power will result if it is put back incorrectly.



CK Worldwide, Inc.
P.O. Box 1636 Auburn, WA. 98071
tel: (800) 426-0877
fax: (800) 327-5038
www.CKWORLDWIDE.com