

## Operating Data (Cut) Charts

The *Cut Charts* on the following pages are optimized to provide the best cut angle, least dross and best cut surface finish. Keep in mind that these charts provide a good starting point and that optimum cutting must be tuned to the application and materials on site. Increasing cut speed, lowering the torch standoff, higher current consumables on thinner metals or increasing the oxygen ratio in the shield mix, for example, all present certain tradeoffs as mentioned in *How to Get Better Cut Quality*. Depending on the cutting application, it is up to the operator to determine if the tradeoffs are acceptable.

The cut charts also provide part numbers and illustrations of the consumables required to cut at specific amperages. For more detailed information, refer to the gas console control and indicator descriptions and the daily start-up procedure at the front of this section.

### Cut Chart Index

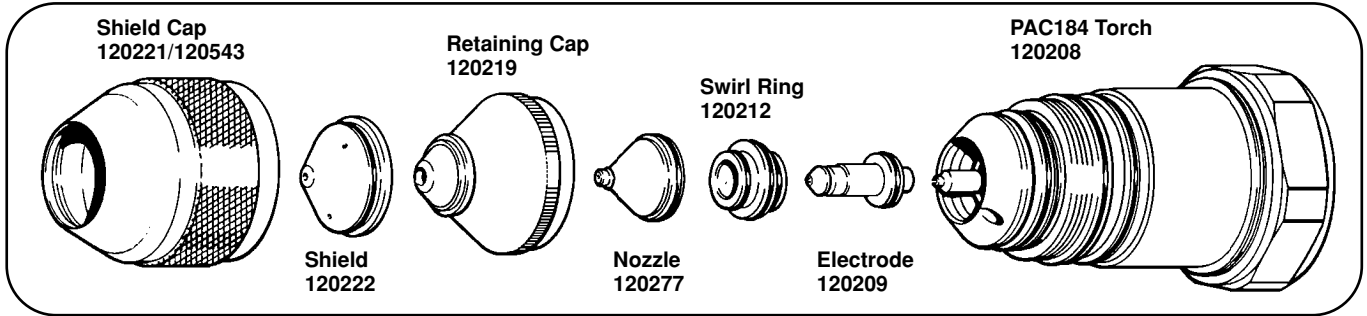
Material	Current	Plasma Gas	Shield Gas	Page
<b>PAC184 Torch</b>				
Mild Steel	15 Amp	O2	O2 & N2	4-19
	30 Amp	O2	O2 & N2	4-20
<b>PAC186 Torch</b>				
Mild Steel	15 Amp	O2	O2 & N2	4-21
	30 Amp	O2	O2 & N2	4-22
	50 Amp	O2	O2 & N2	4-24
	70 Amp	O2	O2 & N2	4-27
	100 Amp	O2	O2 & N2	4-31
Stainless Steel	30 Amp	Air	Air	4-23
	50 Amp	Air	Air	4-25
	70 Amp	Air	Air & CH4	4-28
	100 Amp	H35 & N2	N2	4-32
Aluminum	70 Amp	Air	CH4	4-29
	100 Amp	H35 & N2	N2	4-33
Copper	50 Amp	O2	O2 & N2	4-26
	70 Amp	O2	O2 & N2	4-30

**PAC184**

**Mild Steel**

**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**

**15 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow		(GA)	(in)	(mm)		(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>												
(Red)		(Red)		(Red)													
—	40	30	10	5	75	26	0.018	0.5	134	0.020	0.5	145	3.68	0.040	1.0	0	0.05
						24	0.024	0.6	135	0.020	0.5	129	3.28	0.040	1.0	0	0.05
						22	0.030	0.8	136	0.020	0.5	115	2.92	0.040	1.0	0	0.05
						20	0.036	0.9	136	0.020	0.5	100	2.54	0.040	1.0	0	0.05
						18	0.048	1.3	137	0.020	0.5	85	2.16	0.040	1.0	0.5	0.16
						16	0.060	1.5	142	0.030	0.8	65	1.65	0.040	1.0	1	0.27
						14	0.075	1.9	144	0.040	1.0	45	1.14	0.060	1.5	1.5	0.37
						12	0.105	2.7	148	0.040	1.0	35	0.90	0.060	1.5	2	0.50
						10	0.135	3.4	151	0.040	1.0	25	0.64	0.060	1.5	2.5	0.60

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

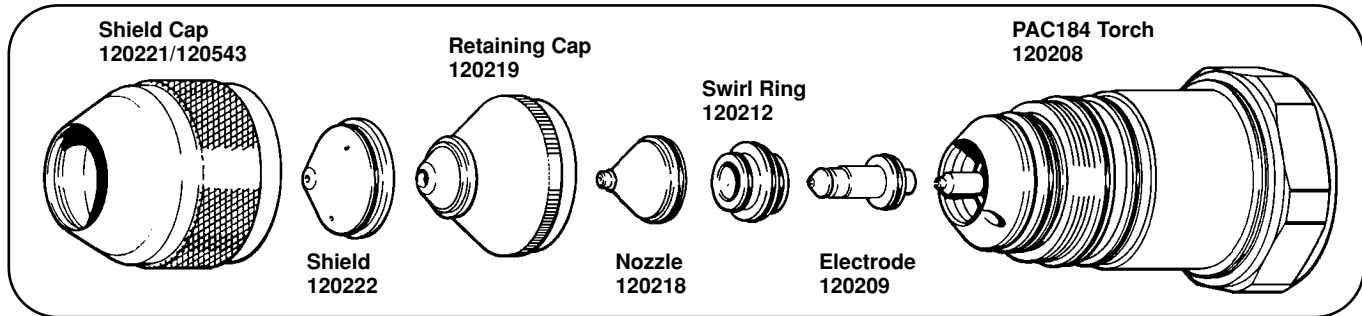
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC184**

**Mild Steel**

**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**

**30 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)												
—	46	15	5	5	75	24	0.024	0.6	117	0.030	0.8	200	5.08	0.060	1.5	0	0.05
						22	0.030	0.8	121	0.030	0.8	170	4.32	0.060	1.5	0	0.05
						20	0.036	0.9	125	0.040	1.0	140	3.56	0.080	2.0	0	0.05
						18	0.048	1.3	128	0.040	1.0	110	2.80	0.080	2.0	0	0.05
						16	0.060	1.5	128	0.040	1.0	80	2.03	0.080	2.0	0	0.05
						14	0.075	1.9	128	0.040	1.0	60	1.52	0.080	2.0	0.5	0.16
						12	0.105	2.7	135	0.060	1.5	50	1.27	0.100	2.5	1	0.27
						10	0.135	3.4	135	0.060	1.5	35	0.90	0.100	2.5	1.5	0.37
							3/16	4.8	135	0.060	1.5	32	0.81	0.100	2.5	2	0.50
		30	10				1/4	6.4	136	0.040	1.0	25	0.64	0.100	2.5	2.5	0.60

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

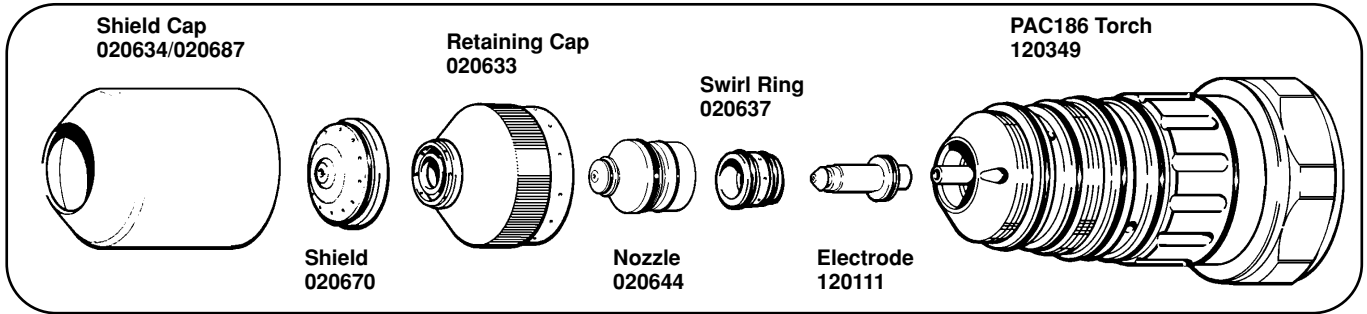
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**

**Mild Steel**

**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**

**15 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage ***	Torch-to-Work Distance ** ***		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)	20	0.036	0.9	120	0.020	0.5	100	2.54	0.040	1.0	0	0.1
—	40	30	10	5	75	18	0.048	1.3	121	0.020	0.5	85	2.16	0.040	1.0	0	0.1
						16	0.060	1.5	124	0.030	0.8	65	1.65	0.040	1.0	.5	0.2
						14	0.075	1.9	130	0.040	1.0	45	1.14	0.060	1.5	1	0.3
						12	0.150	2.7	132	0.040	1.0	35	0.90	0.060	1.5	1.5	0.4
						10	0.135	3.4	134	0.040	1.0	25	0.64	0.060	1.5	2	0.50

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

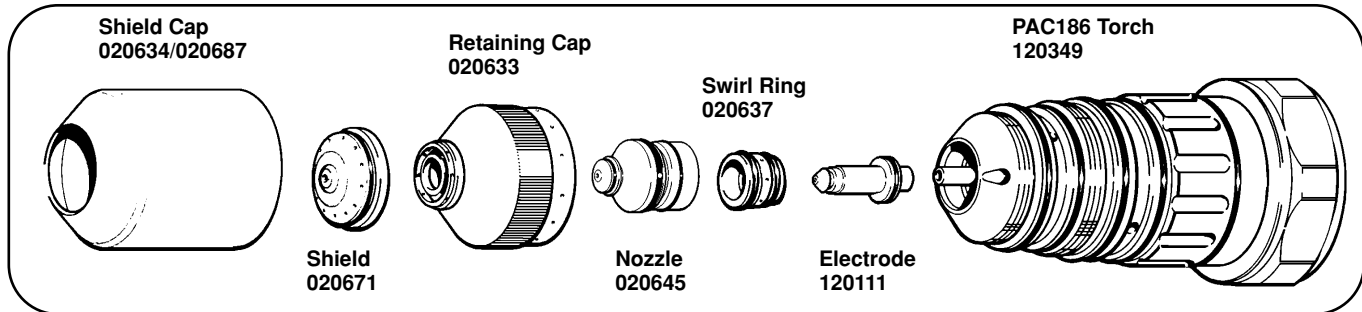
\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

\*\*\* To maintain the 0.020 inch (0.5 mm) torch standoff as the electrode wears, the arc voltage may have to be increased to avoid having the torch dive into the plate.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**  
**Mild Steel**  
**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**  
**30 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay						
Plasma		Shield		Preflow																		
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)					
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)	24	0.024	0.6	103	0.030	0.8	200	5.08	0.040	1.0	0	0					
—	46	15	5	5	75	22	0.030	0.8	108	0.030	0.8	170	4.32	0.040	1.0	0	0					
						20	0.036	0.9	110	0.040	1.0	140	3.56	0.060	1.5	0	0					
						18	0.048	1.3	112	0.040	1.0	110	2.80	0.060	1.5	0	0					
						16	0.060	1.5	115	0.040	1.0	80	2.03	0.060	1.5	0	0.1					
						14	0.075	1.9	118	0.040	1.0	60	1.52	0.060	1.5	0	0.1					
						12	0.105	2.7	121	0.060	1.5	50	1.27	0.080	2.0	.5	0.2					
						10	0.135	3.4	124	0.060	1.5	35	0.90	0.080	2.0	1	0.3					
								3/16	4.8	125	0.060	1.5	32	0.81	0.080	2.0	1.5	0.4				
								30	10			1/4	6.4	124	0.040	1.0	25	0.64	0.080	2.0	2	0.5

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

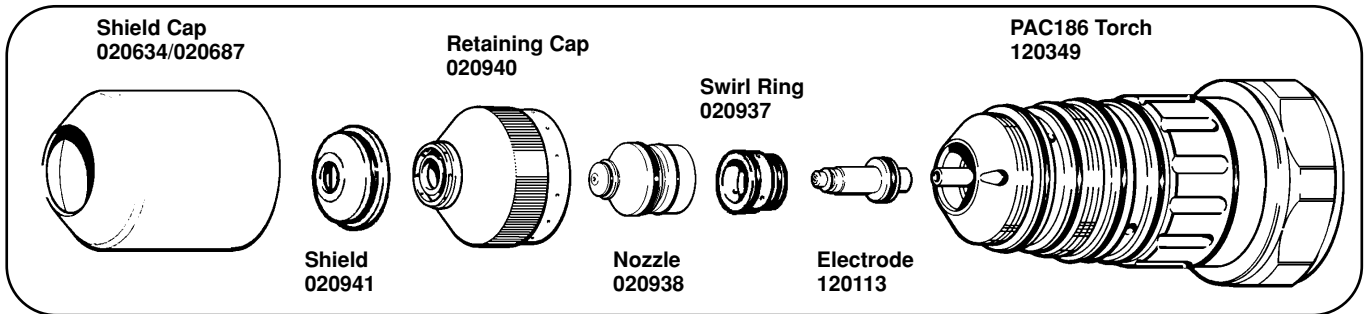
\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**  
**Stainless Steel#**  
**Air Plasma / Air Shield**  
**30 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage ***	Torch-to-Work Distance ** ***		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
—	Air	Air	—	Air	—	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(White)	(White)	(White)	(White)	(White)													
—	60	30	0	75	0	27	0.016	0.4	70-75	0.020	0.5	250	6.35	0.040	1.0	0	0
						24	0.024	0.6	70-75	0.020	0.5	220	5.59	0.040	1.0	0	0
						22	0.030	0.8	70-75	0.020	0.5	200	5.08	0.040	1.0	0	0.1
						20	0.036	0.9	70-75	0.020	0.5	180	4.57	0.040	1.0	0	0.1
						18	0.048	1.3	73-78	0.020	0.5	150	3.81	0.060	1.5	.5	0.2
						16	0.060	1.5	73-78	0.020	0.5	120	3.05	0.060	1.5	.5	0.2

Air inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

# Stainless steel plate sometimes comes with a protective plastic film. Remove film prior to cutting.

\* Slightly increasing the test preflow Air flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

\*\*\* To maintain the 0.020 inch (0.5 mm) torch standoff as the electrode wears, the arc voltage may have to be increased to avoid having the torch dive into the plate.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

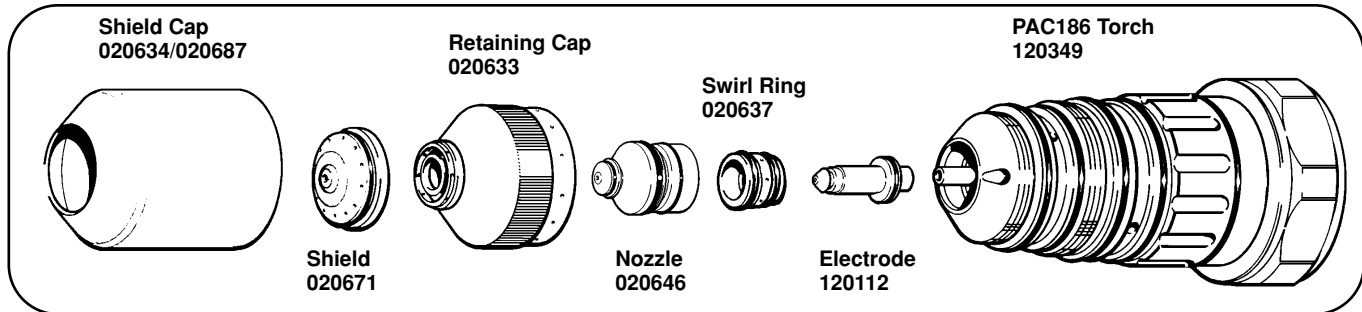
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**

**Mild Steel**

**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**

**50 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)												
—	40	40	0	5	75	22	0.030	0.8	103	0.040	1.0	270	6.86	0.060	1.5	0	0
						20	0.036	0.9	103	0.040	1.0	210	5.33	0.060	1.5	0	0
						18	0.048	1.3	104	0.040	1.0	160	4.06	0.060	1.5	0	0
						16	0.060	1.5	109	0.050	1.3	120	3.05	0.080	2.0	0	0
						14	0.075	1.9	113	0.050	1.3	100	2.54	0.080	2.0	0	0
						12	0.105	2.7	119	0.050	1.3	75	1.91	0.100	2.5	0	0.1
						10	0.135	3.4	122	0.060	1.5	55	1.40	0.100	2.5	.5	0.2
							3/16	4.8	124	0.060	1.5	45	1.14	0.100	2.5	1	.03
60	60						1/4	6.4	127	0.080	2.0	35	0.90	0.120	3.0	2	0.5

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

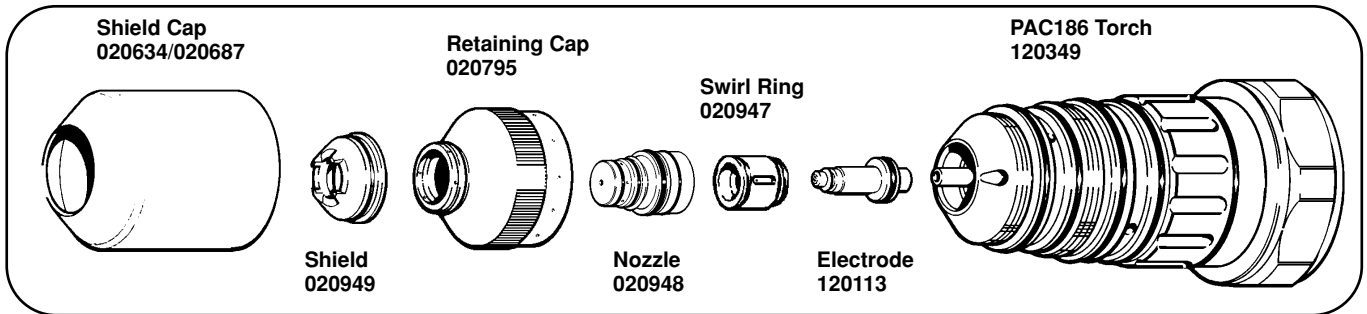
\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**  
**Stainless Steel#**  
**Air Plasma / Air Shield**  
**50 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch-to-Work Distance**		Cutting Speed		Pierce Height***		Pierce Delay	
Plasma		Shield		Preflow													
—	Air	Air	—	Air	—	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
0	40	80	0	60	0	14	0.075	1.9	100	0.040	1.0	120	3.05	0.120	3.0	1	0.3
		80				12	0.105	2.7	100	0.040	1.0	80	2.03	0.120	3.0	1.5	0.4
		60				10	0.135	3.4	110	0.060	1.5	55	1.40	0.120	3.0	1.5	0.4
		50					3/16	4.8	115	0.080	2.0	40	1.02	0.160	4.0	2	0.5

Air inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

# Stainless steel plate sometimes comes with a protective plastic film. Remove film prior to cutting.

\* Slightly increasing the test preflow Air flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

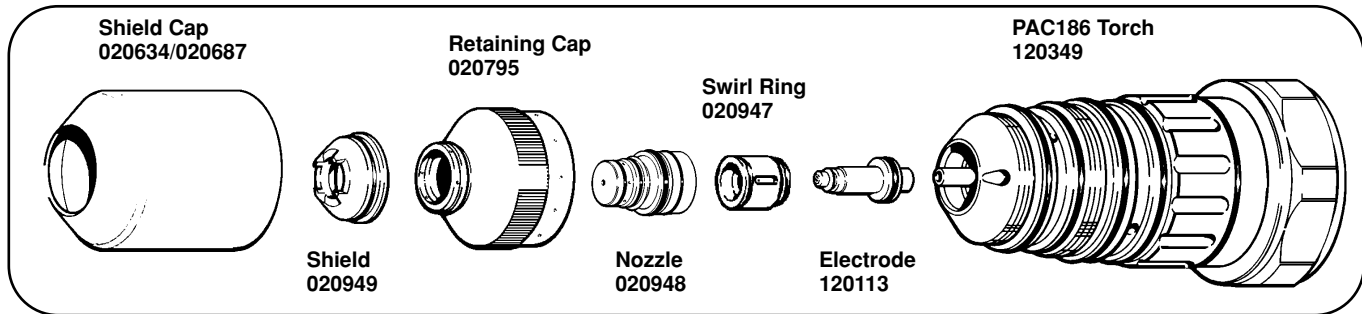
\*\*\* Measured from tips of shield adapter 020949.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.



**PAC186**  
**Copper#**  
**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**  
**50 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch-to-Work Distance**		Cutting Speed		Pierce Height***		Pierce Delay	
Plasma		Shield		Preflow													
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)	16	0.060	1.5	92	0.080	2.0	70	1.78	0.100	2.5	4	1.0
—	40	20	10	35	40	14	0.075	1.9	92	0.080	2.0	70	1.78	0.100	2.5	4	1.0
						12	0.150	2.7	94	0.080	2.0	65	1.65	0.100	2.5	7	1.5
						10	0.135	3.4	94	0.080	2.0	65	1.65	0.100	2.5	9	2.0

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

# Copper plate sometimes comes with a protective plastic film. Remove film prior to cutting.

\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

\*\*\* Measured from tips of shield adapter 020949.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

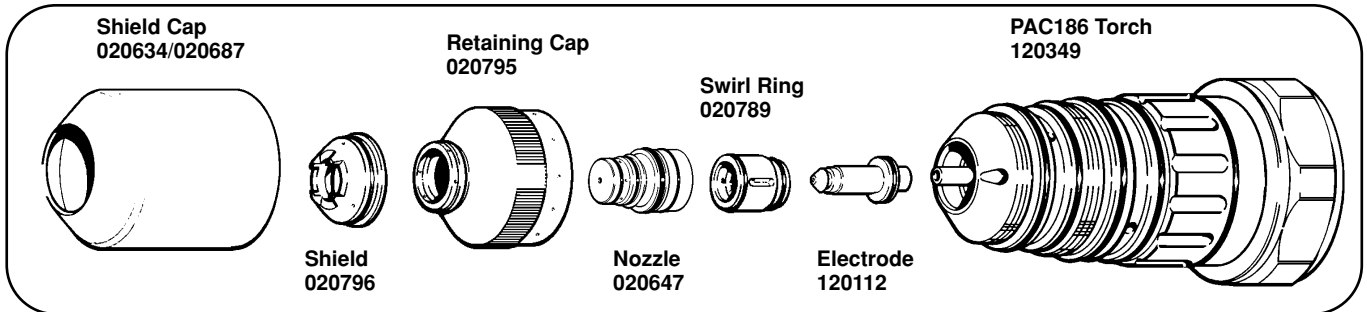
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**

**Mild Steel**

**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**

**70 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height***		Pierce Delay	
Plasma		Shield		Preflow		(GA)	(in)	(mm)		(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>												
(Red)		(Red)		(Red)													
—	25	0	100	5	75	16	0.060	1.5	107	0.060	1.5	280	7.11	0.100	2.5	0	0.1
						14	0.075	1.9	107	0.060	1.5	230	5.84	0.100	2.5	0	0.1
						12	0.105	2.7	109	0.080	2.0	185	4.70	0.120	3.0	0	0.1
	10					0.135	3.4	114	0.080	2.0	150	3.81	0.120	3.0	.5	0.2	
						3/16	4.8	119	0.080	2.0	120	3.05	0.120	3.0	1	0.3	
						1/4	6.4	129	0.080	2.0	100	2.54	0.120	3.0	2	0.5	
	40					3/8	9.5	135	0.100	2.5	65	1.65	0.160	4.0	4	1.0	

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

\*\*\* Measured from tips of shield adapter 020796.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

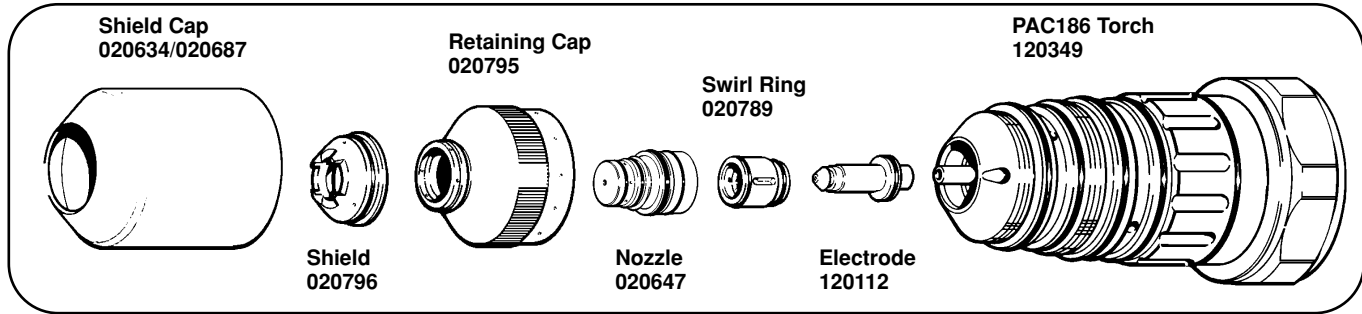
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**

**Stainless Steel#**

**Air Plasma / Air & CH<sub>4</sub> Shield**

**70 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch-to-Work Distance**		Cutting Speed		Pierce Height***		Pierce Delay	
Plasma		Shield		Preflow													
—	Air	Air	CH <sub>4</sub>	Air	—	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(White)	(White)	(White)	(White)	(White)	(White)	10	0.135	3.4	134	0.060	1.5	100	2.54	0.140	3.5	1	0.3
—	35	100	0	75	0		3/16	4.8	139	0.080	2.0	80	2.00	0.140	3.5	1.5	0.4
		60	3				1/4	6.4	149	0.140	3.5	55	1.40	0.180	4.5	2	0.5
		30	10				3/8	9.5	164	0.140	3.5	30	0.76	0.200	5.0	2	0.5
		30	10				1/2	12.7	189	0.250	6.3	25	0.64	****	****		
	50	40	20														

Air and CH<sub>4</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

# Stainless steel plate sometimes comes with a protective plastic film. Remove film prior to cutting.

\* Slightly increasing the test preflow Air flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

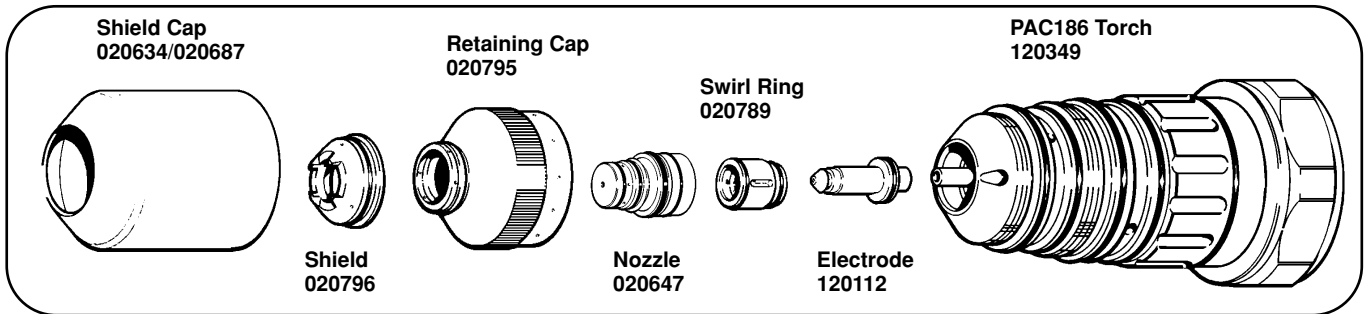
\*\*\* Measured from tips of shield adapter 020796.

\*\*\*\* Piercing 1/2 inch (12.7 mm) stainless steel is not recommended, it will shorten consumable life. Starting cuts at the edge of the metal is recommended.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**  
**Aluminum#**  
**Air Plasma / CH<sub>4</sub> Shield**  
**70 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch-to-Work Distance**		Cutting Speed		Pierce Height***		Pierce Delay	
Plasma		Shield		Preflow		(GA)	(in)	(mm)		(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
—	Air	Air	CH <sub>4</sub>	Air	—												
(White)		(White)		(White)													
—	45	0	40	75	0	18	0.048	1.2	159	0.100	2.5	150	3.81	0.160	4.0	0	0.1
						16	0.060	1.5	159	0.100	2.5	125	3.18	0.160	4.0	0	0.1
						14	0.075	1.9	159	0.100	2.5	100	2.54	0.160	4.0	0	0.1
						12	0.105	2.7	159	0.100	2.5	85	2.16	0.160	4.0	.5	0.2
							1/8	3.2	179	0.180	4.5	70	1.78	0.200	5.0	.5	0.2
						10	0.135	3.4	179	0.180	4.5	65	1.65	0.200	5.0	.5	0.2
							1/4	6.4	179	0.180	4.5	45	1.14	0.200	5.0	1	0.3
	3/8	9.5	179	0.180	4.5	30	0.76	0.200	5.0	1	0.3						

Air and CH<sub>4</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

# Aluminum plate sometimes comes with a protective plastic film. Remove film prior to cutting.

\* Slightly increasing the test preflow Air flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

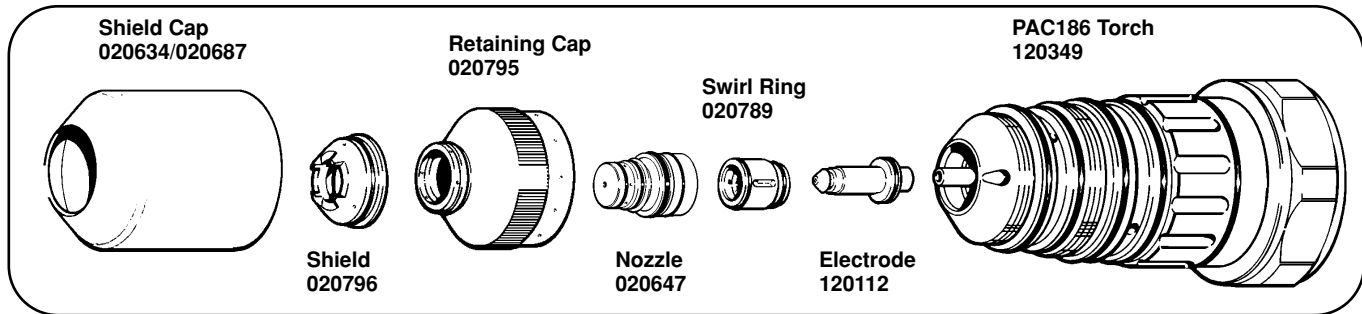
\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

\*\*\* Measured from tips of shield adapter 020796.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**  
**Copper#**  
**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**  
**70 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height***		Pierce Delay	
Plasma		Shield		Preflow													
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)	10	0.135	3.4	133	0.120	3.0	60	1.52	0.160	4.0	9	2.0
—	50	75	50	5	75		3/16	4.8	119	0.120	3.0	55	1.40	0.160	4.0	—	2.5
							1/4	6.4	123	0.120	3.0	55	1.40	0.160	4.0	—	3.0
							3/8	9.5	129	0.120	3.0	25	0.64	0.160	4.0	—	5.0

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

# Copper plate sometimes comes with a protective plastic film. Remove film prior to cutting.

\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

\*\*\* Measured from tips of shield adapter 020796.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

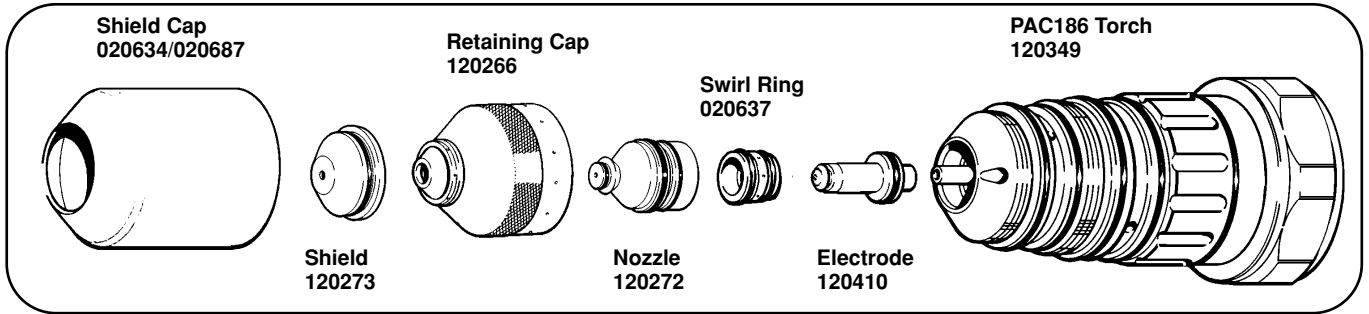
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**

**Mild Steel**

**O<sub>2</sub> Plasma / O<sub>2</sub> & N<sub>2</sub> Shield**

**100 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow* Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
—	O <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Red)	(Red)	(Red)	(Red)	(Red)	(Red)		1/8	3.2	137	0.125	3.2	275	7.0	0.180	4.6	0	0.00
—	60	35	90	10	100		1/4	6.4	141	0.125	3.2	135	3.43	0.300	7.6	0.4	0.22
							3/8	9.5	145	0.125	3.2	95	2.41	0.300	7.6	0.7	0.27
							1/2	12.7	147	0.125	3.2	64	1.62	0.300	7.7	1.0	0.37

O<sub>2</sub> and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

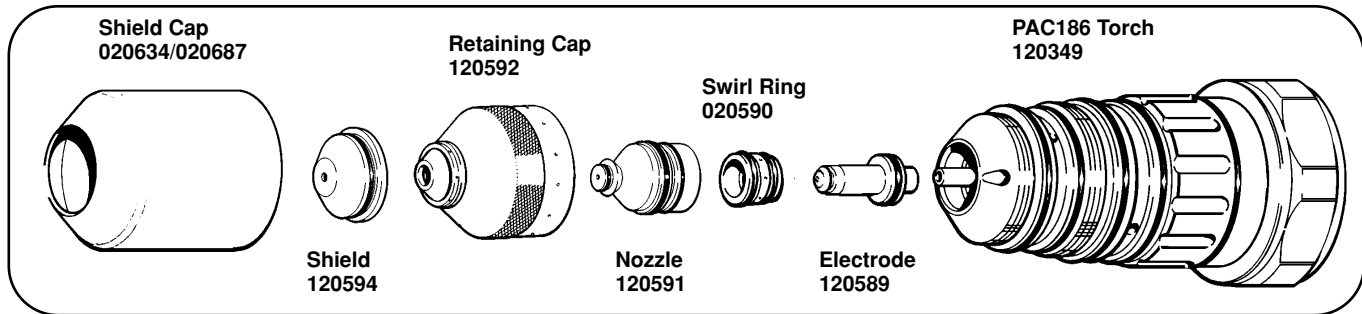
\* Slightly increasing the test preflow O<sub>2</sub> and N<sub>2</sub> flowrates may increase piercing capability on the thicker materials listed above. However, increasing the preflow flowrates too much may affect plasma starting reliability (misfiring).

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**  
**Stainless Steel**  
**H35 & N<sub>2</sub> Plasma / N<sub>2</sub> Shield**  
**100 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
H35	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Blue)	(Blue)	(Blue)	(Blue)	(Blue)	(Blue)		1/4	6.4	134	0.120	3.0	75	1.9	0.200	5.1	0	0.1
30	30	60	60	45	45		3/8	9.5	144	0.150	3.8	65	1.6	0.200	5.1	0.5	0.2
40	50						1/2	12.7	160	0.250	6.4	45	1.1	0.300	7.6	1	0.3

H35 and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

H35 gas purity must be 99.995 % minimum.

H35 flowrate must be 85 scfh (2407 l/hr) at fullscale.

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

If the part is not completely cut away from the scrap, try modifying the leadout. Stop the cut 0.050 inch (1.3 mm) before the end of the part for 1/4 and 3/8 inch (6.4 and 9.5 mm) material and 0.100 inch (2.5 mm) for 1/2 inch (12.7 mm) material. The ramp down of the current and gases will complete the cut. If your program can not be modified, reduce cutting speed and use no leadout.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

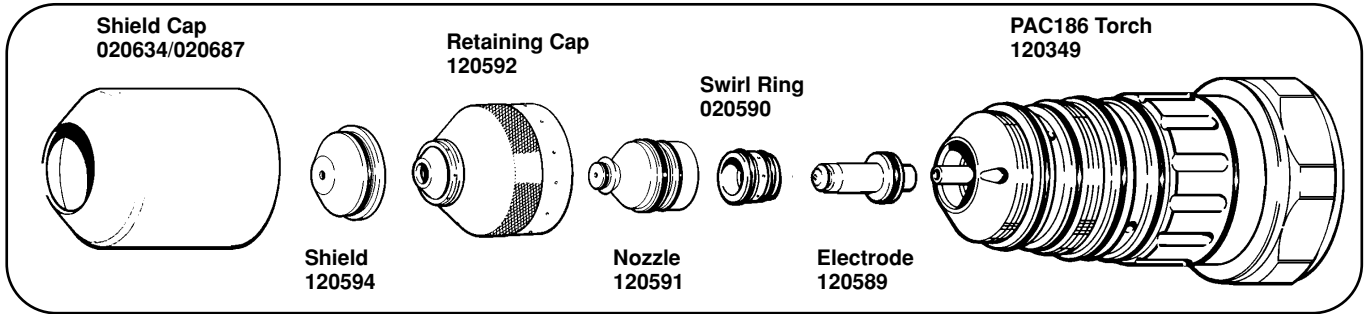
If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.

**PAC186**

**Aluminum**

**H35 & N<sub>2</sub> Plasma / N<sub>2</sub> Shield**

**100 Amp Cutting**



Test Cut Flowrates (%)				Test Preflow Flowrates (%)		Material Thickness			Arc Voltage	Torch -to-Work Distance**		Cutting Speed		Pierce Height		Pierce Delay	
Plasma		Shield		Preflow													
H35	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	(GA)	(in)	(mm)	(volts)	(in)	(mm)	(ipm)	(m/min)	(in)	(mm)	(dial)	(sec)
(Blue)		(Blue)		(Blue)			1/4	6.4	145	0.157	4.0	100	2.5	0.236	6.0	0	0.1
30	30	60	60	45	45		3/8	9.5	149	0.157	4.0	70	1.8	0.236	6.0	0.5	0.2
							1/2	12.7	155	0.157	4.0	40	1.1	0.236	6.0	1	0.3

H35 and N<sub>2</sub> gas inlet pressures must be between 105 - 135 psi (7.2 - 9.2 bar) for all material thickness.

H35 flowrate must be 85 scfh (2407 l/hr) at fullscale.

\*\* Torch standoff tolerances are ± 0.005 inch (± 0.125 mm). When using a THC, tolerances are ± 1 volt.

Counter clockwise (CCW) consumables are available for mirror image cutting. Refer to Section 6, *Parts List*.

If problems occur with the cutting process, and the flowrates are suspect, refer to Section 5, Maintenance, *Gas System Back Pressure Checks*.