



HPR800XD™ Auto Gas

Preventive Maintenance Program



Instruction Manual

808680 | Revision 2 | English

HPR, Phoenix, XD, and Hypertherm are trademarks of Hypertherm, Inc. and may be registered in the United States and other countries. All other trademarks are the property of their respective holders.

© 2018 Hypertherm, Inc.

HPR800XD Auto Gas Preventive Maintenance Program

Instruction Manual

808680
Revision 2

English

November 2018

Hypertherm, Inc.
Hanover, NH 03755 USA

Hypertherm, Inc.

Etna Road, P.O. Box 5010
Hanover, NH 03755 USA
603-643-3441 Tel (Main Office)
603-643-5352 Fax (All Departments)
info@hypertherm.com (Main Office Email)

800-643-9878 Tel (Technical Service)

technical.service@hypertherm.com (Technical Service Email)

800-737-2978 Tel (Customer Service)

customer.service@hypertherm.com (Customer Service Email)

866-643-7711 Tel (Return Materials Authorization)**877-371-2876 Fax (Return Materials Authorization)**

return.materials@hypertherm.com (RMA email)

Hypertherm México, S.A. de C.V.

Avenida Toluca No. 444, Anexo 1,
Colonia Olivar de los Padres
Delegación Álvaro Obregón
México, D.F. C.P. 01780
52 55 5681 8109 Tel
52 55 5683 2127 Fax
Soporte.Tecnico@hypertherm.com (Technical Service Email)

Hypertherm Plasmatechnik GmbH

Sophie-Scholl-Platz 5
63452 Hanau
Germany

00 800 33 24 97 37 Tel

00 800 49 73 73 29 Fax

31 (0) 165 596900 Tel (Technical Service)**00 800 4973 7843 Tel (Technical Service)**

technicalservice.emea@hypertherm.com (Technical Service Email)

Hypertherm (Singapore) Pte Ltd.

82 Genting Lane
Media Centre
Annexe Block #A01-01
Singapore 349567, Republic of Singapore
65 6841 2489 Tel
65 6841 2490 Fax
Marketing.asia@hypertherm.com (Marketing Email)
TechSupportAPAC@hypertherm.com (Technical Service Email)

Hypertherm Japan Ltd.

Level 9, Edobori Center Building
2-1-1 Edobori, Nishi-ku
Osaka 550-0002 Japan
81 6 6225 1183 Tel
81 6 6225 1184 Fax
HTJapan.info@hypertherm.com (Main Office Email)
TechSupportAPAC@hypertherm.com (Technical Service Email)

Hypertherm Europe B.V.

Vaartveld 9, 4704 SE
Roosendaal, Nederland
31 165 596907 Tel
31 165 596901 Fax
31 165 596908 Tel (Marketing)
31 (0) 165 596900 Tel (Technical Service)
00 800 4973 7843 Tel (Technical Service)
technicalservice.emea@hypertherm.com
(Technical Service Email)

Hypertherm (Shanghai) Trading Co., Ltd.

B301, 495 ShangZhong Road
Shanghai, 200231
PR China
86-21-80231122 Tel
86-21-80231120 Fax
86-21-80231128 Tel (Technical Service)
techsupport.china@hypertherm.com
(Technical Service Email)

South America & Central America: Hypertherm Brasil Ltda.

Rua Bras Cubas, 231 – Jardim Maia
Guarulhos, SP – Brasil
CEP 07115-030
55 11 2409 2636 Tel
tecnico.sa@hypertherm.com (Technical Service Email)

Hypertherm Korea Branch

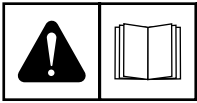
#3904. APEC-ro 17. Heaundae-gu. Busan.
Korea 48060
82 (0)51 747 0358 Tel
82 (0)51 701 0358 Fax
Marketing.korea@hypertherm.com (Marketing Email)
TechSupportAPAC@hypertherm.com
(Technical Service Email)

Hypertherm Pty Limited

GPO Box 4836
Sydney NSW 2001, Australia
61 (0) 437 606 995 Tel
61 7 3219 9010 Fax
au.sales@Hypertherm.com (Main Office Email)
TechSupportAPAC@hypertherm.com
(Technical Service Email)

Hypertherm (India) Thermal Cutting Pvt. Ltd

A-18 / B-1 Extension,
Mohan Co-Operative Industrial Estate,
Mathura Road, New Delhi 110044, India
91-11-40521201/ 2/ 3 Tel
91-11 40521204 Fax
HTIndia.info@hypertherm.com (Main Office Email)
TechSupportAPAC@hypertherm.com
(Technical Service Email)



ENGLISH

Copies of the manuals may accompany the product in electronic and printed formats. You can also obtain copies of the manuals, in all languages available for each manual, from the "Documents library" at www.hypertherm.com.

DEUTSCH / GERMAN

Bedienungsanleitungen und Handbücher können dem Gerät in elektronischer Form oder als Druckversion beiliegen. Alle Handbücher und Anleitungen können in den jeweils verfügbaren Sprachen auch in der „Dokumente-Bibliothek“ unter www.hypertherm.com heruntergeladen werden.

FRANÇAIS / FRENCH

Des copies de ces manuels peuvent accompagner le produit en format électronique et papier. Vous pouvez également obtenir des copies de chaque manuel dans toutes les langues disponibles à partir de la « Bibliothèque de documents » sur www.hypertherm.com.

ESPAÑOL / SPANISH

Pueden venir copias de los manuales en formato electrónico e impreso junto con el producto. También se pueden obtener copias de los manuales, en todos los idiomas disponibles para cada manual, de la "Biblioteca de documentos" en www.hypertherm.com.

ITALIANO / ITALIAN

Il prodotto può essere accompagnato da copie elettroniche e cartacee del manuale. È anche possibile ottenere copie del manuale, in tutte le lingue disponibili per ogni manuale, dall'"Archivio documenti" all'indirizzo www.hypertherm.com.

NEDERLANDS / DUTCH

De handleidingen kunnen in elektronische en gedrukte vorm met het product worden meegeleverd. De handleidingen, elke handleiding beschikbaar in alle talen, zijn ook verkrijgbaar via de "Documentenbibliotheek" op www.hypertherm.com.

DANSK / DANISH

Kopier af manualerne kan ledsage produktet i elektroniske og trykte formater. Du kan også få kopier af manualer, på alle sprog der er til rådighed for hver manuel, fra "Dokumentbiblioteket" på www.hypertherm.com.

PORTUGUÊS / PORTUGUESE

Cópias dos manuais podem acompanhar os produtos nos formatos eletrônico e impresso. Também é possível obter cópias dos manuais em todos os idiomas disponíveis para cada manual na "Biblioteca de documentos" em www.hypertherm.com.

日本語 / JAPANESE

説明書のコピーは、電子フォーマット、または印刷物として製品に同梱されています。各説明書は、www.hypertherm.com の「ドキュメントライブラリ」から各言語で入手できます。

简体中文 / CHINESE (SIMPLIFIED)

随产品提供的手册可能提供电子版和印刷版两种格式。您也可从 "Documents library" (文档资料库) 中获取每本手册所有可用语言的副本, 网址为 www.hypertherm.com.

NORSK / NORWEGIAN

Eksemplarer av håndbøkene kan medfølge produktet i elektroniske og trykte utgaver. Du kan også få eksemplarer av håndbøkene i alle tilgjengelige språk for hver håndbok fra dokumentbiblioteket på www.hypertherm.com.

SVENSKA / SWEDISH

Kopior av manualen kan medfölja produkten i elektronisk och tryckform. Du hittar även kopior av manualerna i alla tillgängliga språk i dokumentbiblioteket (Documents library) på www.hypertherm.com.

한국어 / KOREAN

전자 형식과 인쇄된 형식으로 설명서 사본이 제품과 함께 제공될 수 있습니다. www.hypertherm.com 의 'Documents library (문서 라이브러리)' 에서도 모든 언어로 이용할 수 있는 설명서 사본을 얻을 수 있습니다.

ČESKY / CZECH

Kopie příruček a manuálů mohou být součástí dodávky produktu, a to v elektronické i tištěné formě. Kopie příruček a manuálů ve všech jazykových verzích, v nichž byly dané příručky a manuály vytvořeny, naleznete v „Knihovně dokumentů“ na webových stránkách www.hypertherm.com.

POLSKI / POLISH

Do produktu mogą być dołączone kopie podręczników w formacie elektronicznym i drukowanym. Kopie podręczników, w każdym udostępnionym języku, można również znaleźć w „Bibliotece dokumentów” pod adresem www.hypertherm.com.

РУССКИЙ / RUSSIAN

Копии руководств, которые поставляются вместе с продуктом, могут быть представлены в электронном и бумажном виде. Копии руководств на всех языках, на которые переведено то или иное руководство, можно также загрузить в разделе «Библиотека документов» на веб-сайте www.hypertherm.com.

SUOMI / FINNISH

Käyttöoppaiden kopiot voivat olla tuotteen mukana elektronisessa ja tulostetussa muodossa. Voit saada käyttöoppaiden kopiot kaikilla kielillä "latauskirjastosta", joka on osoitteessa www.hypertherm.com.

БЪЛГАРСКИ / BULGARIAN

Копия на ръководствата може да придружават продукта в електронен и в печатен формат. Можете да получите копия на ръководствата, предлагани на всички езици, от „Documents library“ (Библиотека за документи) на адрес www.hypertherm.com.

ROMÂNĂ / ROMANIAN

Produsul poate fi însoțit de copii ale manualului în format tipărit și electronic. De asemenea, dumneavoastră puteți obține copii ale manualelor, în toate limbile disponibile pentru fiecare manual, din cadrul secțiunii „Biblioteca documente” aflată pe site-ul www.hypertherm.com.

TÜRKÇE / TURKISH

Kılavuzların kopyaları, elektronik ve basılı formatta ürünle birlikte verilebilir. Her biri tüm dillerde yayınlanan kılavuzların kopyalarını www.hypertherm.com adresindeki "Documents library" (Dosyalar kitaplığı) başlığından da elde edebilirsiniz.

MAGYAR / HUNGARIAN

A termékhez a kézikönyv példányai elektronikus és nyomtatott formában is mellékelve lehetnek. A kézikönyvek példányai (minden nyelven) a www.hypertherm.com weboldalon a „Documents library” (Dokumentum könyvtár) részben is beszerezhető.

ΕΛΛΗΝΙΚΑ / GREEK

Αντίγραφα των εγχειριδίων μπορεί να συνοδεύουν το προϊόν σε ηλεκτρονική και έντυπη μορφή. Μπορείτε, επίσης, να λάβετε αντίγραφα των εγχειριδίων σε όλες τις γλώσσες που διατίθενται για κάθε εγχειρίδιο από την ψηφιακή βιβλιοθήκη εγγράφων (Documents library) στη διαδικτυακή τοποθεσία www.hypertherm.com.

繁體中文 / CHINESE (TRADITIONAL)

手冊複本可能以電子和印刷格式隨附產品提供。您也可以
在 www.hypertherm.com 的「文檔資料庫」內獲取所有手冊的多語種複本。

SLOVENŠČINA / SLOVENIAN

Izdelku so lahko priloženi izvodi priročnikov v elektronski ali tiskani obliki. Izvode priročnikov v vseh razpoložljivih jezikih si lahko prenesete tudi iz knjižnice dokumentov "Documents library" na naslovu www.hypertherm.com.

SRPSKI / SERBIAN

Može se dogoditi da kopije priručnika prate proizvod u elektronskom i štampanom formatu. Takođe možete da pronađete kopije priručnika, na svim jezicima koji su dostupni za svaki od priručnika, u "Biblioteci dokumenata" ("Documents library") na www.hypertherm.com.

SLOVENČINA / SLOVAK

Kópia návodu, ktorá je dodávaná s produktom, môže mať elektronickú alebo tlačенú podobu. Kópie návodov, vo všetkých dostupných jazykoch, sú k dispozícii aj v sekcii z „knihnice Dokumenty“ na www.hypertherm.com.

Preventive Maintenance Program	9
Overview	9
Cleaning and inspection schedule	10
Daily	11
Do a test of the inlet pressures	11
Examine all of the air filters	11
Do a check of the coolant level and condition	11
Examine and lubricate O-rings	12
Examine the water tube and torch	12
Weekly	13
Examine hoses and torch leads	13
Do tests for gas leaks	13
Do a check of the coolant flow	13
Do a check of the coolant level	13
Monthly	14
Clean inside the power supply	14
Clean the chiller air filter	14
Clean inside the chiller	15
Examine the coolant system	15
Examine the main contactor	16
Examine the pilot arc relay	16
Do the coolant flow test	16
Examine the gas line connections	17
Examine the hoses	17
Examine the cables	17
Examine the ground connections	17
Examine the table-to-workpiece connection	17
Component replacement schedule	18

Cutting area and operation effects	21
External cutting area	21
Incoming air supply quality	22
Metal dust inside the power supply cabinet	22
Consumable use	23
Cut-cycle time	24
Find arc hour data on a Hypertherm CNC	25
Part numbers for HPR800XD Auto Gas cables and leads	26
Primary power supply to secondary power supply cables	26
Interface cable	26
Communication cable	26
Power supply to ignition console leads	26
Pilot arc lead	26
Negative lead	26
Ignition console power cable	27
Coolant hoses	27
Chiller-interface console to ignition console	27
Chiller to chiller-interface console	27
Power supply to chiller cables	27
Control cable	27
Power cable	27
Power supply to selection console cables	28
Control cable	28
Power cable	28
Cable and gas hose assembly (selection console to metering console)	28
Power supply to CNC interface cable	28
Torch lead	29
Work lead	29
Ohmic contact wire	29
Supply gas hoses	30
Air hose	30
Argon-hydrogen (H35) or nitrogen-hydrogen (F5) hose	30
Nitrogen or argon hose	30
Oxygen hose	30
System information	31
Model number	31
Serial number	31
System voltage	31
Coolant requirements	31
Notes	32
Maintenance log for HPR800XD Auto Gas plasma systems	33

Preventive Maintenance Program

Overview

Congratulations on the purchase of your Hypertherm plasma system.

Hypertherm plasma systems can operate in harsh conditions for many years. To maintain system performance, minimize operating costs, and lengthen system life, follow the maintenance procedures given in this Preventative Maintenance Program (PMP).

Hypertherm made this PMP specifically for your plasma system. The PMP has two parts: a cleaning and inspection schedule and a component replacement schedule.

If you have questions about how to maintain your plasma system, contact your OEM or regional Hypertherm Technical Service team. You can find contact information for each regional office at www.hypertherm.com on the “Contact us” page.

This document refers to your system’s instruction manual. If you do not have your instruction manual, you can find it at www.hypertherm.com/docs.

- *HPR800XD Auto Gas Instruction Manual: 806500*

Cleaning and inspection schedule

This is a daily, weekly, and monthly schedule for cleaning and inspections. The PMP has instructions for each task. These instructions help your personnel understand what to do and what to look for during each task. In general, an operator can do the daily and weekly tasks, while maintenance personnel usually do the monthly tasks.

A monthly maintenance log is in the back of this manual. You can make photocopies of the maintenance log to record tasks.

Table 1

Maintenance task or activity	Daily	Weekly	Monthly
Do a test of the inlet pressures	X		
Examine all of the air filters	X		
Do a check of the coolant level and condition	X		
Examine and lubricate O-rings	X		
Examine the water tube and torch	X		
Examine hoses and torch leads		X	
Do tests for gas leaks		X	
Do a check of the coolant flow*		X	
Do a check of the coolant level*		X	
Clean inside the power supply*			X
Clean the chiller air filter*			X
Clean inside the chiller*			X
Examine the coolant system*			X
Examine the main contactor			X
Examine the pilot arc relay			X
Do the coolant flow test			X
Examine the gas line connections			X
Examine the hoses			X
Examine the cables			X
Examine the ground connections			X
Examine the table-to-workpiece connection			X

*See the chiller manufacturer manual for guidance on chiller maintenance. Chiller manufacturer specifications override Hypertherm's recommendations for chiller maintenance.

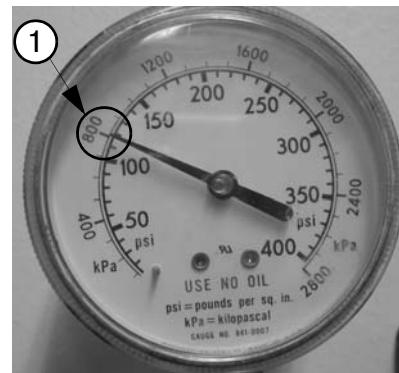
Daily

Do a test of the inlet pressures

1. With the gas flowing in test preflow mode, make sure that the pressure at the regulator is set to 8 bar (115 psi).
2. Repeat the test in cutflow mode, and make sure that the regulator is set to 8 bar (115 psi).



For instructions about setting supply regulators, see *Setting the supply regulators* in your system's instruction manual.



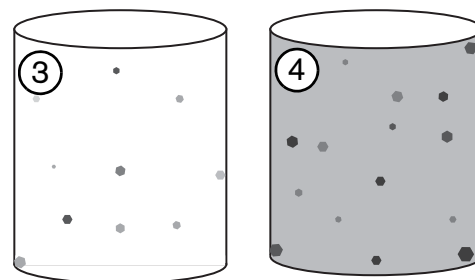
Examine all of the air filters

Examine all of the air filters for contamination.

- ❑ If you find moisture or oil, replace the air filter.
- ❑ If you find a moderate quantity of solid contamination, such as dust, blow air through it or use suction to clean the filter.
- ❑ If you find a large quantity of solid contamination, replace the air filter.



See *Air filter element replacement* in your system's instruction manual for replacement instructions.



Do a check of the coolant level and condition

Make sure that the coolant tank in the chiller is full:

1. Remove the panel from the left rear side of the chiller.
2. Look at the coolant tank.
3. If the level is more than 5.1 cm (2 inches) from the top of the tank, add coolant (028872) to this level.
4. Record the number of gallons your system requires in *Coolant requirements* on page 31.

Examine the coolant tank for contamination. If you find any contamination, drain the tank and replace the coolant. See *Draining the coolant system* in your system's instruction manual for instructions.

Examine the inline coolant strainers in the chiller. See the *DuraChill 5 HP Air-Cooled Chiller For Hypertherm Instruction Manual* (806600) for details.

Preventive Maintenance Program

Examine and lubricate O-rings

1. Examine all of the O-rings on the torch and consumables for damage.
2. If you find damage, replace the O-ring.



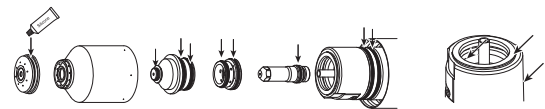
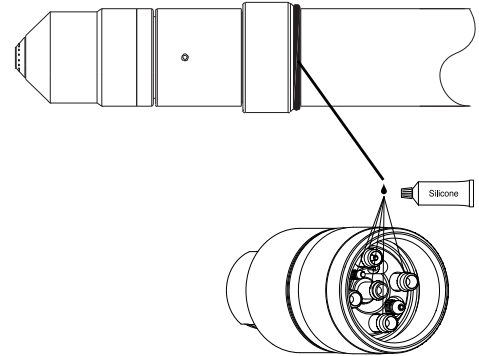
Receptacle O-rings and torch O-rings for the torch main body are available as part of kit 428252. Other O-rings are included with the consumables.

3. Apply a thin film of silicone lubricant (027055) to all O-rings.



The O-rings should look shiny. Too much lubricant can prevent gas flow.

4. Install all O-rings so they fit snugly.
5. Examine all threaded consumables, and remove any dirt from the threads.



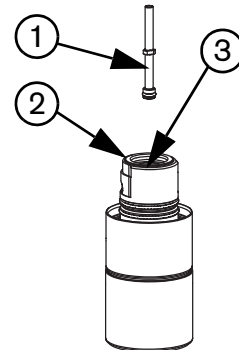
Examine the water tube and torch

1. Examine the water tube for bends and pitting.
2. Examine the nozzle and electrode mating surfaces on the torch main body for damage or pitting.
3. Use a clean cloth to clean the internal and external surfaces of the torch. Use a cotton swab to clean internal surfaces that are not easy to get to.



Make sure that you do not leave any cotton fibers on the inner surfaces of the torch main body.

4. Use compressed air to remove any remaining particles from the torch main body.



Weekly

Examine hoses and torch leads

1. Examine all air hoses, coolant hoses, and torch leads for:
 - ☐ Scrapes, cuts, or holes
 - ☐ Chemical spills or burns
 - ☐ Kinks or bends
2. Replace any hoses or leads that have damage.

See *Part numbers for HPR800XD Auto Gas cables and leads* on page 26 for lengths and part numbers.

Do tests for gas leaks

For more information, see *Gas leak tests* in the *Maintenance* section of your system's instruction manual.

Do the following gas system tests:

- Inlet Leak test
- System Leak test
- Proportional valve test – Make sure that you use the 130 A O₂/Air consumables and that you select the 30 A O₂/O₂ plasma process.

Do a check of the coolant flow

Find the flow rate shown on the CNC's diagnostic screen. Record the coolant flow.

If the information on the CNC indicates a problem with the coolant flow, do the tests described in *Coolant flow tests* in the *Maintenance* section of your system's instruction manual.

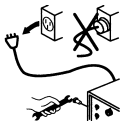
If the flow rate is below 2.9 L/min (0.75 g/min), contact your maintenance department to service the coolant system.

Do a check of the coolant level

Make sure that the coolant tank in the chiller is full:

1. Remove the panel from the rear left side of the chiller.
2. Look at the coolant tank.
3. If the level is more than 5.1 cm (2 inches) from the top of the tank, add coolant (028872) to this level.
4. Record the number of gallons your system requires in *Coolant requirements* on page 31.

Monthly

		WARNING! ELECTRIC SHOCK CAN KILL
	Disconnect electric power before performing any maintenance. All work requiring removal of the power supply cover must be performed by a qualified technician. Read the <i>Safety and Compliance Manual</i> (80669C) for important safety information.	

Clean inside the power supply

1. Turn OFF the power to the power supply.
2. Remove the top and side panels of the power supply.
3. Use low pressure air or a vacuum to remove any accumulation of dust and particles from:
 - ☐ The top and side panels
 - ☐ The inside of the power supply
 - ☐ The fans
4. Remove dust and particles from circuit boards.



Be careful not to damage the circuit boards.

5. Install the top and side panels before you turn ON the power.

Clean the chiller air filter

These instructions are only for the PolyScience chiller. If you do not use a PolyScience chiller, refer to the chiller manufacturer manual for air filter replacement and more information on how to clean the air filter.

Chillers have 3 reusable air filters. Chillers in dusty environments need their filters cleaned more frequently.

Do not let the air filters become clogged with dust. This reduces air flow and can decrease cooling efficiency. It can also lead to filter breakthrough, allowing dust to get into the condenser coils.

To remove and clean the chiller's air filters:

1. Hold the strap at the bottom center of the filter and carefully lift it up and away from the chiller housing.
2. Use a water or high pressure air stream directed through the back of the air filter (the downstream side) to remove dust from the filter. Let the filter dry, as required.
3. Position the top edge of filter in the upper channel of the chiller housing.
4. Carefully lift on the bottom strap while pushing the bottom edge of the filter toward the housing.

Clean inside the chiller

1. Turn OFF the power to the chiller.
2. Remove the top and side panels.
3. Blow out or vacuum any accumulation of dust and particulates from:
 - ❑ The top and side panels
 - ❑ The inside of the chiller
 - ❑ The fans
4. Remove dust and particulates from circuit boards.



Be careful not to damage the circuit boards.

5. Install the top and side panels before you turn ON the power.

Examine the coolant system

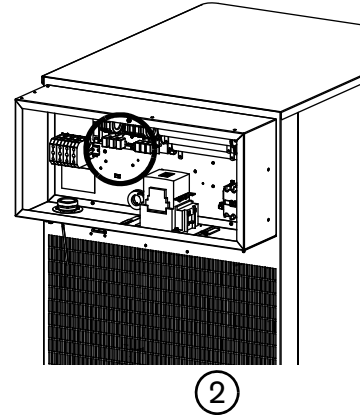
Examine the coolant system for coolant leaks at all connections. Make sure you examine:

- The ignition console
- The torch main body
- The internal connection in the power supply
- All of the connections in the chiller

Preventive Maintenance Program

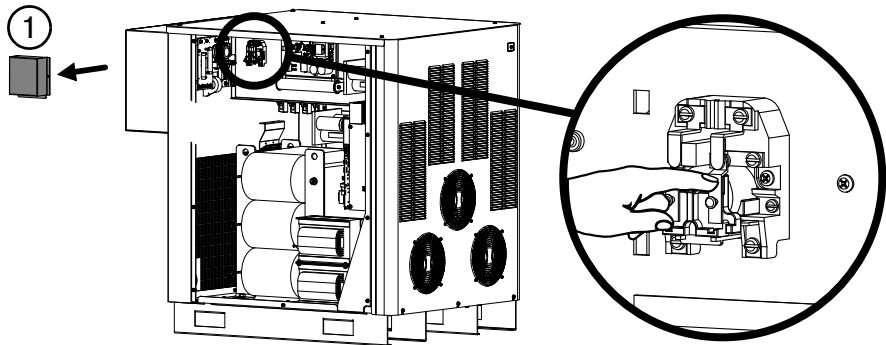
Examine the main contactor

1. Examine the contacts in the main contactor for black or rough surfaces.
2. If you find too much of this condition, replace the main contactor.



Examine the pilot arc relay

1. Remove the cover of the pilot arc relay.
2. Examine the contacts inside the relay for black or rough surfaces.
3. If you find too much of this condition, replace the pilot arc relay.
4. Install the cover of the pilot arc relay.



Be careful that you do not pinch the wires between the cover and the center panel.

Do the coolant flow test

- Do the coolant flow test and record the coolant flow rate. You can find the coolant flow rate on the diagnostic screen on the CNC. For more information, see *Do a check of the coolant flow* on page 13.
- If the flow rate is below 2.9 L/min (0.75 g/min), do the coolant flow test in *Coolant flow tests* in the *Maintenance* section of your system's instruction manual. You may need to service the coolant system or replace the coolant pump or motor.
- The flow alarm turns on when the flow rate is below 2.3 L/min (0.6 g/min). For more information, see *Testing the flow sensor* in the *Maintenance* section of your system's instruction manual.
- Examine the coolant tank for contamination. If you find any contamination, flush the tank. See *Do a check of the coolant level and condition* on page 11 for instructions.
- Make sure that you use the correct Hypertherm coolant (028872) or use water that meets the requirements in *Water purity requirements* in the *Installation* section of your system's instruction manual.

Examine the gas line connections

Spray all of the gas line connections with soapy water. If bubbles appear on a gas line, tighten or replace it as necessary. See *Part numbers for HPR800XD Auto Gas cables and leads* on page 26 for lengths and part numbers.

**CAUTION!**

Do not clean brass connections with ammonia-based cleaners. Ammonia causes brass to crack and become brittle.

Examine the hoses

Examine each hose for kinks or sharp bends that can restrict gas flow or cause damage to the hose.

If the cutting table uses a power track system to support the leads that go from the power supply to the gas console or torch, look at the position of the leads in the track. Make sure the leads do not twist or kink. This can cause a restriction.

Examine the cables

Examine all cables for scratches or unusual wear. If the outside insulation is cut or has any other damage, replace the cable. See *Part numbers for HPR800XD Auto Gas cables and leads* on page 26 for lengths and part numbers.

Examine the ground connections

Make sure that all components of the system are individually grounded to a driven earth ground. See the *Installation and Grounding* section of your system's instruction manual.

Examine the table-to-workpiece connection

Examine the work lead (+) connection where the work lead (+) connects to the cutting table.

Make sure that there is no paint, oil, dirt, or rust on the workpiece. This type of contamination prevents a clean metal-to-metal contact between the work lead and the cutting table or workpiece. It can also cause arc-transfer problems.

Component replacement schedule

This is a list of components and their recommended replacement schedules. The schedule uses total arc hours to estimate when to replace a component. The use of cumulative arc hours is the most accurate method to estimate when you need to replace a component.

If you have a Hypertherm CNC, you can find the total number of arc hours on the CNC. See *Find arc hour data on a Hypertherm CNC* on page 25. You can also find cumulative arc hours on a serial communication link between your CNC and power supply.

If you do not have a Hypertherm CNC and your CNC cannot track arc hours, use the guide below to estimate arc hours per year. This guide uses the average number of 8-hour shifts that the system operates on an average work day. For more information about calculating arc hours, contact your table manufacturer.

Average shifts per day	Estimated arc hours per year
1	500
2	1,000
3	1,500

Your cutting area and operations can have an effect on this schedule. See *Cutting area and operation effects* on page 21.

Record information about your system and its replacement requirements in the following places:

- *Part numbers for HPR800XD Auto Gas cables and leads* on page 26
- *System information* on page 31
- *Notes* on page 32

Table 2

Item Number	Quantity	Component	Cumulative number of arc hours											
			500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000
428263	1	Torch rebuild and filter kit without coolant*	X	X	X	X	X	X	X	X	X	X	X	X
428264	1	Torch rebuild and filter kit with coolant*	X	X	X	X	X	X	X	X	X	X	X	X
028872	4 – 6	Coolant (in gallons)**	X	X	X	X	X	X	X	X	X	X	X	X
		Kit: Electronics***												
428270	2	200 V – 240 V		X		X		X		X		X		X
428272		380 V – 600 V												
003249	2	Inrush contactor		X		X		X		X				X
220705	1	Quick-disconnect torch receptacle				X				X				X
	1	Torch lead†				X				X				X
006113	1	Coolant check valve						X						X
006077	2	Gas check valve						X						X
027079	6	10-inch fan						X						X
127039	16	6-inch fan						X						X
229235	1	Coolant flow switch						X						X
229345	1	Coolant solenoid valve						X						X
	1	Gas lead†						X						X
	1	Pilot arc lead†						X						X
041802	1	Power board (PCB2)											X	
041817	1	Ignition board (PCB IGN)											X	
006109	3	Gas solenoid valve‡											X	
228984	2												X	
129854	1	High-frequency transformer (T1)											X	
005263	8	Gas pressure sensor												X
229213	2	I/O board												X
		Chiller coolant pump												
040296	1	200 V – 460 V												X
040297		575 V – 600 V												
129792	8	Chopper												X

Preventive Maintenance Program

- * This kit includes the air filter (011110), coolant filter (027664), and torch rebuild kit (428252).
- ** The number of gallons you need depends on the length of the leads. See your system's instruction manual for more information, then record this number in *Coolant requirements* on page 31.
- *** Kit 428270 includes a pilot arc relay (003149), contactor (003218), and torch main body (220706). Kit 428272 includes a pilot arc relay (003149), contactor (003233), and torch main body (220706). See your system's instruction manual for the correct voltage, then record this number in *System voltage* on page 31.
- † Record the part numbers for cables and leads in *Part numbers for HPR800XD Auto Gas cables and leads* on page 26 so you can refer to this information when you replace these components.
- * The gas solenoid valves that are connected to the air lines must be maintained. The quantity of gas solenoid valves given is the quantity of valves connected to the air lines not the total quantity of valves in the system.

Cutting area and operation effects

The component replacement schedule is for reference only. Your cutting area conditions and operations can have an effect on your component replacement schedule.

These topics give the most common conditions and operations that increase the wear on some components in your plasma system. This wear decreases system performance and component life. If any of these conditions or operations apply, change your replacement schedule as suggested.

How much you need to change your schedule depends on how bad the condition is. If you have questions about your replacement schedule, contact your OEM or regional Hypertherm Technical Service team.

External cutting area

Consumables and torch assemblies stored in dirty cutting areas with no protection can collect contamination, such as dirt and metal dust. If this contamination gets into the torch or coolant, it can cause the following problems:

- Prevent O-rings and seals on the torch heads and receptacles from sealing
- Increase wear on torch heads and receptacles
- Increase wear on the coolant pump
- Cause unsatisfactory operation of the coolant flow switch



It can help to flush the coolant system or clean the flow switch. But, it can be necessary to replace the coolant switch to fully repair the operation of the coolant loop system.

The best solution is to store consumables and torch assemblies in a clean, protective space. Another solution is to use compressed air to clean these parts before you use them.

If you cannot store your consumables and torch heads in a protective space, you can replace the following components more frequently.

Description	Part number
HPRXD quick-disconnect torch receptacle	220705
HPRXD quick-disconnect torch	220706
Coolant flow switch	229235

Preventive Maintenance Program

Incoming air supply quality

To maintain system performance, it is important that the incoming air supply is clean. If the air supply has dirt, oil, or water in it, components can become clogged or defective. An air supply of bad quality can cause the following problems:

- Decrease air flow
- Increase system errors (044, 053, 057, or 058)
- Decrease cut quality and performance

Oil in the torch head can cause a fire when the oil reacts with the oxygen cutting process. Also, unwanted material in pressure sensors can cause false pressure readings.

The best solution, if possible, is to improve the quality of the air supply. Contact your OEM or regional Hypertherm Technical Service team if you need advice on how to improve the quality of your air supply.

If you cannot change your air supply quality, you can replace the following components more frequently.

Description	Part number
Air filter element	011110
HPRXD quick-disconnect torch	220706
Gas check valve	006077
Gas solenoid valve	006109
Kit: Gas solenoid valve	228984
Gas pressure sensor	005263

Metal dust inside the power supply cabinet

Plasma cutting makes metal dust. If metal dust collects inside the plasma power supply, it can decrease the life of the fans and coolant pump motor.

The main power supply, chopper, or heat exchanger fans can operate more slowly, or failure of the fans can occur. This can cause temperature-related errors (065, 066, 067, or 071). The coolant pump motor can become too hot and operate incorrectly.

The best solution to extend the life of the fans and coolant pump motor is to clean inside of the power supply. For instructions, see *Clean inside the power supply* on page 14.

If metal dust has collected inside your power supply, you can replace the following components more frequently.

Description	Part number
6-inch fan	127039
10-inch fan	027079
Heat-exchange fan	027658
Coolant pump motor 200 V – 460 V	040296
Coolant pump motor 575 V – 600 V	040297

Consumable use

If you let consumables reach complete failure, they can melt. Copper pieces can then break off and go into the coolant. In the coolant, these pieces can cause the following problems:

- Decrease coolant flow
- Increase coolant flow errors (093)
- Cause damage to the consumables
- Cause coolant to leak at the check valve when you change the consumables
- Cause inaccurate coolant flow readings
- Decrease the life of the coolant pump
- Decrease the life of the check valve

When you do maintenance, examine the coolant filter for copper pieces. If you find copper pieces in the coolant filter, replace both the filter and coolant. If a coolant flow error (093) occurs after you replace the filter and coolant, use the troubleshooting procedure in your system's instruction manual to find the correct action.

The best solution is to follow the usage guidelines for your consumables. However, if overuse occurs, you can replace the following components more frequently.

Description	Part number
Coolant	028872
HPRXD quick-disconnect torch receptacle	220705
HPRXD quick-disconnect torch	220706
Coolant filter element	027664
Coolant check valve	006113
Coolant flow switch	229235

Cut-cycle time

When the cut-cycle is very short, relays operate more frequently. The system also pierces more frequently. Examples of this type of cycle are when you cut many small holes or make markings for numbers and letters. These types of operations can cause the following problems:

- Increase wear on pilot arc relay contact pads
- Increase wear on the starting components, such as the high-frequency transformer and the high-frequency ignition board
- Increase misfires and error codes (020 or 021)

If your cut-cycle is short, you can replace the following components more frequently.

Description	Part number
Pilot arc relay	003149
Contactor (200 V – 240 V)	003218
Contactor (380 V – 600 V)	003233
HPRXD quick-disconnect torch	220706
High-frequency transformer	129854
High-frequency ignition board (PCB)	041817

Find arc hour data on a Hypertherm CNC

To find arc hour data with Phoenix™ software (versions 7.0, 8.0, and 9.0), from the CNC Main screen, go to **Setups > Diagnostics > HPR System**.

-  If you do not see the **HPR System** softkey, make sure that the HPR and station selection switch are ON.
-  If a control board in the plasma system is replaced, the **Arc On Statistics** values are reset to 0.
-  An HPR system with a Manual Gas console but without serial communication does not have this screen.

Arc On Statistics	
Arc On Time	0 hours
System On Time	0 hours
Total Starts	0
Total Start Errors	0
Total Ramp Errors	0

Make sure that you have the latest Phoenix software and plasma system software so that you have the most accurate **Arc On Time** information.

- To find the Phoenix software version number go to **Setups > Diagnostics**.
- To find the plasma system software version number go to **Setups > Diagnostics > HPR System**.

Software Versions	
Operating System	5.01.2600 SP3
Operator Interface	9.75.2
Virtual Device Driver	
Motion Control Card	6.00.0
SERCOS Slaves	Not Found
Hypertherm Network	2.03

Software Revisions	
Power Supply	
Gas Console	

Part numbers for HPR800XD Auto Gas cables and leads

Primary power supply to secondary power supply cables

Interface cable

Part number	Length
223071	4.5 m (15 ft)
223098	7.5 m (25 ft)

Communication cable

Part number	Length
123839	4.5 m (15 ft)
123691	7.5 m (25 ft)

Power supply to ignition console leads

Pilot arc lead

Part number	Length	Part number	Length
123683*	1.5 m (5 ft)	123823	20 m (65 ft)
123820	3 m (10 ft)	123735	25 m (82 ft)
123821	4.5 m (15 ft)	123668	35 m (115 ft)
123666	7.5 m (25 ft)	123669	45 m (150 ft)
123822	10 m (35 ft)	123824	60 m (200 ft)
123667	15 m (50 ft)	123825	75 m (250 ft)

* This cable is for use with systems that have the ignition console mounted on the power supply.

Negative lead

Part number	Length	Part number	Length
123418	3 m (10 ft)	123996	25 m (82 ft)
023382	4.5 m (15 ft)	123997	35 m (115 ft)
023078	7.5 m (25 ft)	023081	45 m (150 ft)
123994	10 m (35 ft)	023188	60 m (200 ft)
023079	15 m (50 ft)	023815	75 m (250 ft)
123995	20 m (65 ft)		

Ignition console power cable

Part number	Length	Part number	Length
123865*	2.1 m (7 ft)	123836	20 m (65 ft)
123419	3 m (10 ft)	123425	22.5 m (75 ft)
123834	4.5 m (15 ft)	123736	25 m (82 ft)
123420	6 m (20 ft)	123426	30 m (100 ft)
123670	7.5 m (25 ft)	123672	35 m (115 ft)
123422	9 m (30 ft)	123938	37.5 m (125 ft)
123835	10 m (35 ft)	123673	45 m (150 ft)
123423	12 m (40 ft)	123837	60 m (200 ft)
123671	15 m (50 ft)	123838	75 m (250 ft)

* This cable is for use with systems that have the ignition console mounted on the power supply.

Coolant hoses**Chiller-interface console to ignition console**

Part number	Length	Part number	Length
128499	1.5 m (5 ft)	128078	25 m (82 ft)
028652	3 m (10 ft)	028444	30 m (100 ft)
028440	4.5 m (15 ft)	028896	35 m (115 ft)
028441	7.5 m (25 ft)	028445	45 m (150 ft)
128173	10 m (35 ft)	028637	60 m (200 ft)
028442	15 m (50 ft)	128985	75 m (250 ft)
128984	20 m (65 ft)		

Chiller to chiller-interface console

Part number	Length	Part number	Length
228540	4.5 m (15 ft)	228542	15 m (50 ft)
228541	7.5 m (25 ft)		

Power supply to chiller cables**Control cable**

Part number	Length	Part number	Length
123844	1.5 m (5 ft)	123839	4.5 m (15 ft)
123784	3 m (10 ft)		

Power cable

Part number	Length	Part number	Length
123979	1.5 m (5 ft)	123981	4.5 m (15 ft)
123980	3 m (10 ft)		

Preventive Maintenance Program

Power supply to selection console cables

Control cable

Part number	Length	Part number	Length
123784*	3 m (10 ft)	123841	20 m (65 ft)
123839	4.5 m (15 ft)	123737	25 m (82 ft)
123963	6 m (20 ft)	123738	35 m (115 ft)
123691	7.5 m (25 ft)	123739	45 m (150 ft)
123840	10 m (35 ft)	123842	60 m (200 ft)
123711	15 m (50 ft)	123843	75 m (250 ft)

* This cable is for use with systems that have the selection console mounted on the power supply.

Power cable

Part number	Length	Part number	Length
123785*	3 m (10 ft)	123848	20 m (65 ft)
123846	4.5 m (15 ft)	123740	25 m (82 ft)
123964	6 m (20 ft)	123676	35 m (115 ft)
123674	7.5 m (25 ft)	123677	45 m (150 ft)
123847	10 m (35 ft)	123849	60 m (200 ft)
123675	15 m (50 ft)	123850	75 m (250 ft)

* This cable is for use with systems that have the selection console mounted on the power supply.

Cable and gas hose assembly (selection console to metering console)

Part number	Length	Part number	Length
128992	3 m (10 ft)	128994	10 m (35 ft)
128993	4.5 m (15 ft)	128930	15 m (50 ft)
228338	6 m (20 ft)	128995	20 m (65 ft)
128952	7.5 m (25 ft)		

Power supply to CNC interface cable

Part number	Length	Part number	Length
123210	3 m (10 ft)	123851	20 m (65 ft)
123211	4.5 m (15 ft)	123217	22.5 m (75 ft)
123212	6 m (20 ft)	123741	25 m (82 ft)
123022	7.5 m (25 ft)	123218	30 m (100 ft)
123213	9 m (30 ft)	123742	35 m (115 ft)
123214	10 m (35 ft)	123219	37.5 m (125 ft)
123215	12 m (40 ft)	123220	45 m (150 ft)
123216	13.5 m (45 ft)	123852	60 m (200 ft)
123023	15 m (50 ft)	123853	75 m (250 ft)
123494	16.5 m (55 ft)		

Torch lead

Part number	Length	Part number	Length
228291	2 m (6 ft)	228295	7.5 m (25 ft)
228292	3 m (10 ft)	228296	10 m (35 ft)
228293	4.5 m (15 ft)	228297	15 m (50 ft)
228294	6 m (20 ft)		

Work lead

Part number	Length	Part number	Length
123418	3 m (10 ft)	123996	25 m (82 ft)
023382	4.5 m (15 ft)	123997	35 m (115 ft)
023078	7.5 m (25 ft)	023081	45 m (150 ft)
123994	10 m (35 ft)	023188	60 m (200 ft)
023079	15 m (50 ft)	023815	75 m (250 ft)
123995	20 m (65 ft)		

Ohmic contact wire

Part number	Length	Part number	Length
123983	3 m (10 ft)	123988	15 m (50 ft)
123984	6 m (20 ft)	123989	23 m (75 ft)
123985	7.5 m (25 ft)	123990	30 m (100 ft)
123986	9 m (30 ft)	123991	45 m (150 ft)
123987	12 m (40 ft)		

Supply gas hoses

Air hose

Part number	Length	Part number	Length
024671	3 m (10 ft)	024740	25 m (82 ft)
024658	4.5 m (15 ft)	024676	30 m (100 ft)
024659	7.5 m (25 ft)	024744	35 m (115 ft)
024765	10 m (35 ft)	024678	45 m (150 ft)
024660	15 m (50 ft)	024680	60 m (200 ft)
024766	20 m (65 ft)	024767	75 m (250 ft)

Argon-hydrogen (H35) or nitrogen-hydrogen (F5) hose

Part number	Length	Part number	Length
024768	3 m (10 ft)	024741	25 m (82 ft)
024655	4.5 m (15 ft)	024742	35 m (115 ft)
024384	7.5 m (25 ft)	024743	45 m (150 ft)
024769	10 m (35 ft)	024771	60 m (200 ft)
024656	15 m (50 ft)	024772	75 m (250 ft)
024770	20 m (65 ft)		

Nitrogen or argon hose

Part number	Length	Part number	Length
024210	3 m (10 ft)	024739	25 m (82 ft)
024203	4.5 m (15 ft)	024116	30 m (100 ft)
024134	7.5 m (25 ft)	024451	35 m (115 ft)
024211	10 m (35 ft)	024120	45 m (150 ft)
024112	15 m (50 ft)	024124	60 m (200 ft)
024763	20 m (65 ft)	024764	75 m (250 ft)

Oxygen hose

Part number	Length	Part number	Length
024607	3 m (10 ft)	024738	25 m (82 ft)
024204	4.5 m (15 ft)	024206	30 m (100 ft)
024205	7.5 m (25 ft)	024450	35 m (115 ft)
024760	10 m (35 ft)	024159	45 m (150 ft)
024155	15 m (50 ft)	024333	60 m (200 ft)
024761	20 m (65 ft)	024762	75 m (250 ft)

System information

Model number _____

Serial number _____

System voltage

- ☐ 200 V/208 V
- ☐ 220 V
- ☐ 240 V
- ☐ 380 V (CCC)
- ☐ 400 V (CE)
- ☐ 415 V (CE)
- ☐ 440 V
- ☐ 480 V (CSA)
- ☐ 600 V (CSA)

Coolant requirements

- ☐ 11.4 L (3 gal)
- ☐ 15.1 L (4 gal)
- ☐ 18.9 L (5 gal)
- ☐ 22.7 L (6 gal)
- ☐ 26.5 L (7 gal)
- ☐ Other:

Preventive Maintenance Program

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Maintenance log for HPR800XD Auto Gas plasma systems

[illegible]