HYPERTHERM®
A Hypertherm Associates Brand

Multi-Ratio Voltage Divider PCB (0 V – 10 V) Installation Steps for XPR®, MAXPRO200™, and HPRXD®

Field Service Bulletin

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Hypertherm, Inc.
21 Great Hollow 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)
800-643-9878 Tel (Technical Service)
technical.service@hypertherm.com (Technical Service)
800-737-2978 Tel (Customer Service)
customer.service@hypertherm.com (Customer Service)

Hypertherm México, S.A. de C.V.
52 55 5681 8109 Tel
52 55 5681 7978 Tel
soporte.tecnico@hypertherm.com (Technical Service)

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.emeia@hypertherm.com (Technical Service)

Hypertherm (Singapore) Pte Ltd.
Solaris @ Kallang 164
164 Kallang Way #03-13
Singapore 349248, Republic of Singapore
65 6841 2489 Tel
65 6841 2490 Fax
marketing.asia@hypertherm.com (Marketing)
techsupportapac@hypertherm.com (Technical Service)

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)
techsupportapac@hypertherm.com (Technical Service)

Hypertherm Europe B.V.
Laan van Kopenhagen 100
3317 DM Dordrecht
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.emeia@hypertherm.com (Technical Service)

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)

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)

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)
techsupportapac@hypertherm.com (Technical Service)

Hypertherm Pty Limited
GPO Box 4836
Sydney NSW 2001, Australia
61 7 3103 1695 Tel
61 7 3219 9010 Fax
au.sales@hypertherm.com (Main Office)
techsupportapac@hypertherm.com (Technical Service)

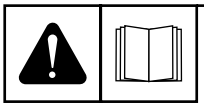
Hypertherm (India) Thermal Cutting Pvt. Ltd
A-18 / B-1 Extension,
Mohan Co-Operative Industrial Estate,
Mathura Road, New Delhi 110044, India
91-11-40521201/ 2/ 3 Tel
91-11 40521204 Fax
htindia.info@hypertherm.com (Main Office)
technicalservice.emeia@hypertherm.com (Technical Service)

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ENGLISH

WARNING! Before operating any Hypertherm equipment, read the safety instructions in your product's manual, the *Safety and Compliance Manual* (80669C), *Waterjet Safety and Compliance Manual* (80943C), and *Radio Frequency Warning Manual* (80945C). Failure to follow safety instructions can result in personal injury or in damage to equipment.

Copies of the manuals can come with the product in electronic and printed formats. Electronic copies are also on our website. Many manuals are available in multiple languages at www.hypertherm.com/docs.

BG (БЪЛГАРСКИ/BULGARIAN)

ПРЕДУПРЕЖДЕНИЕ! Преди да работите с което и да е оборудване Hypertherm, прочетете инструкциите за безопасност в ръководството на вашия продукт, „Инструкция за безопасност и съответствие“ (80669C), „Инструкция за безопасност и съответствие на Waterjet“ (80943C) и „Инструкция за предупреждение за радиочестота“ (80945C).

Продуктът може да е съпроводен от копия на ръководствата в електронен и в печатен формат. Тези в електронен формат са достъпни също на уебсайта ни. Много ръководства са налице на няколко езика на адрес www.hypertherm.com/docs.

CS (ČESKY/CZECH)

VAROVÁNÍ! Před uvedením jakéhokoli zařízení Hypertherm do provozu si přečtěte bezpečnostní pokyny v příručce k produktu a v *Manuálu pro bezpečnost a dodržování předpisů* (80669C), *Manuálu pro bezpečnost a dodržování předpisů při řezání vodním paprskem* (80943C) a *Manuálu varování ohledně rádiových frekvencí* (80945C).

Kopie příruček mohou být součástí dodávky produktu, a to v elektronické i tištěné formě. Elektronické kopie jsou k dispozici i na našich webových stránkách. Mnoho příruček je k dispozici v různých jazycích na stránce www.hypertherm.com/docs.

DA (DANSK/DANISH)

ADVARSEL! Inden Hypertherm udstyr tages i brug skal sikkerhedsinstruktionerne i produktets manual og i *Manual om sikkerhed og overholdelse af krav* (80669C), *Manual om sikkerhed og overholdelse af krav for vandstråleskæring* (80943C), og *Manual om radiofrekvensadvarsel* (80945C), gennemlæses.

Kopier af manualerne kan leveres med produktet i elektronisk og trykt format. Elektroniske kopier findes også på vores hjemmeside. Mange manualer er tilgængelige på flere sprog på www.hypertherm.com/docs.

DE (DEUTSCH/GERMAN)

WARNUNG! Bevor Sie ein Hypertherm-Gerät in Betrieb nehmen, lesen Sie bitte die Sicherheitsanweisungen in Ihrer Bedienungsanleitung, das *Handbuch für Sicherheit und Übereinstimmung* (80669C), das *Handbuch für Sicherheit und Compliance bei Wasserstrahl-Schneidanlagen* (80943C) und das *Handbuch für Hochfrequenz-Warnung* (80945C).

Bedienungsanleitungen und Handbücher können dem Gerät in elektronischer Form oder als Druckversion beiliegen. In elektronischer Form liegen sie auch auf unserer Website vor. Viele Handbücher stehen in verschiedenen Sprachen auf www.hypertherm.com/docs zur Verfügung.

ES (ESPAÑOL/SPANISH)

¡ADVERTENCIA! Antes de operar cualquier equipo Hypertherm, lea las instrucciones de seguridad del manual de su producto, del *Manual de seguridad y cumplimiento* (80669C), del *Manual de seguridad y cumplimiento en corte con chorro de agua* (80943C) y del *Manual de advertencias de radiofrecuencia* (80945C).

El producto puede incluir copias de los manuales en formato digital e impreso. Las copias digitales también están en nuestra página web. Hay diversos manuales disponibles en varios idiomas en www.hypertherm.com/docs.

ET (EESTI/ESTONIAN)

HOIATUS! Enne Hyperthermi mis tahes seadme kasutamist lugege läbi toote kasutusjuhendis olevad ohutusjuhised ning *Ohutus- ja vastavusjuhend* (80669C), *Veejoa ohutuse ja vastavuse juhend* (80943C) ja *Raadiosageduse hoiatusjuhend* (80945C). Ohutusjuhiste eiramine võib põhjustada vigastusi ja kahjustada seadmeid.

Juhiste koopiad võivad tootega kaasas olla elektrooniliselt või trükituna. Elektroonilised koopiad on saadaval ka meie veebilehel. Paljud kasutusjuhendid on erinevates keeltes saadaval veebilehel www.hypertherm.com/docs.

FI (SUOMI/FINNISH)

VAROITUS! Ennen minkään Hypertherm-laitteen käyttöä lue tuotteen käyttöoppaassa olevat turvallisuusohjeet, *turvallisuuden ja vaatimustenmukaisuuden käsikirja* (80669C), vesileikkauksen *turvallisuuden ja vaatimustenmukaisuuden käsikirja* (80943C) ja *radiotaajuusvaroitusten käsikirja* (80945C).

Käyttöoppaiden kopiot voivat olla tuotteen mukana sähköisessä ja tulostetussa muodossa. Sähköiset kopiot ovat myös verkkosivustollamme. Monet käyttöoppaat ovat myös saatavissa useilla kielillä www.hypertherm.com/docs.

FR (FRANÇAIS/FRENCH)

AVERTISSEMENT! Avant d'utiliser tout équipement Hypertherm, lire les consignes de sécurité du manuel de votre produit, du *Manuel de sécurité et de conformité* (80669C), du *Manuel de sécurité et de conformité du jet d'eau* (80943C) et du *Manuel d'avertissement relatif aux radiofréqunces* (80945C).

Les exemplaires des manuels qui accompagnent le produit peuvent être sous forme électronique ou papier. Les manuels sous forme électronique se trouvent également sur notre site Internet. Plusieurs manuels sont offerts en plusieurs langues à www.hypertherm.com/docs.

GR (ΕΛΛΗΝΙΚΑ/GREEK)

ΠΡΟΕΙΔΟΠΟΙΗΣΗ! Πριν θέσετε σε λειτουργία οποιονδήποτε εξοπλισμό της Hypertherm, διαβάστε τις οδηγίες ασφαλείας στο εγχειρίδιο του προϊόντος και στο *εγχειρίδιο ασφάλειας και συμμόρφωσης* (80669C), στο *εγχειρίδιο ασφάλειας και συμμόρφωσης του waterjet* (80943C) και στο *εγχειρίδιο προειδοποιήσεων για τις ραδιοσυχνότητες* (80945C).

Το προϊόν μπορεί να συνοδεύεται από αντίγραφα των εγχειριδίων σε ηλεκτρονική και έντυπη μορφή. Τα ηλεκτρονικά αντίγραφα υπάρχουν επίσης στον ιστότοπό μας. Πολλά εγχειρίδια είναι διαθέσιμα σε διάφορες γλώσσες στο www.hypertherm.com/docs.

HU (MAGYAR/HUNGARIAN)

VIGYÁZAT! Mielőtt bármilyen Hypertherm berendezést üzemeltetne, olvassa el a biztonsági információkat a termék kézikönyvében, a *Biztonsági és szabálykövetési kézikönyvben* (80669C), a *Vízsugaras biztonsági és szabálykövetési kézikönyvben* (80943C) és a *Rádiófrekvenciás figyelmeztetéseket tartalmazó kézikönyvben* (80945C).

A termékhez a kézikönyv példányai elektronikus és nyomtatott formában is mellékelve lehetnek. Az elektronikus példányok webhelyünkön is megtalálhatók. Számos kézikönyv áll rendelkezésre több nyelven a www.hypertherm.com/docs weboldalon.

ID (BAHASA INDONESIA/INDONESIAN)

PERINGATAN! Sebelum mengoperasikan peralatan Hypertherm, bacalah petunjuk keselamatan dalam manual produk Anda, *Manual Keselamatan dan Kepatuhan* (80669C), *Manual Keselamatan dan Kepatuhan Jet Air* (80943C), dan *Manual Peringatan Frekuensi Radio* (80945C). Kegagalan mengikuti petunjuk keselamatan dapat menyebabkan cedera pribadi atau kerusakan pada peralatan.

Produk mungkin disertai salinan manual atau petunjuk dalam format elektronik maupun cetak. Salinan elektronik juga tersedia di situs web kami. Berbagai manual tersedia dalam beberapa bahasa di www.hypertherm.com/docs.

IT (ITALIANO/ITALIAN)

AVVERTENZA! Prima di usare un'attrezzatura Hypertherm, leggere le istruzioni sulla sicurezza nel manuale del prodotto, nel *Manuale sulla sicurezza e la conformità* (80669C), nel *Manuale sulla sicurezza e la conformità Waterjet* (80943C) e nel *Manuale di avvertenze sulla radiofrequenza* (80945C).

Copie del manuale possono accompagnare il prodotto in formato cartaceo o elettronico. Le copie elettroniche sono disponibili anche sul nostro sito web. Molti manuali sono disponibili in diverse lingue all'indirizzo www.hypertherm.com/docs.

JA (日 本語/JAPANESE)

警告！Hypertherm 機器を操作する前に、この製品説明書にある安全情報、「安全とコンプライアンスマニュアル」(80669C)、「ウォータージェットの安全とコンプライアンス」(80943C)、「高周波警告」(80945C) をお読みください。

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。電子コピーは当社ウェブサイトにも掲載されています。説明書の多くは www.hypertherm.com/docs にて複数の言語でご用意しています。

KO (한국어/KOREAN)

경고! Hypertherm 장비를 사용하기 전에 제품 설명서와 안전 및 규정 준수 설명서(80669C), 워터젯 안전 및 규정 준수 설명서(80943C) 그리고 무선 주파수 경고 설명서(80945C)에 나와 있는 안전 지침을 읽으십시오.

전자 형식과 인쇄된 형식으로 설명서 사본이 제품과 함께 제공될 수 있습니다. 전자 사본도 Hypertherm 웹사이트에서 보실 수 있으며 설명서 사본은 www.hypertherm.com/docs 에서 여러 언어로 제공됩니다.

NE (NEDERLANDS/DUTCH)

WAARSCHUWING! Lees voordat u Hypertherm-apparatuur gebruikt de veiligheidsinstructies in de producthandleiding, in de *Veiligheids- en nalevingshandleiding* (80669C) in de *Veiligheids- en nalevingshandleiding voor waterstralen* (80943C) en in de *Waarschuwingshandleiding radiofrequentie* (80945C).

De handleidingen kunnen in elektronische en gedrukte vorm met het product worden meegeleverd. Elektronische versies zijn ook beschikbaar op onze website. Veel handleidingen zijn in meerdere talen beschikbaar via www.hypertherm.com/docs.

NO (NORSK/NORWEGIAN)

ADVARSEL! Før du bruker noe Hypertherm-utstyr, må du lese sikkerhetsinstruksjonene i produktets håndbok, *håndboken om sikkerhet og samsvar* (80669C), *håndboken om vannjet sikkerhet og samsvar* (80943C), og *håndboken om radiofrekvensadvarsler* (80945C).

Eksemplarer av håndbøkene kan følge med produktet i elektronisk og trykt form. Elektroniske eksemplarer finnes også på nettstedet vårt. Mange håndbøker er tilgjengelig i flere språk på www.hypertherm.com/docs.

PL (POLSKI/POLISH)

OSTRZEŻENIE! Przed rozpoczęciem obsługi jakiegokolwiek systemu firmy Hypertherm należy się zapoznać z instrukcjami bezpieczeństwa zamieszczonymi w podręczniku produktu, w p*odręczniku bezpieczeństwa i zgodności* (80669C), *podręczniku bezpieczeństwa i zgodności systemów strumienia wody* (80943C) oraz *podręczniku z ostrzeżeniem o częstotliwości radiowej* (80945C).

Do produktu mogą być dołączone podręczniki użytkownika w formie elektronicznej i drukowanej. Kopie elektroniczne znajdują się również w naszej witrynie internetowej. Wiele podręczników jest dostępnych w różnych językach pod adresem www.hypertherm.com/docs.

PT (PORTUGUÊS/PORTUGUESE)

ADVERTÊNCIA! Antes de operar qualquer equipamento Hypertherm, leia as instruções de segurança no manual do seu produto, no *Manual de Segurança e de Conformidade* (80669C), no *Manual de Segurança e de Conformidade do Waterjet* (80943C) e no *Manual de Advertência de radiofrequência* (80945C).

Cópias dos manuais podem vir com o produto nos formatos eletrônico e impresso. Cópias eletrônicas também são encontradas em nosso website. Muitos manuais estão disponíveis em vários idiomas em www.hypertherm.com/docs.

RO (ROMÂNĂ/ROMANIAN)

AVERTIZARE! Înainte de utilizarea oricărui echipament Hypertherm, citiți instrucțiunile de siguranță din manualul produsului, *manualul de siguranță și conformitate* (80669C), *manualul de siguranță și conformitate Waterjet* (80943C) și din *manualul de avertizare privind radiofrecvența* (80945C).

Produsul poate fi însoțit de copii ale manualelor în format tipărit și electronic. Exemplarele electronice sunt disponibile și pe site-ul nostru web. Numeroase manuale sunt disponibile în mai mult limbi la adresa: www.hypertherm.com/docs.

RU (РУССКИЙ/RUSSIAN)

БЕРЕГИСЬ! Перед работой с любым оборудованием Hypertherm ознакомьтесь с инструкциями по безопасности, представленными в руководстве, которое поставляется вместе с продуктом, в *Руководстве по безопасности и соответствию* (80669C), в *Руководстве по безопасности и соответствию для водоструйной резки* (80943C) и *Руководстве по предупреждению о радиочастотном излучении* (80945C).

Копии руководств, которые поставляются вместе с продуктом, могут быть представлены в электронном и бумажном виде. Электронные копии также доступны на нашем веб-сайте. Целый ряд руководств доступны на нескольких языках по ссылке www.hypertherm.com/docs.

SK (SLOVENČINA/SLOVAK)

VÝSTRAHA! Pred použitím akéhokoľvek zariadenia od spoločnosti Hypertherm si prečítajte bezpečnostné pokyny v návode na obsluhu vášho zariadenia a v *Manuáli o bezpečnosti a súlade s normami* (80669C), *Manuáli o bezpečnosti a súlade s normami pre systém rezania vodou* (80943C) a v *Manuáli s informáciami o rádiofrekvencii* (80945C).

Návod na obsluhu sa dodáva spolu s produktom v elektronickej a tlačenej podobe. Jeho elektronický formát je dostupný aj na našej webovej stránke. Mnohé z návodov na obsluhu sú dostupné vo viacjazyčnej mutácii na stránke www.hypertherm.com/docs.

SL (SLOVENŠČINA/SLOVENIAN)

OPOZORILO! Pred uporabo katerekoli Hyperthermove opreme preberite varnostna navodila v priročniku vašega izdelka, v *Priročniku za varnost in skladnost* (80669C), v P*riročniku za varnost in skladnost sistemov rezanja z vodnim curkom* (80943C) in v *Priročniku Opozorilo o radijskih frekvencah* (80945C).

Izvodi priročnikov so lahko izdelku priloženi v elektronski in tiskani obliki. Elektronski izvodi so na voljo tudi na našem spletnem mestu. Številni priročniki so na voljo v različnih jezikih na naslovu www.hypertherm.com/docs.

SR (SRPSKI/SERBIAN)

UPOZORENJE! Pre rukovanja bilo kojom Hyperthermovom opremom pročitajte uputstva o bezbednosti u svom priručniku za proizvod, *Priručniku o bezbednosti i usaglašenosti* (80669C), *Priručniku o bezbednosti i usaglašenosti Waterjet tehnologije* (80943C) i *Priručniku sa upozorenjem o radio-frekvenciji* (80945C).

Уз производ се испоручују копије приручника у електронском или штампаном формату. Електронске копије су такође доступне на нашем веб-сајту. Многи приручници су доступни на више језика на адреси www.hypertherm.com/docs.

SV (SVENSKA/SWEDISH)

VARNING! Läs häftet säkerhetsinformationen i din produkts *säkerhets- och efterlevnadsmanual* (80669C), *säkerhets- och efterlevnadsmanualen för Waterjet* (80943C) och *varningsmanualen för radiofrekvenser* (80945C) för viktig säkerhetsinformation innan du använder eller underhåller Hypertherm-utrustning.

Kopior av manualerna kan medfölja produkten i elektroniskt och tryckt format. Elektroniska kopior finns också på vår webbplats. Många manualer finns på flera språk på www.hypertherm.com/docs.

TH (ภาษาไทย/THAI)

คำเตือน! ก่อนการใช้งานอุปกรณ์ของ Hypertherm ทั้งหมด โปรดอ่านคำแนะนำด้านความปลอดภัยในคู่มือการใช้สินค้า คู่มือด้านความปลอดภัยและการปฏิบัติตาม (80669C), คู่มือด้านความปลอดภัยและการปฏิบัติตามสำหรับการใช้หัวตัดระบบวอเตอร์เจ็ต (80943C) และ คู่มือคำเตือนเกี่ยวกับความถี่วิทยุ (80945C) การไม่ปฏิบัติตามคำแนะนำด้านความปลอดภัยอาจส่งผลให้เกิดการบาดเจ็บหรือเกิดความเสียหายต่ออุปกรณ์

สำเนาคู่มือทั้งในรูปแบบอิเล็กทรอนิกส์และแบบสิ่งพิมพ์จะถูกแนบมาพร้อมกับผลิตภัณฑ์ สำเนาคู่มือในรูปแบบอิเล็กทรอนิกส์ของผลิตภัณฑ์และสำเนาคู่มือต่าง ๆ ในหลากหลายภาษานั้นยังมีให้บริการบนเว็บไซต์ www.hypertherm.com/docs ของเราอีกด้วย

TR (TÜRKÇE/TURKISH)

UYARI! Bir Hypertherm ekipmanını çalıştırmadan önce, ürününüzün kullanım kılavuzunda, *Güvenlik ve Uyumluluk Kılavuzu'nda* (80669C), *Su Jeti Güvenlik ve Uyumluluk Kılavuzu'nda* (80943C) ve *Radyo Frekansı Uyarısı Kılavuzu'nda* (80945C) yer alan güvenlik talimatlarını okuyun.

Kılavuzların kopyaları, elektronik ve basılı formatta ürünle birlikte verilebilir. Elektronik kopyalar web sitemizde de yer alır. Kılavuzların birçoğu www.hypertherm.com/docs adresinde birçok dilde mevcuttur.

VI (TIẾNG VIỆT/VIETNAMESE)

CẢNH BÁO! Trước khi vận hành bất kỳ thiết bị Hypertherm nào, hãy đọc các hướng dẫn an toàn trong hướng dẫn sử dụng sản phẩm của bạn, *Sổ tay An toàn và Tuân thủ* (80669C), *Sổ tay An toàn và Tuân thủ Tia nước* (80943C), và *Hướng dẫn Cảnh báo Tần số Vô tuyến* (80945C). Không tuân thủ các hướng dẫn an toàn có thể dẫn đến thương tích cá nhân hoặc hư hỏng thiết bị.

Bản sao của sổ tay có thể đi kèm với sản phẩm ở định dạng điện tử và in. Bản điện tử cũng có trên trang web của chúng tôi. Nhiều sổ tay có sẵn bằng nhiều ngôn ngữ tại www.hypertherm.com/docs .

ZH-CN (简 体中文/CHINESE SIMPLIFIED)

警告！ 在操作任何海宝设备之前，请阅读产品手册、《安全和法规遵守手册》(80669C)、《水射流安全和法规遵守手册》 (80943C) 以及 《射频警告手册》(80945C) 中的安全操作说明。

随产品提供的手册可提供电子版和印刷版两种格式。电子版本同时也在我们的网站上提供。很多手册有多种语言版本，详见 www.hypertherm.com/docs.

ZH-TW (繁 體中文/CHINESE TRADITIONAL)

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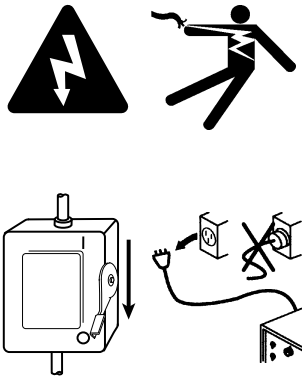
電子版和印刷版手冊複本可能隨產品附上。您也可以前往我們的網站下載電子版手冊。我們的網站上還以多種語言形式提供多種手冊，請造訪 www.hypertherm.com/docs 。

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Introduction

⚠ WARNING



ELECTRIC SHOCK CAN KILL

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- Store PCBs in anti-static containers.
- Wear a grounded wrist strap when handling PCBs.

Purpose

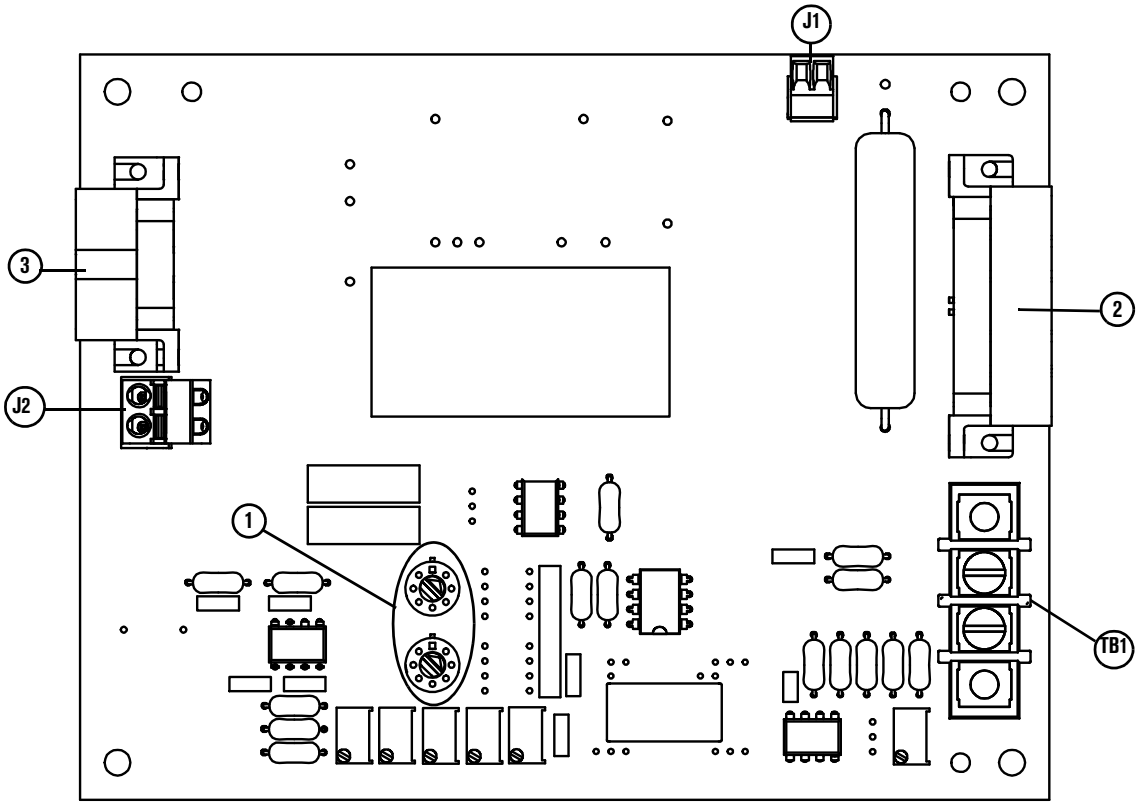
This Field Service Bulletin shows how to install a multi-ratio voltage divider PCB (141561) in an XPR, MAXPRO200, and HPRXD plasma power supply. The 141561 PCB is compatible with the following Hypertherm cutting systems:

- XPR170, XPR300
- MAXPRO200
- HPR130XD, HPR260XD, HPR400XD

Figure 1 on page 8 shows a detailed view of the 141561 PCB.

Table 1 on page 8 shows an overview of 141561 PCB connections (input and output).

Figure 1 – Detailed view of 141561 PCB



J1 120 VAC wires connector

J2 Multi-ratio voltage divider PCB cable connector

TB1 Connector for arc voltage wires

1 Rotary dials for voltage-ratio settings

2 REC1

3 REC2

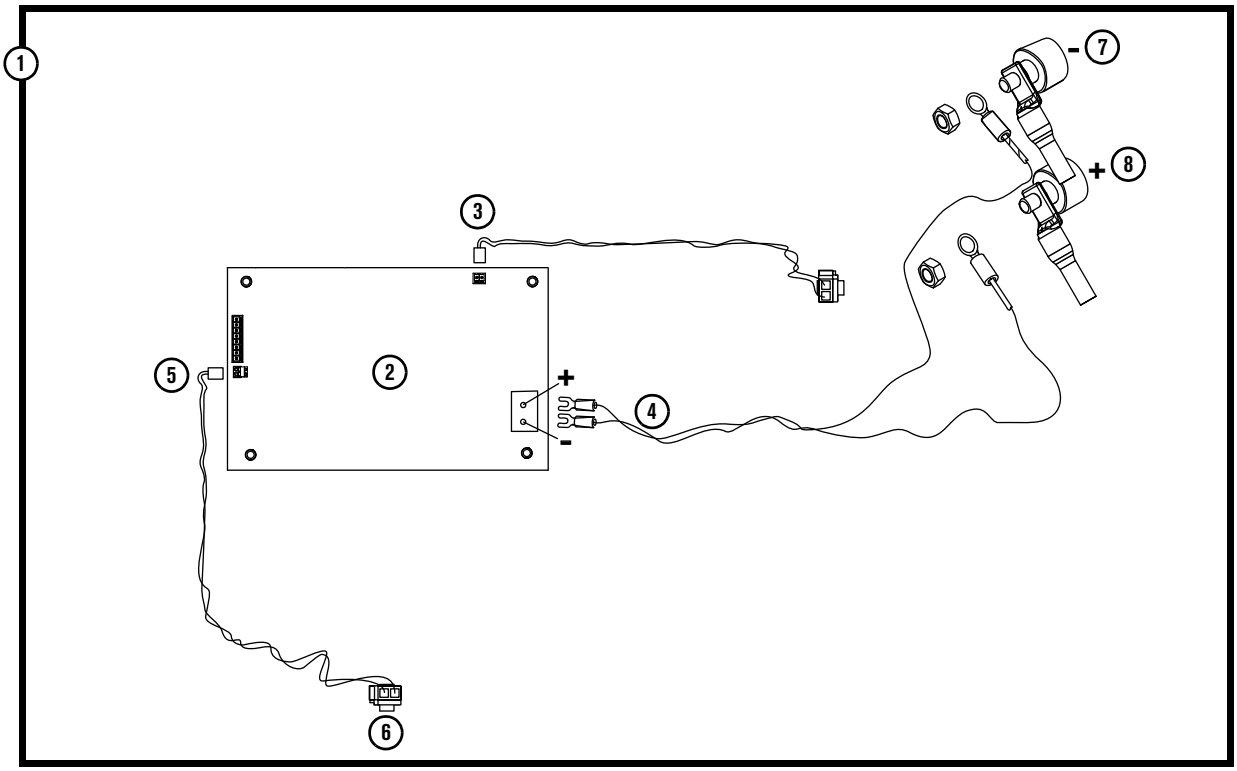
Table 1 – Connector pins (input and output) on the 141561 PCB

Connector	Pin number	Description	Connector	Pin number	Description
J1	1	120 VAC line input	REC1*	5	120 VAC return input
J1	2	120 VAC return input	REC1*	6	120 VAC line input
J2	1	Divided arc voltage out + output	REC2**	1	Divided arc voltage out + output
J2	2	Divided arc voltage out - output	REC2**	2	Divided arc voltage out - output
TB1	2	Raw arc voltage in + (WORK) input			
TB1	1	Raw arc voltage in - (NEG) input			

* The REC1 wires are attached in parallel with J1.

** The REC2 wires are attached in parallel with J2.

Figure 2 – Overview of the 141561 PCB connections in an example plasma power supply



1 Plasma power supply

2 PCB: multi-ratio voltage divider (141561)

The following wire connectors are on an internal panel in the plasma power supply:

3 Wires: multi-ratio voltage divider PCB 120 VAC

4 Wires: arc voltage

5 Male connector on the 141561 PCB (pre-installed on the PCB)

6 Cable and connector to the computer numerical controller (CNC) (customer supplied)

7 Negative (NEG) bolt

8 WORK bolt

This field service bulletin contains the following product-specific 141561 PCB installation steps:

- PCB installation in an XPR170 or XPR300 on page 11
- PCB installation in a MAXPRO200 on page 17
- PCB installation in an HPR130XD or HPR260XD on page 23
- PCB installation in an HPR400XD on page 30

Voltage ratio adjustments

The 141561 PCB has a default voltage ratio of 30:1. You can change the voltage-ratio requirements of your cutting system. Use the two rotary dials on the 141561 PCB to adjust the S1 and S2 settings that control voltage ratios. Table 2 shows the available S1 and S2 settings.



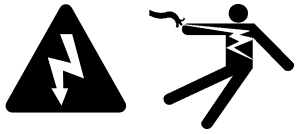
Table 2 – Voltage-ratio settings

Voltage Ratio	Rotary dial setting for S1	Rotary dial setting for S2
16:1	4	1
20:1	3	1
25:1	2	1
30:1*	**1***	**1***
40:1	3	3
50:1	2	3
60:1	1	3
100:1	2	4

* Default voltage ratio.

PCB installation in an XPR170 or XPR300

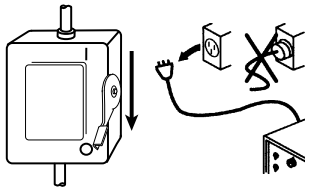
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- Wear a grounded wrist strap when handling PCBs.

Kit 428993 contents

Part number	Description	Quantity
810930	Field service bulletin: multi-ratio voltage divider PCB (0 V – 10 V) installation steps for XPR, MAXPRO200, and HPRXD	1
141561	PCB: multi-ratio voltage divider (includes one pre-installed male connector)	1
229833*	Multi-ratio voltage divider 120 VAC wire harness	1
002566*	Electrical insulation	1
075386*	6-32 X 1/2-inch screws	4
075485*	10-32 X 3/8-inch screws	3
108844*	Grommet	1
229554*	AC power wire harness for MAXPRO200	1
229602*	Arc voltage wire harness for MAXPRO200	1

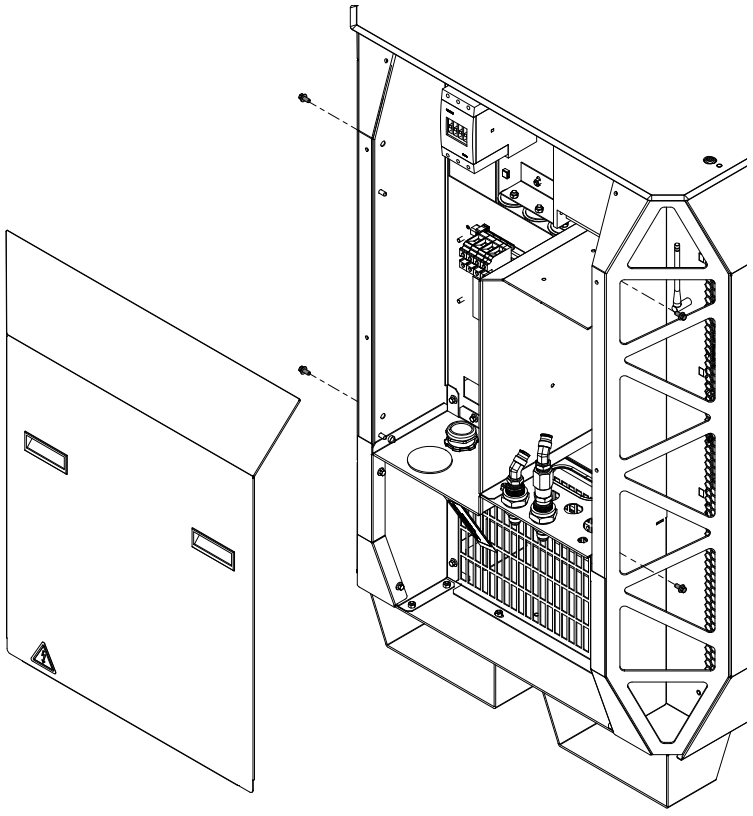
* This kit component is **not** used in an XPR170 or XPR300 cutting system. Recycle it, if possible. Discard if not.

Tools and materials needed

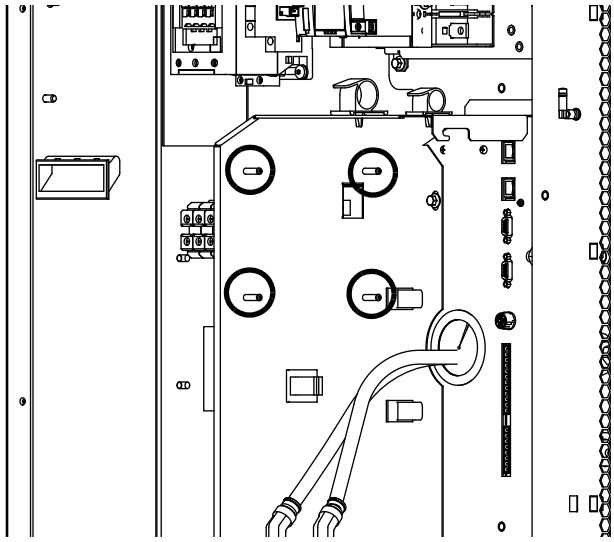
- 10 mm hexagonal socket wrench
- #2 Phillips® screwdriver
- Small blade screwdriver
- Torque screwdriver
- 17 mm torque wrench

Install the PCB

1. Remove the power from the cutting system.
2. Remove the supply-gas pressure from the cutting system.
3. Use a 10 mm hexagonal socket wrench to remove the rear panel of the plasma power supply.

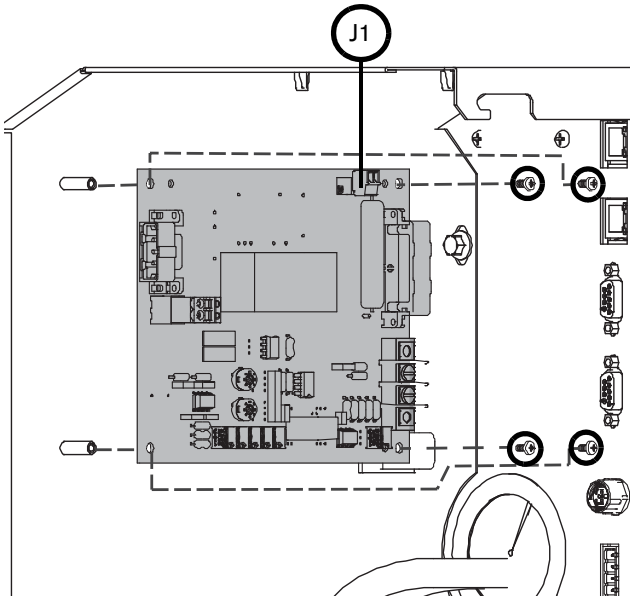


4. Use a #2 Phillips screwdriver to remove the four screws from the studs.

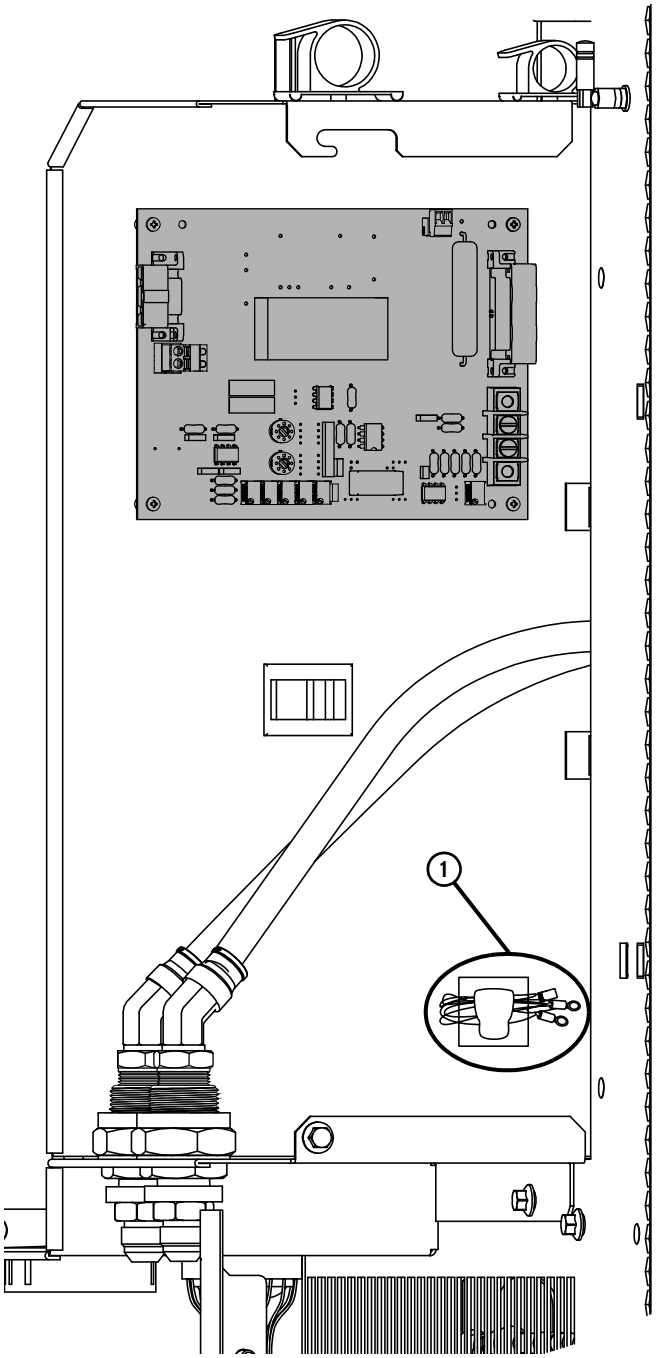


5. With J1 on top, install the 141561 PCB on the four studs.

6. Use a torque screwdriver to tighten the four screws to 0.9 N·m (8 lbf·in) torque.



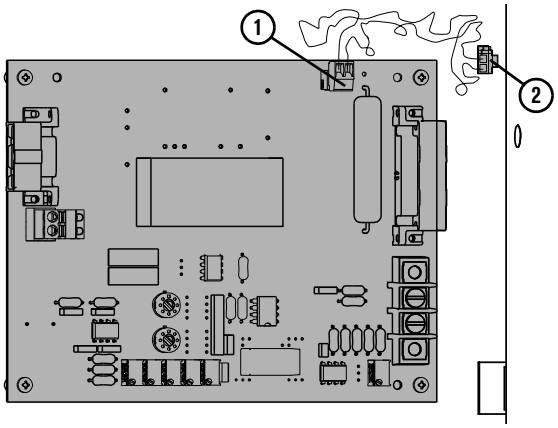
7. Remove the bundled wire harnesses from the wire harness holder ① on the internal panel in the plasma power supply.



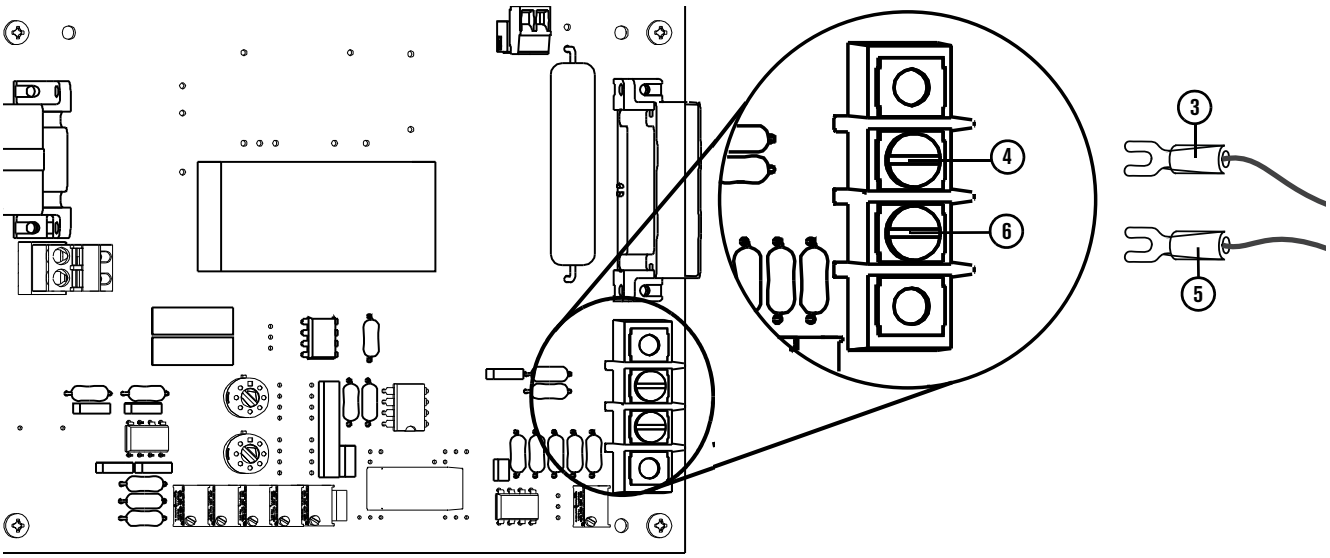
The plasma power supply comes with a wire-harness holder on an internal panel. The wire harnesses in the XPR170 and XPR300 plasma power supply include the yellow and yellow-black arc voltage wires.

Connect the PCB

1. Connect J8.1 from the 120 VAC wires to J1 ① on the 141561 PCB.
2. Connect J23 from the 120 VAC wires to the 120 VAC connector in the plasma power supply ②.



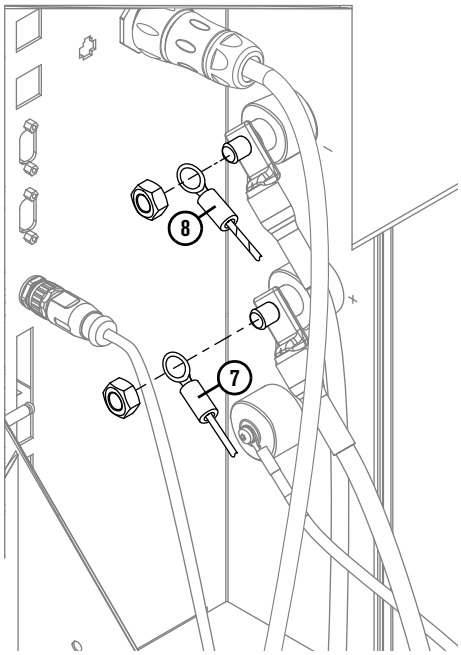
3. Use a torque screwdriver to attach the spade terminals of the arc voltage wires to the 141561 PCB:
   a. Connect the **yellow** (WORK) wire ③ to the TB1+2 terminal ④.
   b. Connect the **yellow-black** (NEG) wire ⑤ to the TB-1 terminal ⑥.
   c. Tighten the screws to 0.9 N·m (8 lbf·in) torque.



4. Use a 17 mm torque wrench to attach the ring terminal on the **yellow** (WORK) wire ⑦ to the WORK bolt in the plasma power supply. Tighten the nut to 20 N·m (15 lbf·ft) torque.

5. Use a 17 mm torque wrench to attach the ring terminal on the **yellow-black** (NEG) wire ⑧ to the negative (NEG) bolt in the plasma power supply. Tighten the nut to 20 N·m (15 lbf·ft) torque.

   Other wires are already attached to the bolts in the plasma power supply. Attach the arc voltage wires on top of the existing wires.



6. Use VOLTS OUT + (pin 1) and VOLTS OUT - (pin 2) to connect the 141561 PCB to the CNC:
   - Connect the **red** wire for VOLTS OUT + to J1 (pin 1).
   - Connect the **white** wire for VOLTS OUT - to J1 (pin 2).

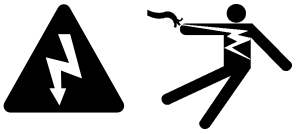
   Refer to Table 1 on page 8 for descriptions of connector pins (input and output). Use the interface requirements of your CNC for additional connection requirements.

7. Examine the 141561 PCB installation location and connections. Make sure that they are correct and tight.

8. Install the rear panel of the plasma power supply.

PCB installation in a MAXPRO200

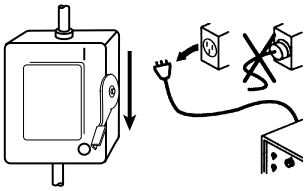
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002566*	Electrical insulation	1
075386*	6-32 X 1/2-inch screws	4
075485*	10-32 X 3/8-inch screws	3
108844*	Grommet	1
229554	AC power wire harness for MAXPRO200	1
229602	Arc voltage wire harness for MAXPRO200	1

* This kit component is **not** used in a MAXPRO200 cutting system. Recycle it, if possible. Discard if not.

Tools and materials needed

- 3/8-inch socket wrench
- Blade screwdriver
- #2 Phillips screwdriver
- 10 mm hexagonal socket wrench
- Torque screwdriver

Install the PCB

1. Remove the power from the cutting system.
2. Remove the supply-gas pressure from the cutting system.
3. Use a 3/8-inch socket wrench to remove the right-side panel from the plasma power supply.
4. Use a blade screwdriver to remove the four screws from the studs located on the right of the rear panel in the plasma power supply, as shown in Figure 3.

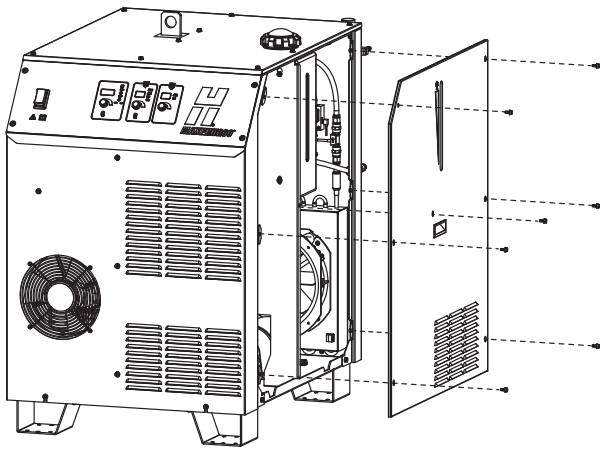
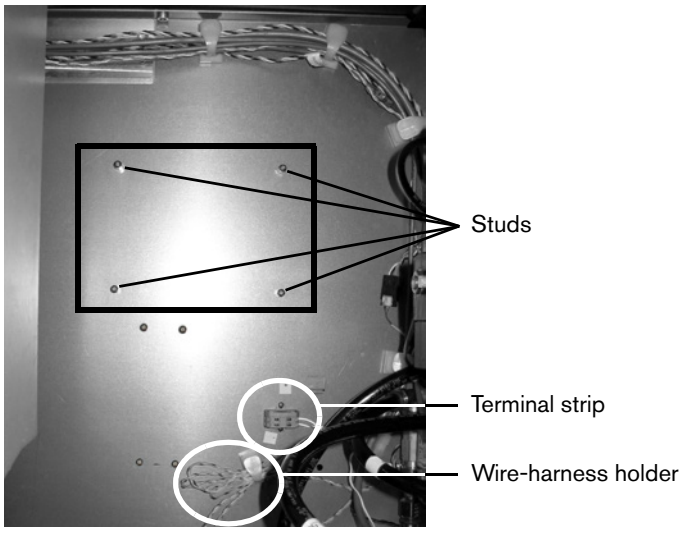


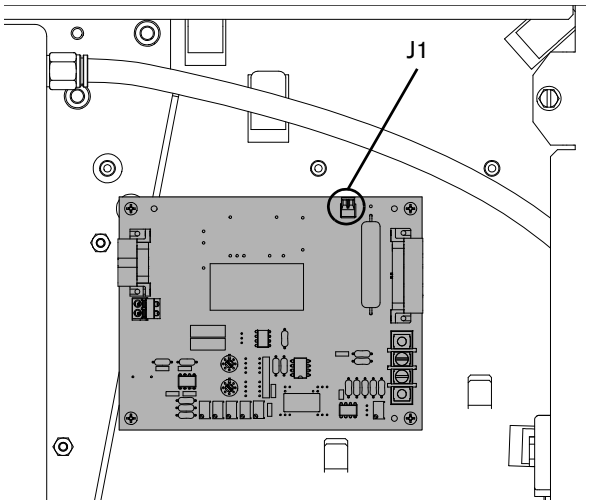
Figure 3 – Location of studs, terminal strip, and wire-harness holder in the plasma power supply



The plasma power supply comes with a wire-harness holder on an internal panel. The wire harnesses in the MAXPRO200 plasma power supply include the red and red-black J18 wires and the yellow and yellow-black arc voltage wires.

5. With J1 on top, install the 141561 PCB on the four studs in the plasma power supply.

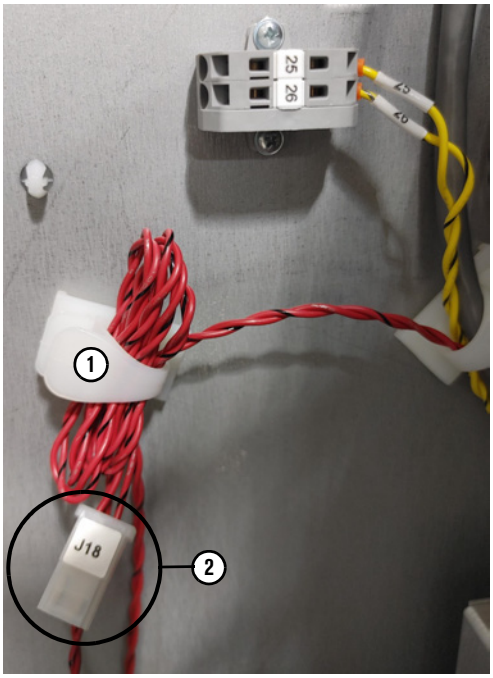
6. Use a torque screwdriver to attach the four screws. Tighten the screws to 0.9 N·m (8 lbf·in) torque.



Connect the PCB

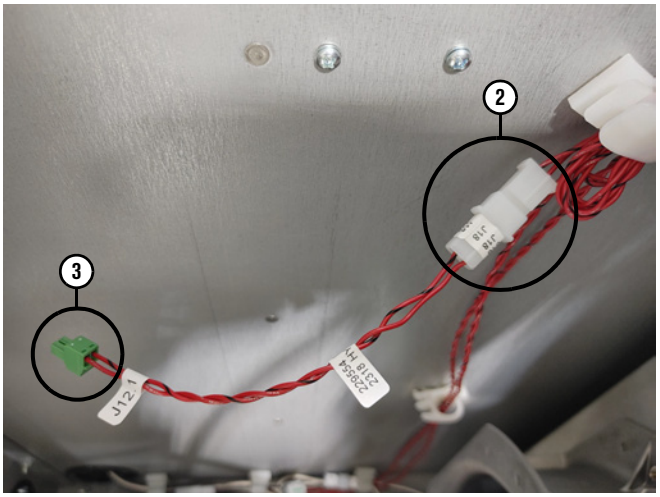
1. Remove the bundled **red** and **red-black** J18 wire connector from the wire-harness holder ① in the plasma power supply.

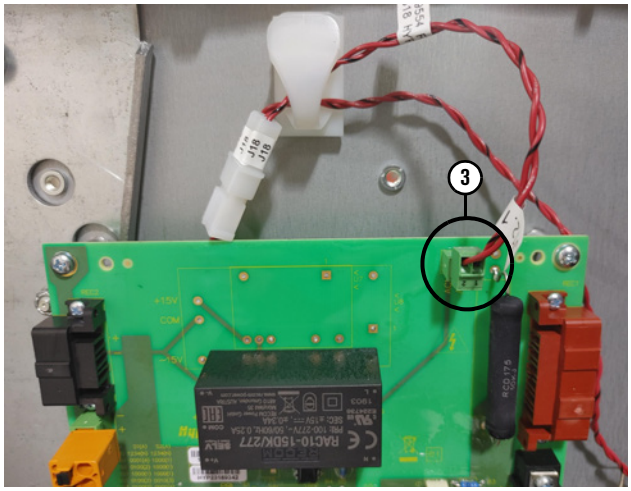
2. Connect the J18 wire connector ② to the J1 wire connector on the **red** and **red-black** AC power wire harness (229554).



3. If the J1 connector on the 141561 PCB has a pre-installed connector, remove the pre-installed connector and discard it.

4. Connect the other connector of the **red** and **red-black** AC power wire harness (229554) to the J1 connector on the 141561 PCB ③.





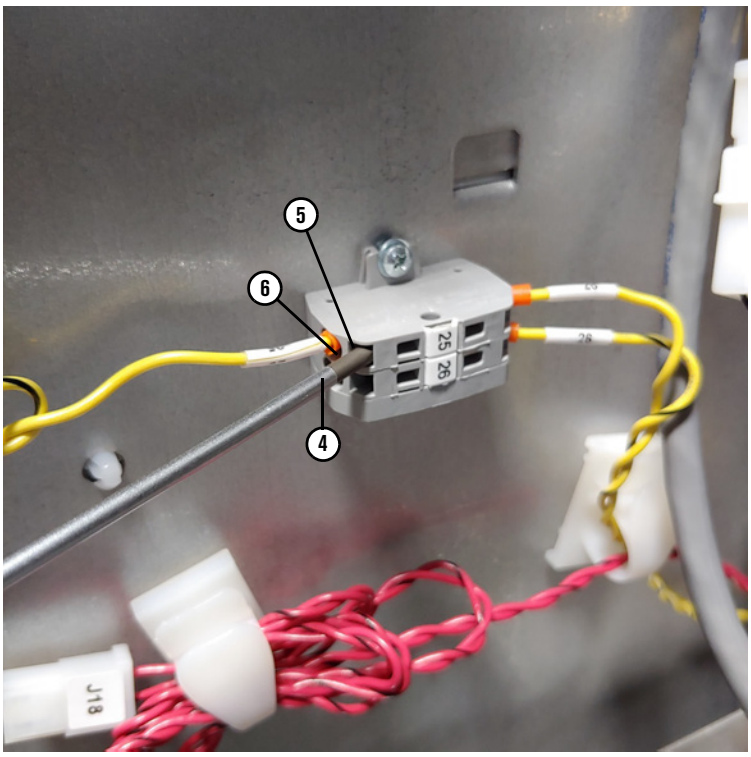
5. Use a blade screwdriver to attach the arc voltage wire harness (229602) to the 141561 PCB:
   a. Open the contact for the **25** terminal connector by inserting a blade screwdriver ④ into the square opening ⑤ for the **25** terminal connector.
   b. While the screwdriver is in the square opening, put the **yellow** wire into the circular opening ⑥ for the **25** terminal connector (**+2**).

      The yellow wire has positive (+) polarity.

   c. Remove the screwdriver to close the contact for the **25** terminal connector. Make sure that the connection is tight.
   d. Repeat step a to step c for the **yellow-black** wire and **26** terminal connector (**-1**).

      The yellow-black wire has negative (-) polarity.

   e. Make sure that the **yellow** and the **yellow-black** arc voltage wires are in the correct circular openings and that the connections are tight.



6. Use a torque screwdriver to attach the spade terminals of the arc voltage wires to the 141561 PCB:
   a. Connect the **yellow** (WORK) wire ⑦ to the TB1+2 terminal ⑧.
   b. Connect the **yellow-black** (NEG) wire ⑨ to the TB-1 terminal ⑩.
7. Tighten the screws to 0.9 N·m (8 lbf·in) torque.
8. Examine the 141561 PCB installation location and connections. Make sure that they are correct, as shown in Figure 4.

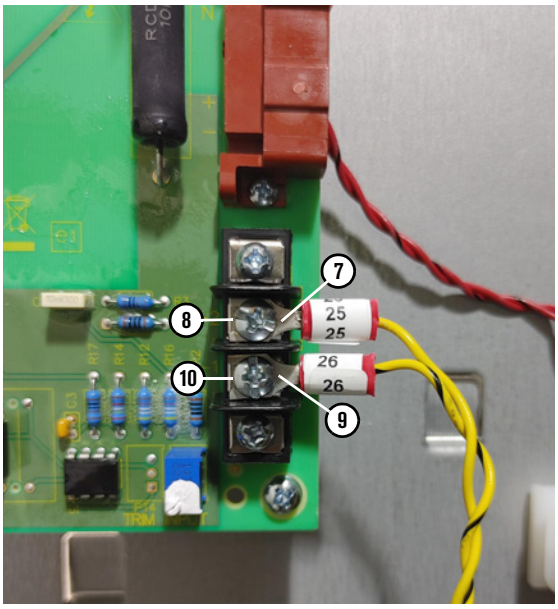
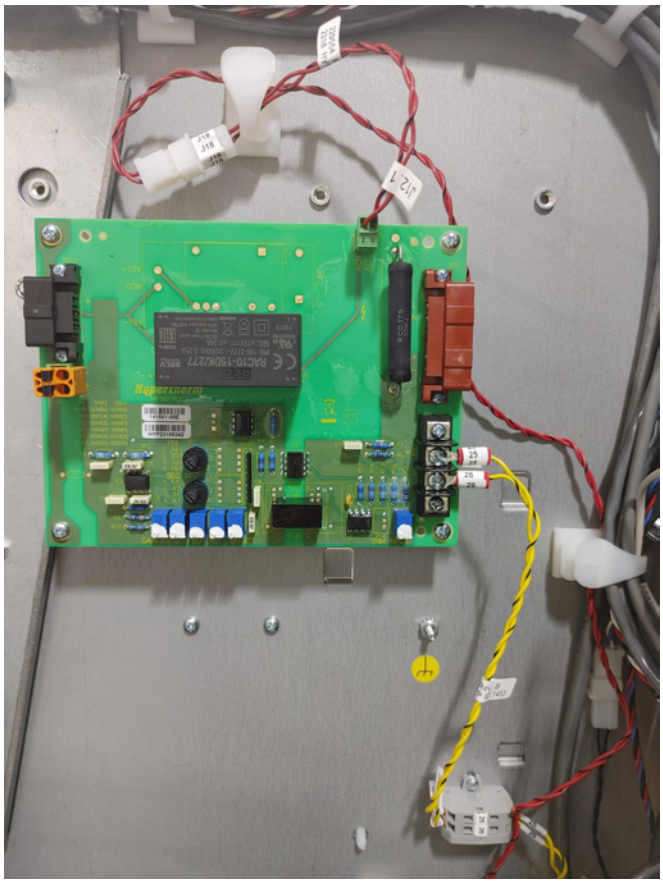


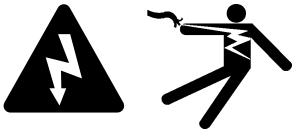
Figure 4 – PCB installed in the MAXPRO200 plasma power supply



9. Install the right-side panel on the plasma power supply.

PCB installation in an HPR130XD or HPR260XD

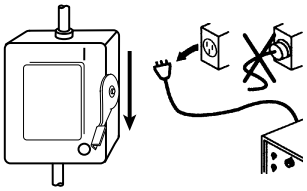
⚠ WARNING



ELECTRIC SHOCK CAN KILL

Disconnect electrical power before doing installation or maintenance.

The line-disconnect switch must REMAIN in the OFF position until all installation or maintenance steps are complete.



In the United States, use a “lock out/tag out” procedure until installation or maintenance is complete. In other countries, follow the appropriate national and local safety procedures.

Refer to the *Safety and Compliance Manual* (80669C) for more safety information.

⚠ CAUTION



STATIC ELECTRICITY CAN DAMAGE PRINTED CIRCUIT BOARDS

Use precautions when handling printed circuit boards (PCBs) to protect them from static electricity. Correct PCB handling includes the following steps:

- Store PCBs in anti-static containers.
- Wear a grounded wrist strap when handling PCBs.

Kit 428993 contents

Part number	Description	Quantity
810930	Field service bulletin: multi-ratio voltage divider PCB (0 V – 10 V) installation steps for XPR, MAXPRO200, and HPRXD	1
141561	PCB: multi-ratio voltage divider (includes one pre-installed male connector)	1
229833	Multi-ratio voltage divider 120 VAC wire harness	1
002566*	Electrical insulation	1
075386*	6-32 X 1/2-inch screws	4
075485*	10-32 X 3/8-inch screws	3
108844*	Grommet	1
229554*	AC power wire harness for MAXPRO200	1
229602*	Arc voltage wire harness for MAXPRO200	1

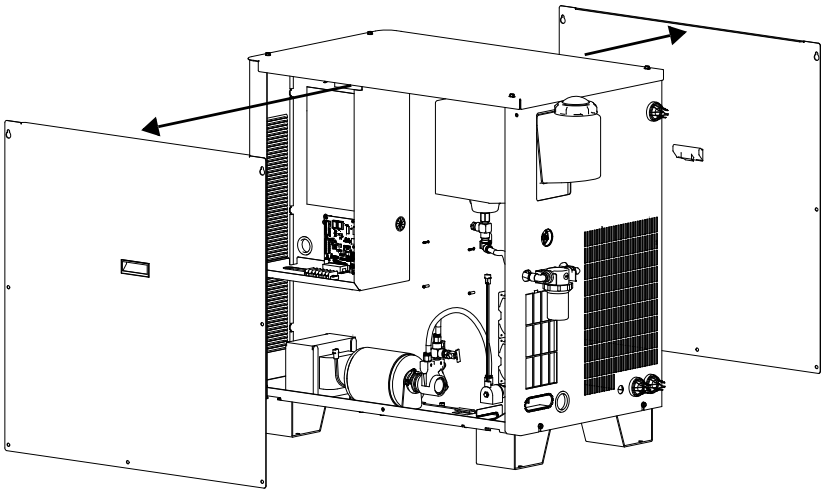
* This kit component is **not** used in an HPR130XD or HPR260XD cutting system. Recycle it, if possible. Discard if not.

Tools and materials needed

- 3/8-inch socket wrench
- 1/4-inch socket wrench
- 10 mm hexagonal socket wrench
- #2 Phillips screwdriver
- Small blade screwdriver
- Torque screwdriver

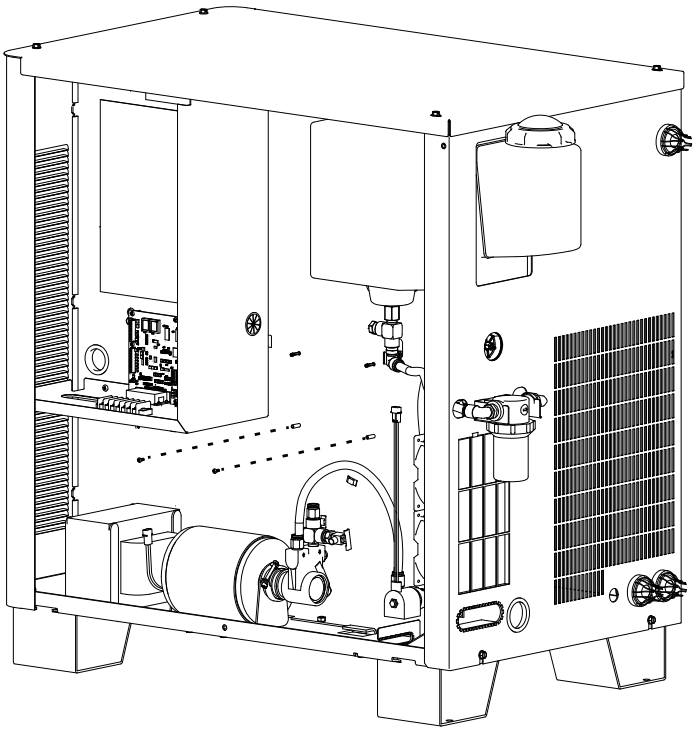
Install the PCB

1. Remove the power from the cutting system.
2. Remove the supply-gas pressure from the cutting system.
3. Remove the left-side and right-side panels of the plasma power supply.

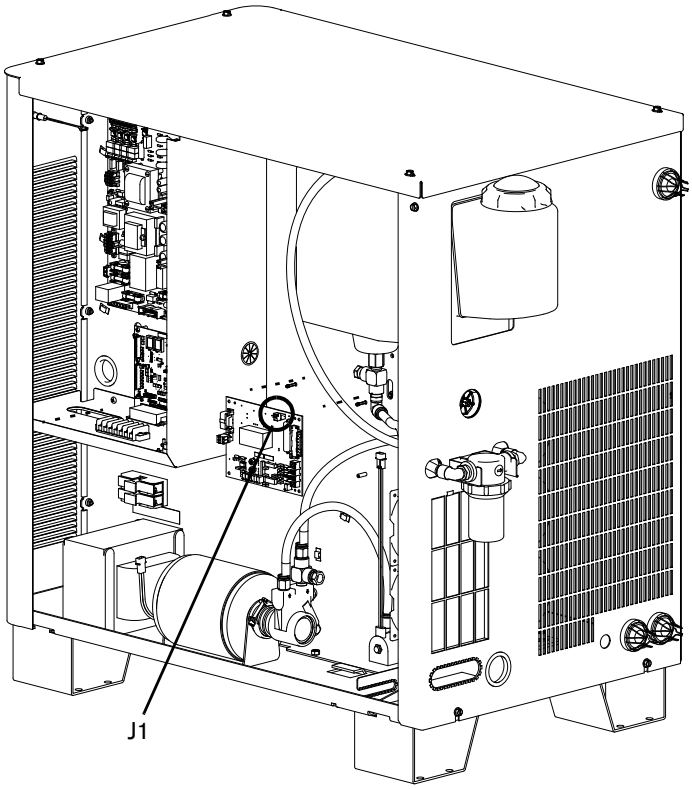


Only the HPR130XD plasma power supply is shown, but the procedure is the same for the HPR260XD plasma power supply.

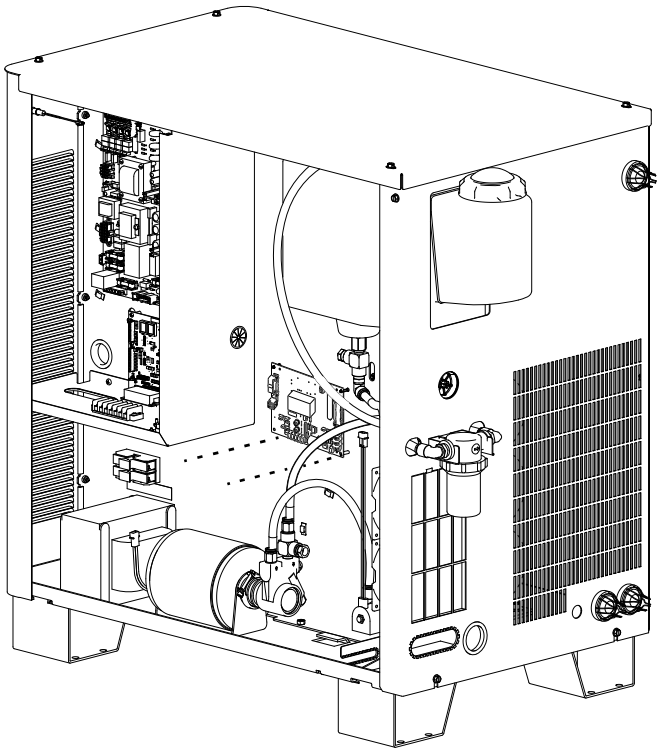
4. Remove the two 6-32 X 3/8-inch screws from the center panel.



5. With J1 on top, install the 141561 PCB on the top two studs on the center panel.

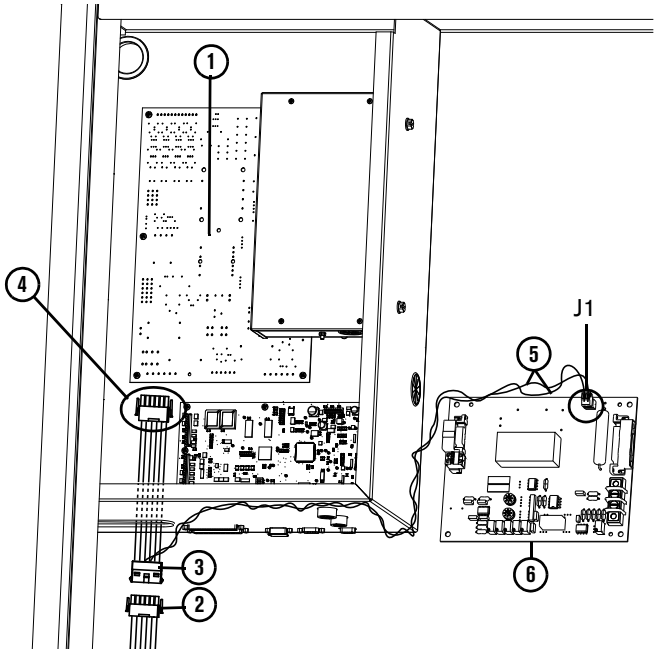


6. Use a torque screwdriver to attach the two 6-32 X 3/8-inch screws from the kit to hold the 141561 PCB to the bottom two studs. Tighten the screws to 0.9 N·m (8 lbf·in) torque.



Connect the PCB

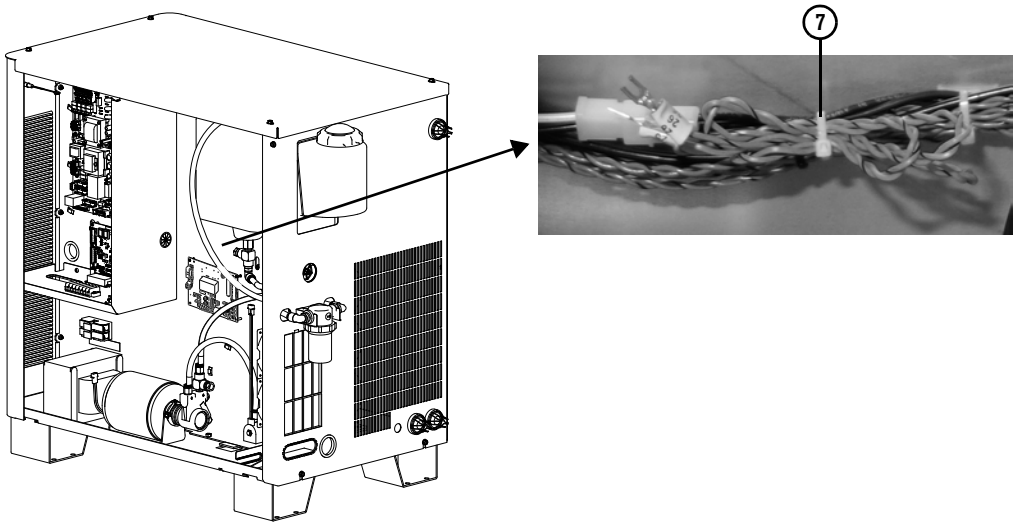
1. Remove the J4 connector ② from the power distribution PCB ①.
2. Connect the J4 connector ② from the power distribution PCB ① to the female connector ③ on the120 VAC wire harness (229883) from the kit.
3. Connect the male connector ④ of the 120 VAC wire harness (229883) to the J4 connector on the power distribution PCB ①.
4. Use a small blade screwdriver to connect the pins of the twisted pair of wires ⑤ of the 120 VAC wire harness (229883) to J1 on the 141561 PCB ⑥.



5. Use VOLTS OUT + (pin 1) and VOLTS OUT - (pin 2) to connect the 141561 PCB to the CNC:
   - Connect the **red** wire for VOLTS OUT + to J1 (pin 1).
   - Connect the **white** wire for VOLTS OUT - to J1 (pin 2).

   Refer to Table 1 on page 8 for descriptions of connector pins (input and output). Use the interface requirements of your CNC for additional connection requirements.

6. Cut the cable tie ⑦ and remove the bundled **yellow** and **yellow-black** arc voltage wires from the wire harness holder on the internal panel of the plasma power supply.



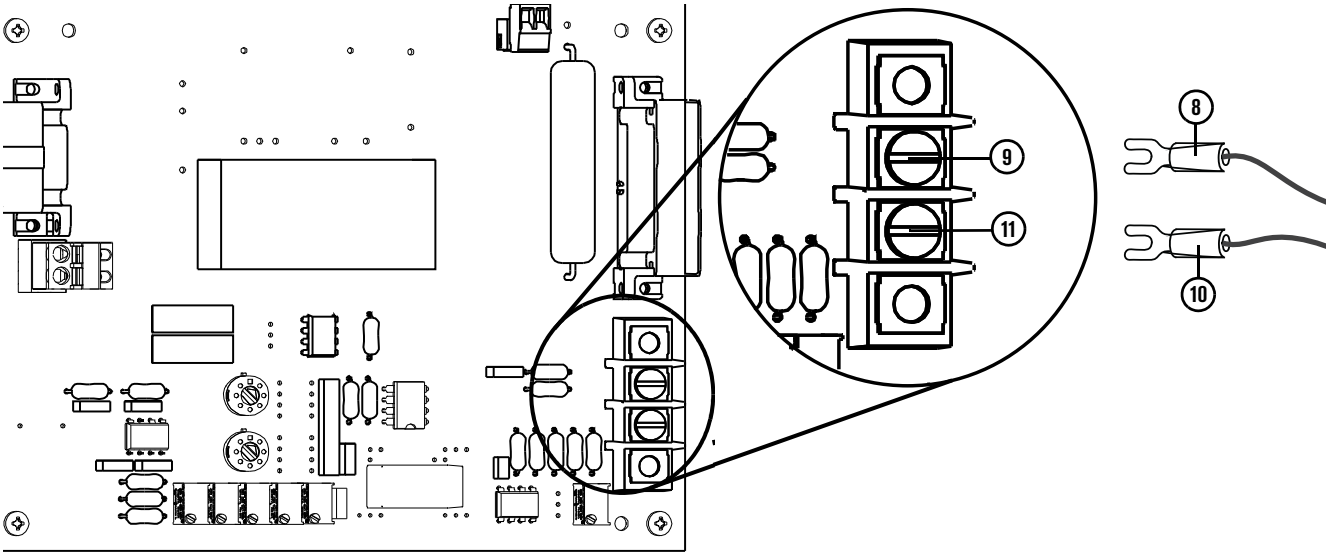
The plasma power supply comes with a cable tie on an internal panel. The wire harnesses in the HPR130XD and HPR260XD plasma power supply include the yellow and yellow-black arc voltage wires.

7. Use a torque screwdriver to attach the spade terminals of the arc voltage wires to the 141561 PCB:

a. Connect the **yellow** (WORK) wire ⑧ to the TB1+2 terminal ⑨.

b. Connect the **yellow-black** (NEG) wire ⑩ to the TB-1 terminal ⑪.

c. Tighten the screws to 0.9 N·m (8 lbf·in) torque.



8. Use a torque screwdriver to attach the ring terminals for the arc voltage wires to the I/O PCB on the left side in the plasma power supply:

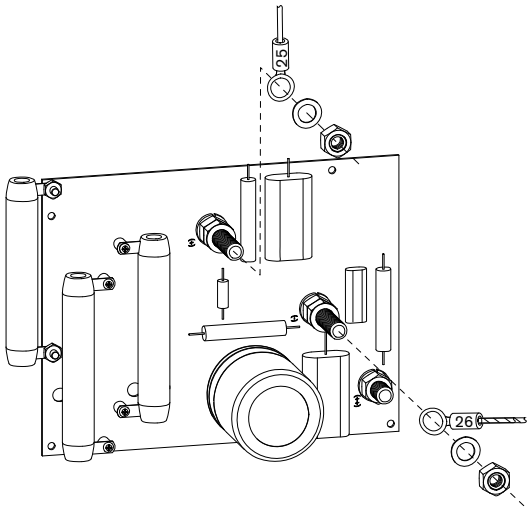
a. Connect the **yellow** (WORK) wire that is labeled **25** to the bolt on the I/O PCB labeled WORK (**+**), as shown in Figure 5 on page 29.

b. Connect the **yellow-black** (NEG) wire that is labeled **26** to the bolt on the I/O PCB labeled TORCH (**–**), as shown in Figure 5 on page 29.

c. Tighten the screws to 0.9 N·m (8 lbf·in) torque.

Other wires are already attached to the bolts on the I/O PCB. Attach the arc voltage wires on top of the existing wires.

Figure 5

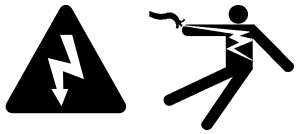


9. Examine the 141561 PCB installation location and connections. Make sure that they are correct and tight.

10. Install the left-side and right-side panels on the plasma power supply.

PCB installation in an HPR400XD

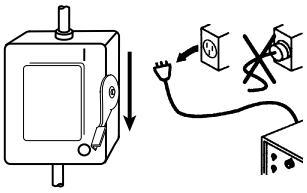
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- Store PCBs in anti-static containers.
- Wear a grounded wrist strap when handling PCBs.

Kit 428993 contents

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229833	Multi-ratio voltage divider 120 VAC wire harness	1
002566	Electrical insulation	1
075386	6-32 X 1/2-inch screws	4
075485	10-32 X 3/8-inch screws	3
108844*	Grommet	1
229554*	AC power wire harness for MAXPRO200	1
229602*	Arc voltage wire harness for MAXPRO200	1

* This kit component is **not** used in an HPR400XD cutting system. Recycle it, if possible. Discard if not.

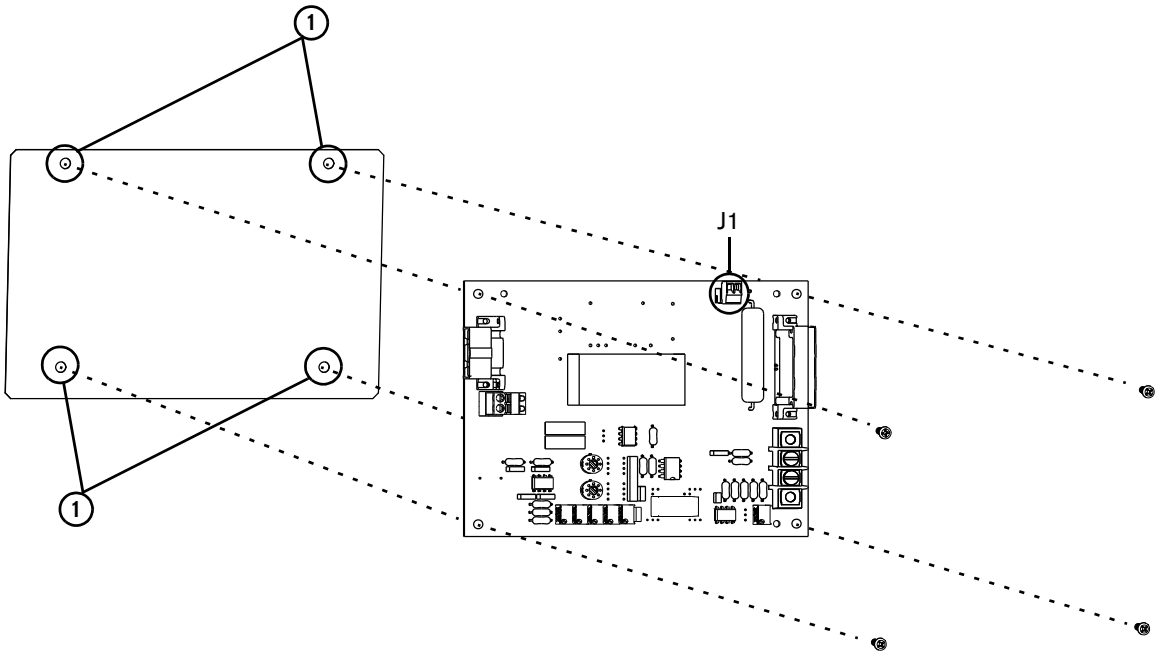
Tools and materials needed

- 3/8-inch socket wrench
- 1/4-inch socket wrench
- #2 Phillips screwdriver
- 10 mm hexagonal socket wrench
- Small blade screwdriver
- Torque screwdriver

Install the PCB

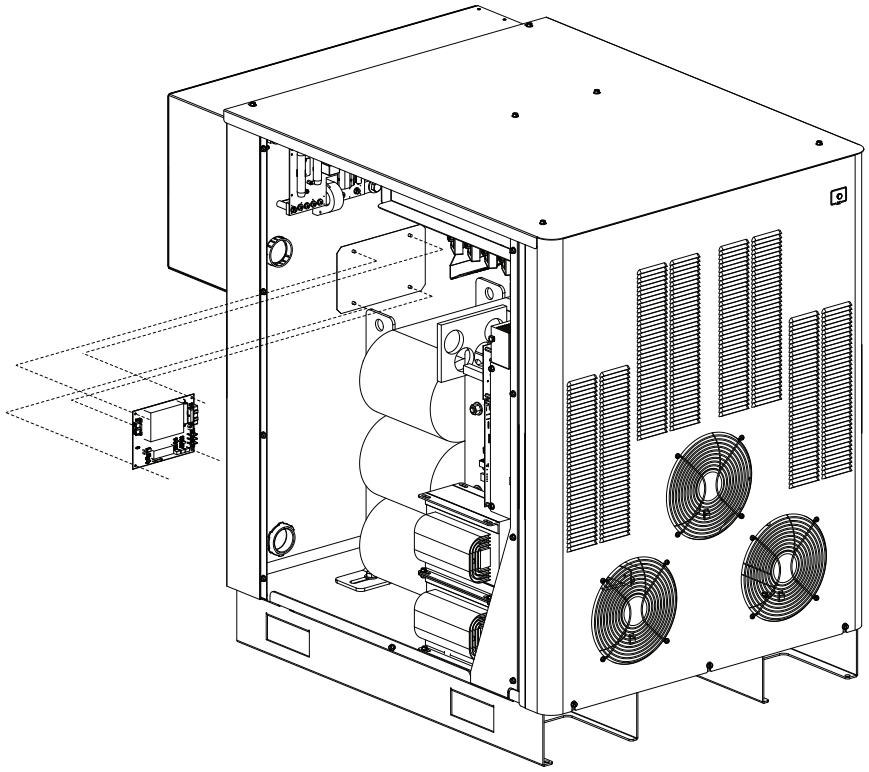
1. Remove the power from the cutting system.
2. Remove the supply-gas pressure from the cutting system.
3. Remove the cover from the adhesive on the electrical insulation (002566) from the kit.
4. Point the adhesive to the rear of 141561 PCB, and align the holes ① on the electrical insulation with the holes on the 141561 PCB. After you align the holes, bond the electrical insulation with the 141561 PCB.

Figure 6



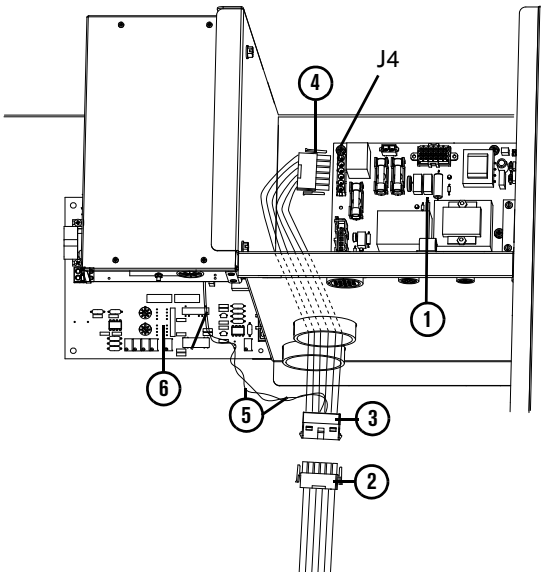
5. Remove the left-side and right-side panels of the plasma power supply. Removal of the top panel is optional but can give better access to the I/O PCB.
6. Install the 141561 PCB on the four studs on the rear panel in the plasma power supply, as shown in Figure 7 on page 32.

Figure 7



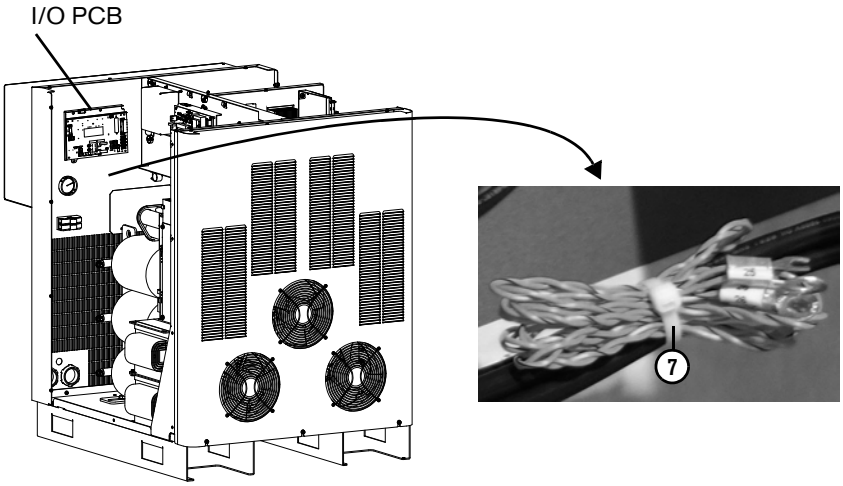
7. Use a torque screwdriver to attach the four 10-32 X 3/8-inch screws (075485) from the kit to hold the 141561 PCB to the studs. Tighten the screws to 0.9 N·m (8 lbf·in) torque.

Connect the PCB



1. Remove the J4 connector ② from the power distribution PCB ①.
2. Connect the J4 connector ② from the power distribution PCB ① to the female connector ③ of the 120 VAC wire harness (229883) from the kit.
3. Connect the male connector ④ of the 120 VAC wire harness (229883) to J4 on the power distribution PCB ①.
4. Use a small blade screwdriver to connect the pins of the twisted pair of wires ⑤ of the 120 VAC wire harness (229883) to J1 on the 141561 PCB ⑥.
5. Use VOLTS OUT + (pin 1) and VOLTS OUT - (pin 2) to connect the 141561 PCB to the CNC:
   - Connect the **red** wire for VOLTS OUT + to J1 (pin 1).
   - Connect the **white** wire for VOLTS OUT - to J1 (pin 2).

   Refer to Table 1 on page 8 for descriptions of connector pins (input and output). Use the interface requirements of your CNC for additional connection requirements.
6. Cut the cable tie ⑦ that holds the **yellow** and **yellow-black** arc voltage wires and remove the bundled wire harnesses from the internal panel of the plasma power supply.



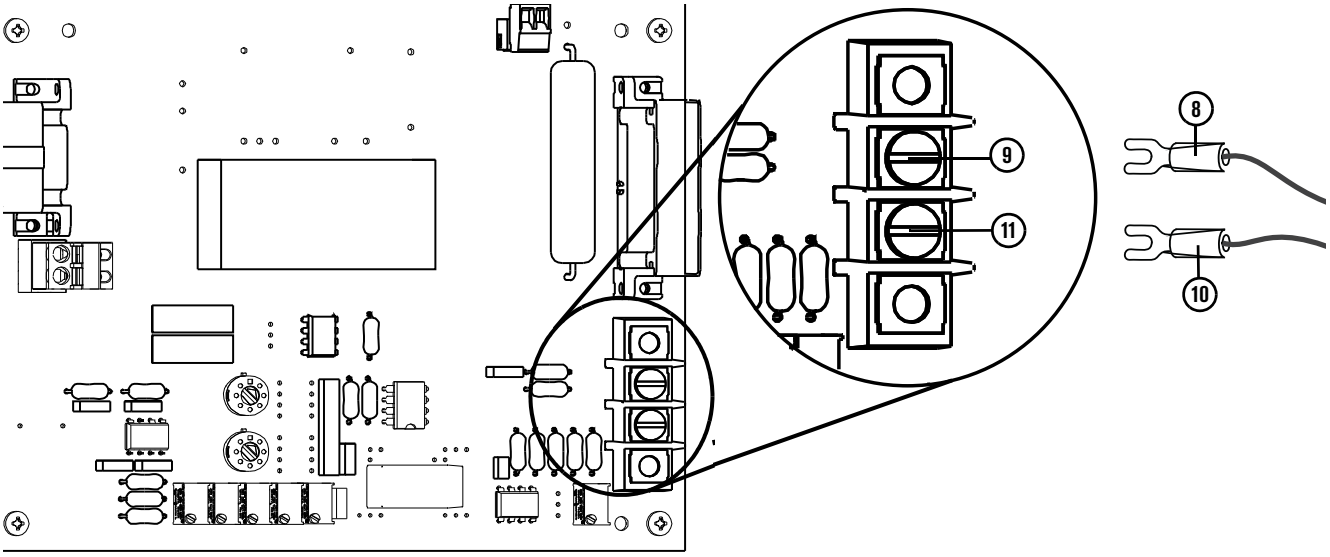
The plasma power supply comes with a cable tie on an internal panel. The wire harnesses in the HPR400XD plasma power supply include the yellow and yellow-black arc voltage wires and the 120 VAC wires.

7. Use a torque screwdriver to attach the spade terminals of the arc voltage wires to the 141561 PCB:

a. Connect the **yellow** (WORK) wire ⑧ to the TB1+2 terminal ⑨.

b. Connect the **yellow-black** (NEG) wire ⑩ to the TB-1 terminal ⑪.

c. Tighten the screws to 0.9 N·m (8 lbf·in) torque.



8. Use a #2 Phillips screwdriver to attach the ring terminals of the arc voltage wires to the I/O PCB in the plasma power supply:

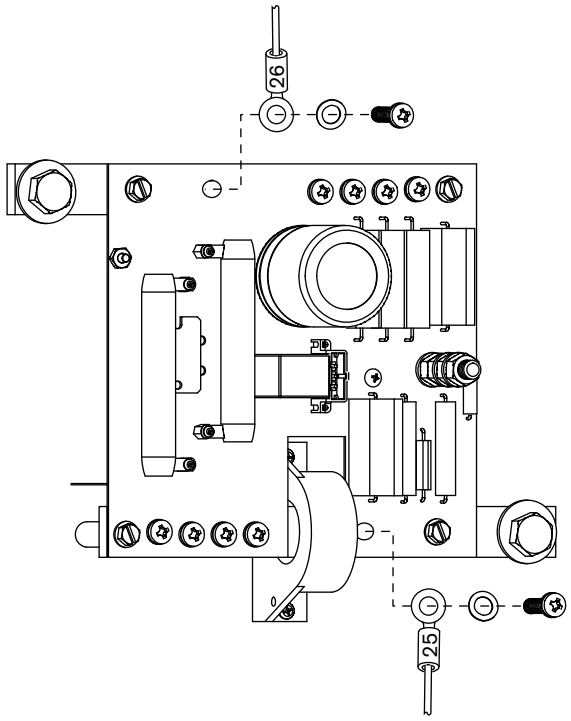
a. Connect the **yellow** (WORK) wire that is labeled **25** to the bolt on the I/O PCB labeled WORK (+), as shown in Figure 8 on page 35.

b. Connect the **yellow-black** (NEG) wire that is labeled **26** to the bolt on the I/O PCB labeled TORCH (-), as shown in Figure 8 on page 35.

c. Tighten the screws to 0.9 N·m (8 lbf·in) torque.

Other wires are already attached to the bolts on the I/O board. Attach the arc voltage wires on top of the existing wires.

Figure 8



9. Examine the 141561 PCB installation location and connections. Make sure that they are correct and tight.

10. Install the left-side and right-side panels on the plasma power supply.