



四级臂&五级臂 混凝土臂架泵车

Installation / Configuration Manual

安装与调试使用说明书

T300 遥控系统发射机

R41 遥控系统接收机

March 28, 2008

DM-R160-436AC

Revision 1

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备注： 此说明书仅供安装及操作三一重工所产制之四级臂及五级臂混凝土输送泵车之用。如欲将遥控系统安装及使用於其它类别的机车之上，请直接与三一重工商讨。

Safety Precautions 须注意的安全事项

阅读所有使用说明书内容

注意：在取得本产品制造商及三一重工书面同意之前将系统结构或装配自行更改，产品制造商及三一重工所赋与之系统使用权即被自动取消。

如不贯彻遵守本安全守则各项，将可能导至本系统之操作失灵及引发严重的工业意外或人命伤亡。

安装系统時注意

设置电源断路开关。在进行系统安装时，必须将电源切断以防止意外发生。

不合规格的引线联接质量或技巧、会构成系统失效、间歇性失效或系统损坏等等。

如将系统装设於过热环境中—温度超越华氏158度(158° F)或摄氏70度(70° C)，可能会导至系统过热损坏。

个人自身安全守则

确保在操作机械前，周边区域没有任何障碍物以防止不必要地构成意外。

当在进行泵车维修工作之前，必须将系统接收机的电源切断以确保安全。

系统处理须知

确保遥控系统保持干燥，切忌使用高压水源(如高压水泵等)清洗遥控系统的任何部件。如发现有液体渗入发射机的电池室或接收机的机箱内，须将液体即時清除及用空气吹乾。

保持系统清洁，在操作完成後用潮湿的毛刷和毛巾将残留在发射机上的废物尽量清除以确保所有开关及摇杆能流畅操作。

System Overview 系统概述

OMNEX Trusted Wireless™ 产品系列之一的**T300 / R41** 是一种便携式，长距离及可编程的无线电遥控系统。设计方针侧重於体积轻巧及方便操作为主。本说明书内所详述之专为三一重工而设的系统乃专供用户作混凝土输送泵车操控之用。除结构坚固及便於安装外，系统编程更包括有系统自动监察程序以确保操作正常。此**Trusted Wireless™** 系列产品除可供混凝土输送泵车使用之外，更可用于代替须动用大量连接电缆的设备之上以减低制造成本。

由於基本设计可供应用於要求严格的电流控或液压控的器材上加上可编程的灵活性，**Trusted Wireless™** 产品系列具有广泛无线操控效能供广泛不同设施之用。

OMNEX Trusted Wireless™ T300 / R41 系统采用跳频技术(将所有发射能量用射频自由跳跃发射於一设定无线电断範圍之内(FHSS))。利用此特殊发射技术加上CRC-16 自我系统误差监察编程，能确保系统操作免受外来无线电干扰。由於此独有优点，理论上可在同一地点及互不干扰的情况下同时操作超过**65000**台同系列或不同系列的**OMNEX**无线电设施。

R41无线电接收机及控制讯号输出系统机箱内置有一部**R160**接收机及一部**D180**比例操纵输出单元来构成泵车的控制中心，所需工作电压为**12-24**伏直流电(**12-24VDC**)。 **R160**的基本设计可提供**19**个独立的固体开关推动电压讯号输出或外供操控电压讯号输入，除外更具有急停电压讯号输出。为应付某种设备须要，更备有双向无线电射频发送组件以供选用。**D180**比例操纵输出单元可提供多至**14**个混合不同类别(电流控制，**PWM**或电压控制)的比例操纵讯号输出以供不同配置所用。

T300无线电发射机可操控多至十六个比例操纵通道及十六个独立的固体开关推动电压讯号。机体上可安装八个不同性能的单刀双掷开关，八个比例操纵摇杆及一个急停开关。为达至无干扰射频操作的原则，每一独立系统皆擁有不同的射频联讯编码(**ID CODE**)。

Features 系统特性

系统特性

- FCC, ISC, CE 核实标准
- 免许可证操作
- 有效操控距离: 900foot@2.4GHz; 1200foot@900MHz (1foot=0.3048m)
- 防水, 防尘及机体细小轻巧, 方便携带操作
- 安装简易
- 结构坚固
- 具有两种不同频率 900 MHz 及 2.4 GHz, 以供不同区域选用
- 备有电缆供有线操控

T300 发射机



R41 无线接收系统



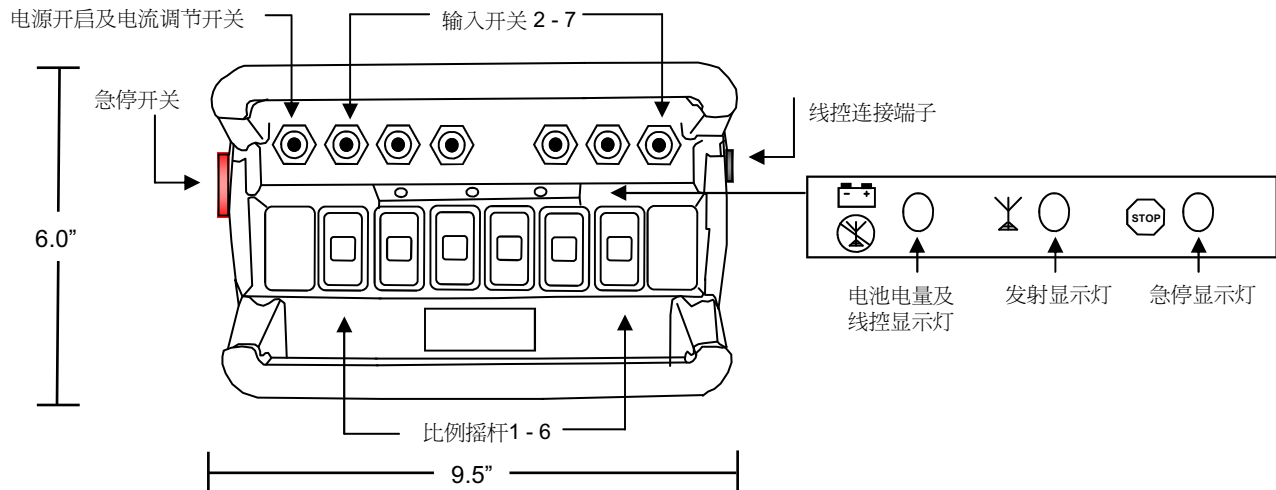
R160 接收机



D180 比例讯号输出模件



T300 Dimensions and Controls 发射机体积及操控面板示意图



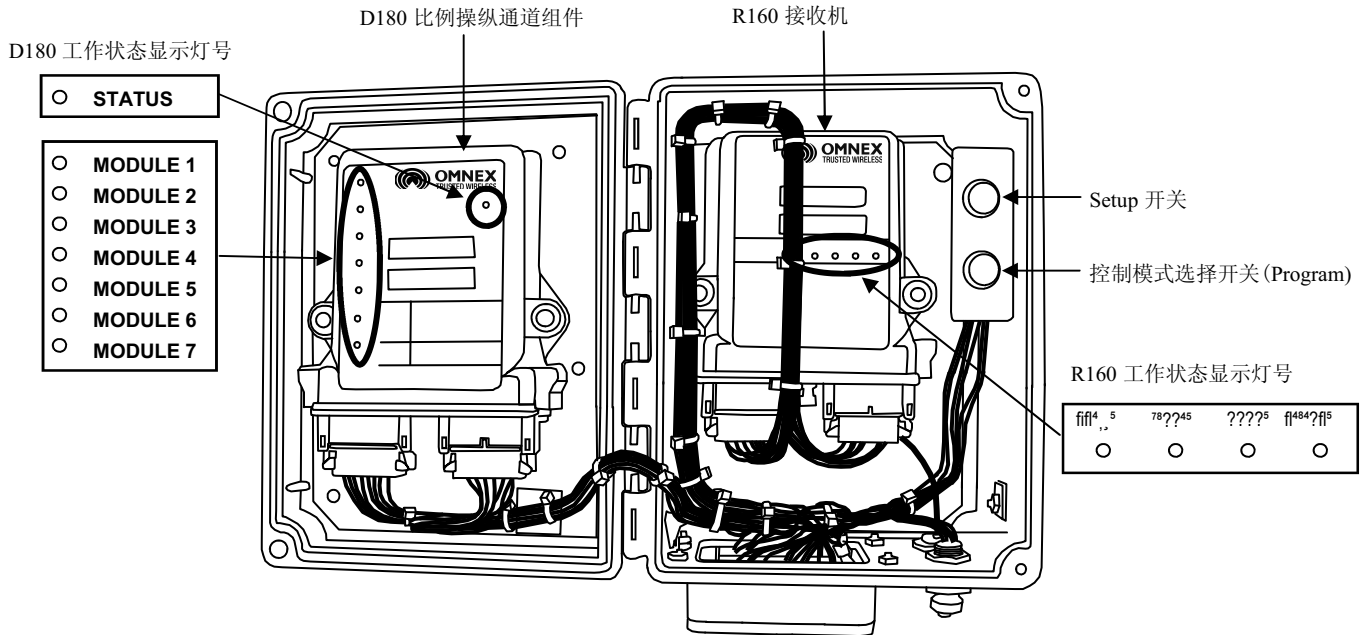
T300 Label Legend 发射机国际性通用之标签符号及注释

Symbol	Description	Symbol	Description
	Boom 5th Section DOWN (on 5 section only) 五級臂下		Boom 5th Section UP (on 5 section only) 五級臂上
	Boom 4th Section DOWN 四級臂下		Boom 4th Section UP 四級臂上
	Boom 3rd Section DOWN 三級臂下		Boom 3rd Section UP 三級臂上
	Boom 2nd Section DOWN 二級臂下		Boom 2nd Section UP 二級臂上
	Boom 1st Section DOWN 一級臂下		Boom 1st Section UP 一級臂下
	Boom Swing Counterclockwise 臂逆时针回转		Boom Swing Clockwise 臂顺时针回转
	Horn 訊响		Outrigger Control 舷外支架
	Engine Stop 柴油机停		Engine Start 柴油机启动
	Boom Speed (Slow) 低臂速		Boom Speed (Fast) 高臂速
	Pump Volume (Slow) 泵量减速		Pump Volume (Fast) 泵量加速
	RPM Increase 加速		RPM Decrease 減速
	Pump Reverse 反泵		Pumping Forward 正泵
	Boom Enable 臂架启动开关		Change Over 泵向逆转

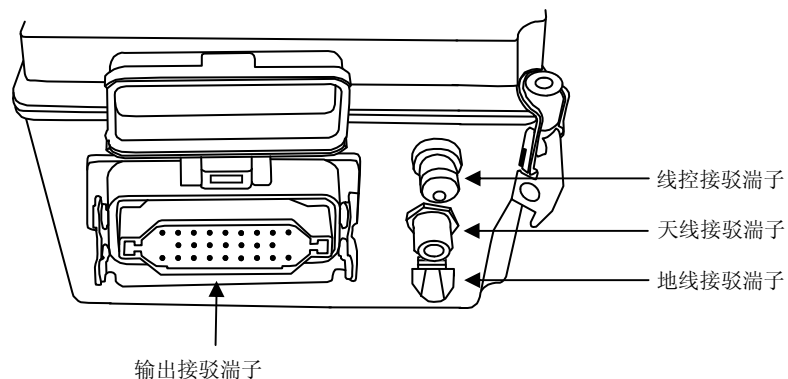
Receiver Information 接收机结构图解

R41 接收及控制讯号输出通道系统内装设有一台R160接收机及一台D180比例操纵通道组件。为达至防水、防尘及安全操作效果，所有元件及接线均装置於一HOFFMAN容器之内并设有显示讯号标示系统工作状态。

R41 接收及控制讯号输出通道系统(机内配置图)



R41 接收及控制讯号输出通道系统(机外配置图)



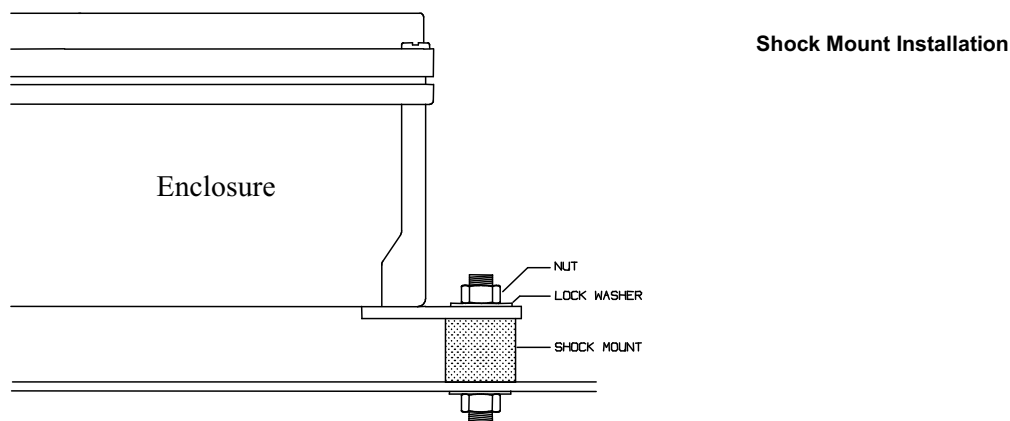
注意：需将附於R41上的接地引线联接至机车上的电池负极以达至所要求的正常操作。

Physical Mounting 防震设置安装图

需将R41安装在一适当地点以不妨碍盖子开关为宜。

必须使用适当的减震架(随机附件)作R41安装之用(如下图)。

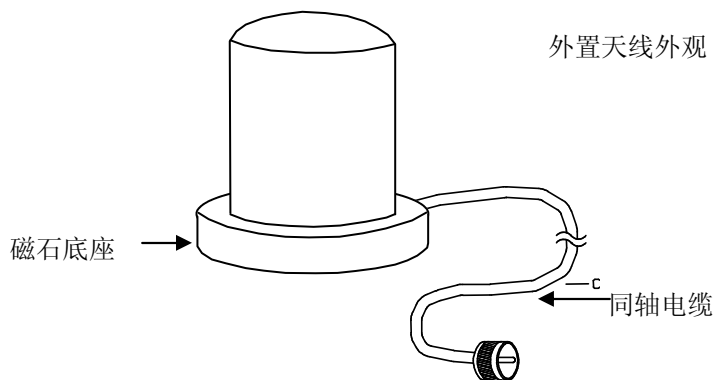
在可能情况之下，应将R41装设於尽量接近中央控制组件的地方，以避免使用不须要的过长连接线。



R41容器采用NEMA-4X密封标准。在安装完成或在需要将盖子开启後，切记保持容器封闭边沿清洁及将盖子并上并拉好销扣。

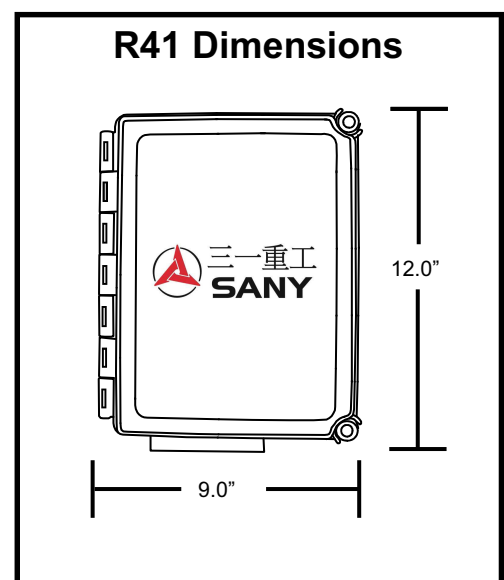
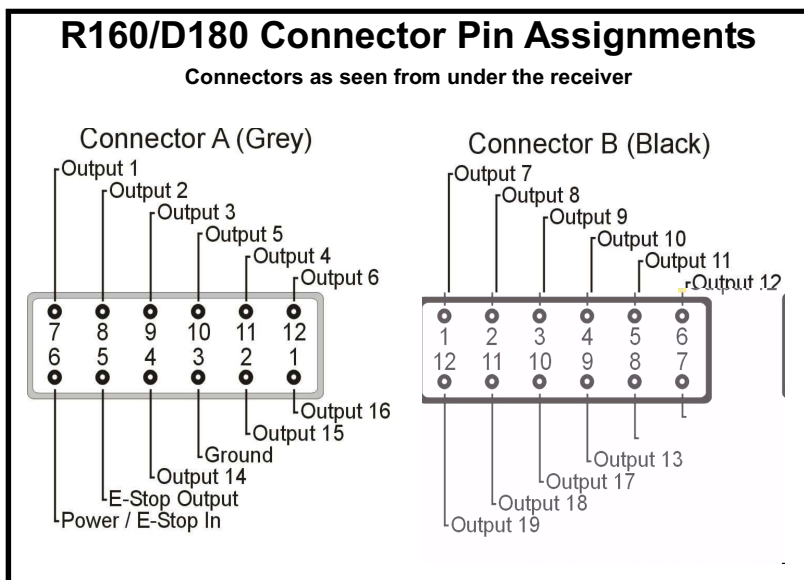
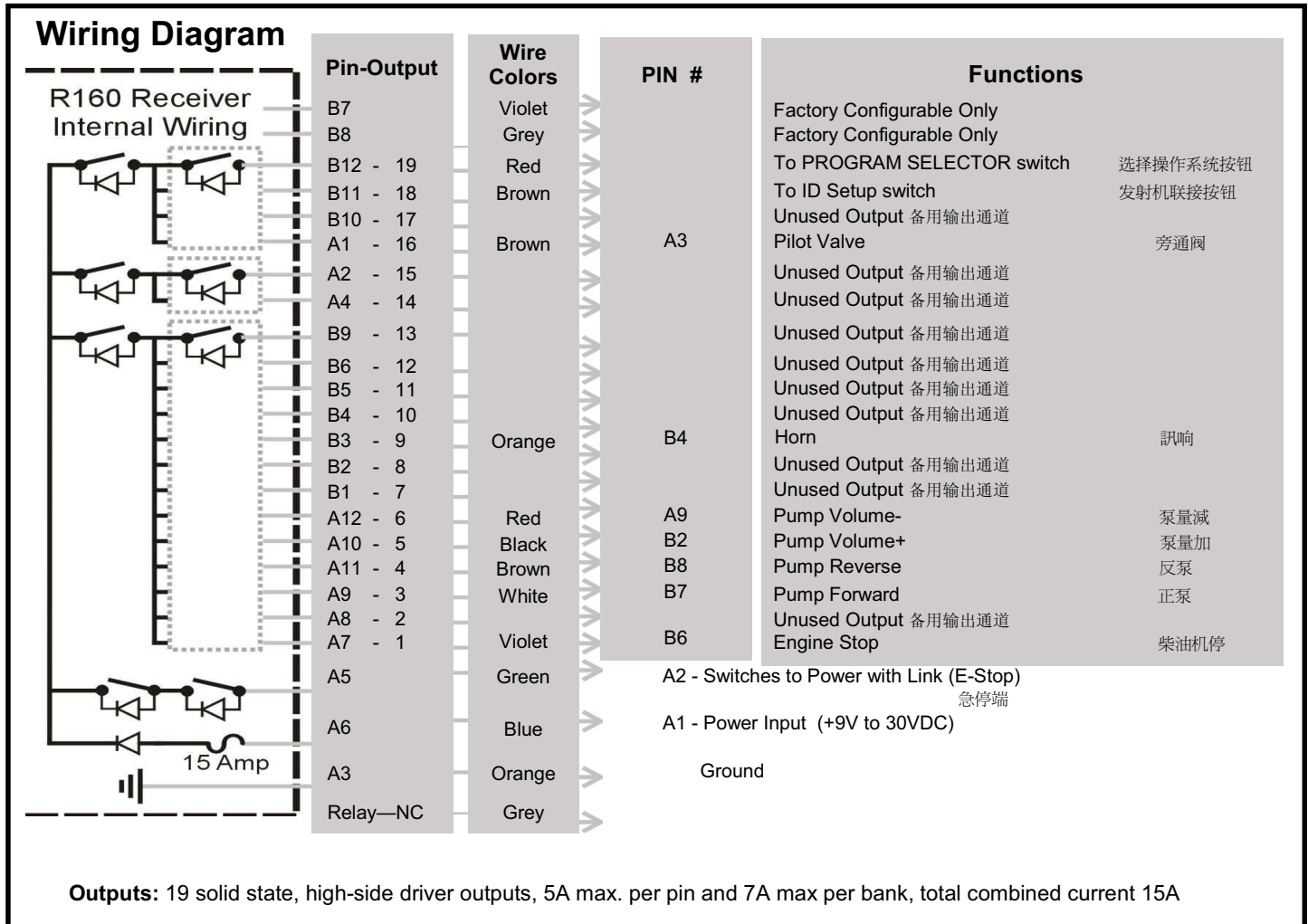
为达至最佳无线讯号接收效果，外置天线须装设於驾驶室上之适当地点及避免有任何金属物围绕或覆盖在天线邻近范围。

注意：除使用随机供给的外置天线，配用其它不同型号产品，将会导致接收效能减弱或有可能不符合国家所订立的无线电规管条例而构成违法情况。



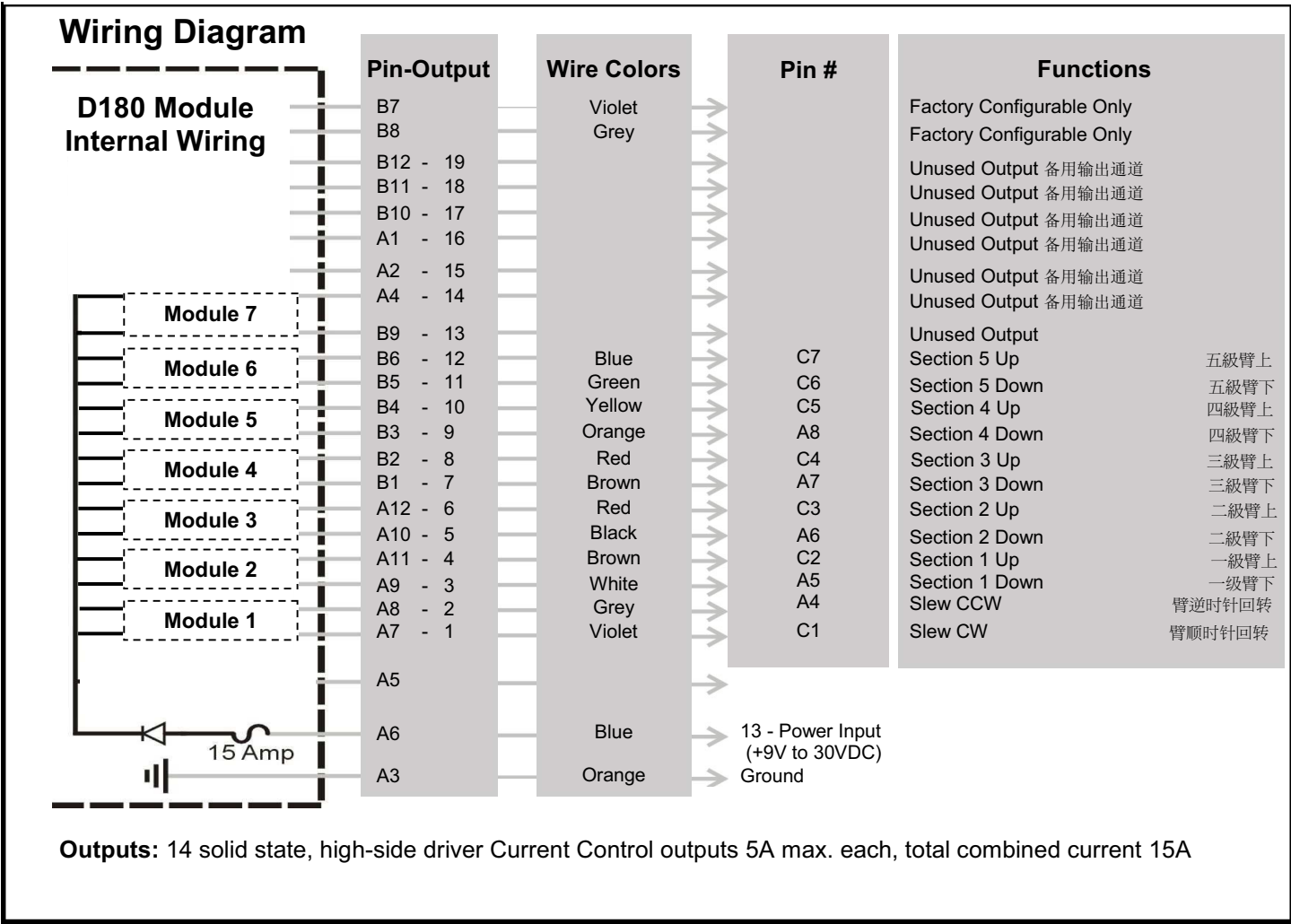
Installing the Receiver 接收机输出通道及端子连接分布表

请按照以下及在第九至第十页上的布线图表进行电缆联接及装配。同时并须参照第十一页上的系统安装及注意事项以达至最佳效果。



Installing the Expansion Module 比例訊号输出通道及端子连接分布表

请按照第八至第十页上的布线图表进行电缆联接及装配。同时并须参照第十一页上的系统安装及注意事项以达至最佳效果。



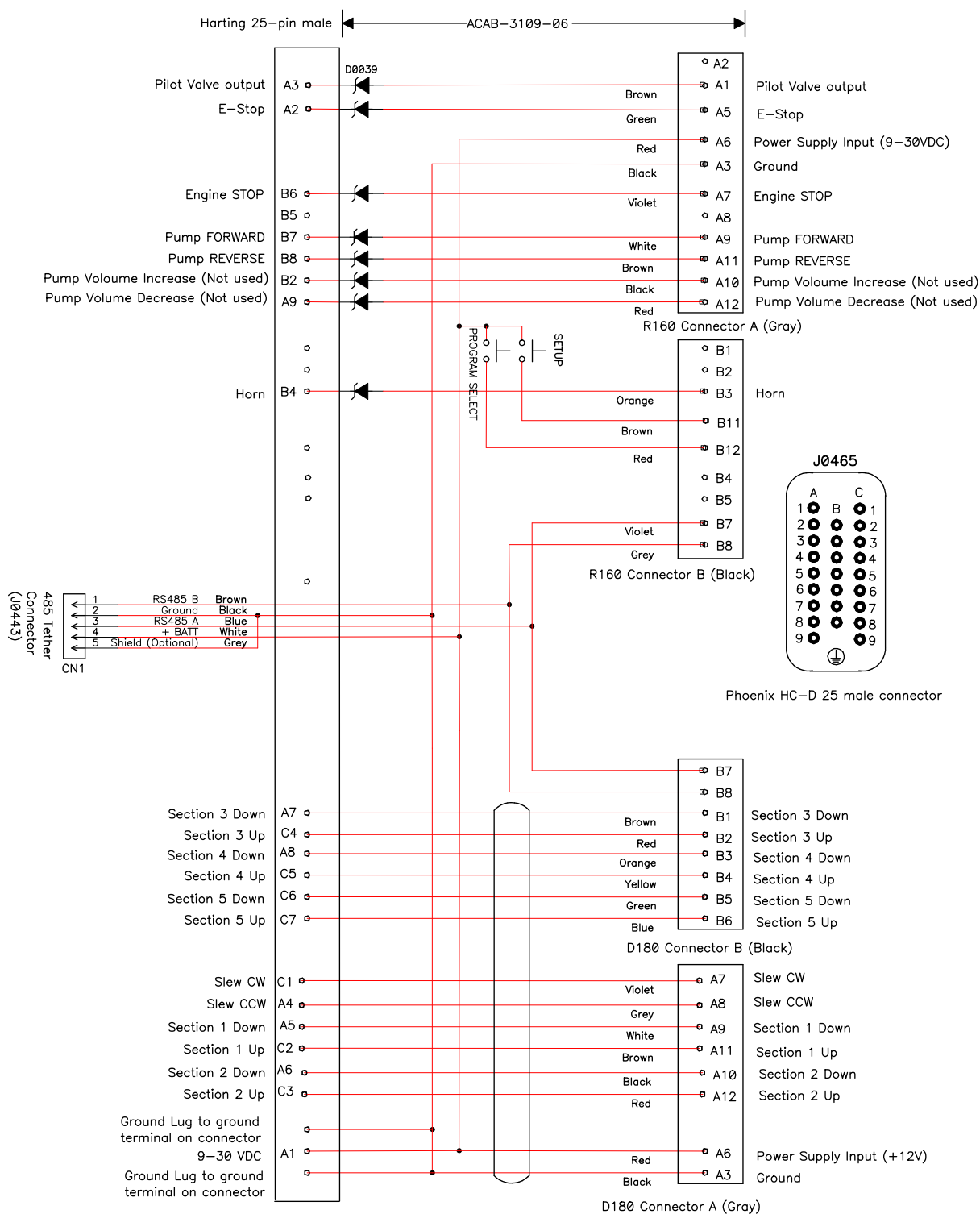
Operation Notes 特别操作注解

在使用比例操纵杆作臂架操控之前， 首先须将臂架操作开关拨向上方， 否则将不能达至所需操控目的。

在选择全速臂动时(兔子符号)， 臂动速度将以全速(100%)进行运作。若将开关设置於低速时(蜗牛符号)， 臂动速度将以低速(60%)进行运作。但所有运作速度皆可由用户再自行调整。 调整方法详录於後页比例操纵杆调节程序中。(第十七页)

本系统的设计可具有八种不同的操作模式以供选择於八种不同的机械操作之上。 但现系统所预设的仅供三一重工所生产的四节臂及五节臂混凝土泵送车之用。 选择方法详录於第十五页中。

Schematic for Output Connection on R41 R41 输出端子连接图



Ground 接电源负极 (+9 to 30 伏直流电源)
 A1 接电源正极 (+9 to 30 伏直流电源)
 A2 急停端
 A3 旁通阀
 B4 讯响
 A9 泵量减
 B2 泵量加
 B8 反泵

B7 正泵
 B6 柴油机停
 C1 臂顺时针回转
 A4 臂逆时针回转
 A5 一级臂下
 C2 一级臂上
 A6 二级臂下

C3 二级臂上
 A7 三级臂下
 C4 三级臂上
 A8 四级臂下
 C5 四级臂上
 C6 五级臂下
 C7 五级臂上

Installation Considerations 系统安装及注意事项

注意：除使用随机供给的外置天线，配用其它不同型号产品，将会导致接收效能减弱或有可能不符合国家所订立的无线电规管条例而构成违法情况。

R41接收器安装方法

请按第七页图示用随机配置的四枚减震器(AKIT-1498-01)将R41接收器安装在选定的位置上(以最少震动的位置为佳)。安装时清留意将R41的顶部或盖子向上，以便日後操作。在可能情况之下，应将R41装设於尽量接近中央控制组件的地方，以避免使用不须要的过长连接线。

电源供应及接驳电缆

如环境许可下，将电子设备的电源引入线接至电瓶的正负极会这至最佳效果。但机车设有特备的中央控制及足够电流量的供电枢纽，亦可使用。

必须使用质量好及输送足够电流量的电缆作系统联接用途。

在所有电缆联接完成后，请用万用表检核所有联线的正确性，以确保无误。

噪音和干扰讯号的消减及过滤

如用接收机的输出讯号启动或接驳於电磁开并或电磁推动类容易产生反峰电压的元件时，最佳消减及过滤噪音和干扰讯号的方法乃以并联方式装设一枚36VDC双向然纳二极管於受控元件上将反峰电压消除。本系统生产商OMNEX备有该二极管套件以供购用，编号为“AKIT-2492-01”。

Power the Transmitter 启动发射机

1. 电池安装方法

首先用适当的螺絲起子将电池室盖除下，然後依电池室内所显示电池极性装上C型尺码碱性电池，再将电池盖装回原位。在线控工作时，发射机所需电源则通过线控连接电缆供给。

备注：如在低温环境下操作(低於摄氏-10度)，使用锂电池比较上可获至最长的电量提供时间。(各类电池的电量供应时间皆因低温环境下使用而缩减)。

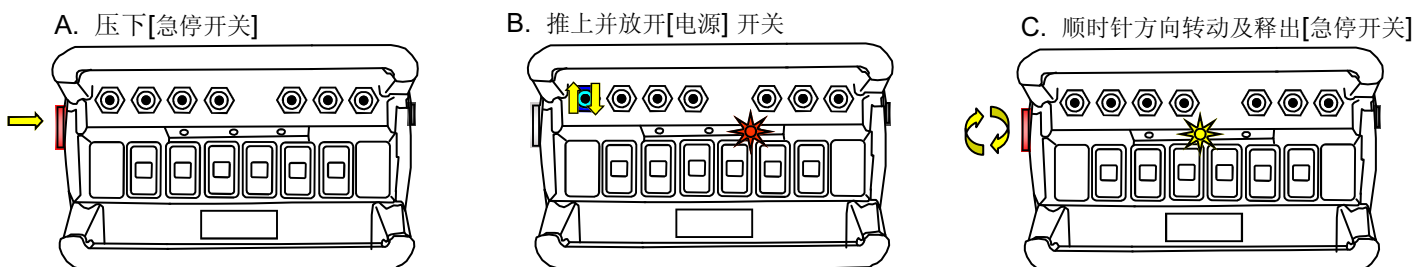


发射机电池室

2. 启动发射机

在启动发射机前，首先将所有操作指令开关拨至关闭位置。然後按下在发射机上红色的急停开关，将电源开关(POWER)推上并除之放开，此时在发射机上右方的红色急停灯号(STOP)会迅速闪亮，接着顺时针方向将急停开关转动及使之释出(如下图A, B和C所示)，此时在发射机上中间的黄色操作灯将闪亮(约每秒一次)。发射机启动完成。

注意：在装上电池时，请留意极性！切忌混用新和旧、不同类型的电池及将尝试将碱性电池再行充电并将耗尽电池投於火上，否则可能会引至电池爆炸并构成身体伤残。

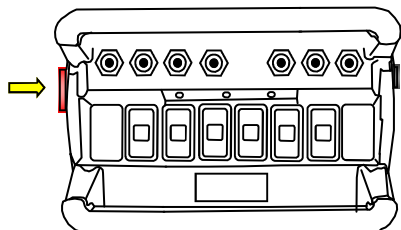


Light Legend		Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

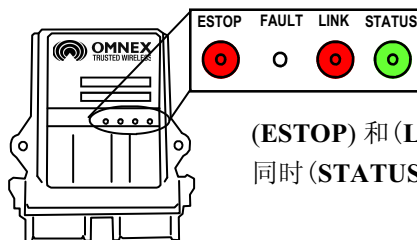
Test the Transmitter / Receiver Link 发射机及接收机之射频联讯测试

请依据以下各图所示操作方法及显示灯号以辩明发射机与接收机的射频联接状况。

1. 压下[急停开关]

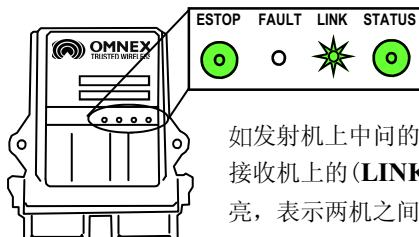
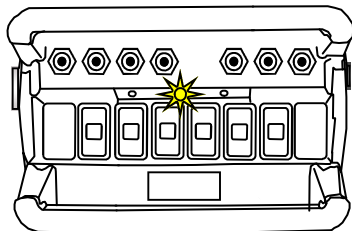


2. 接收机接上电源



(ESTOP) 和 (LINK) 位置灯号亮红，同时 (STATUS) 位置的灯号亮绿。

3. 启动T300发射机



如发射机上中间的黄色操作灯闪亮及在接收机上的 (LINK) 灯转绿并持续闪亮，表示两机之间的无线联接成功。

The ORIGA System is now ready for use.

如接收机上的 (LINK) 灯并不转绿并持续闪亮，请依下方所示进行联讯编码下载步骤。

Download ID Code (Use in case of Link Test failure) 发射机及接收机之联讯编码下载程序

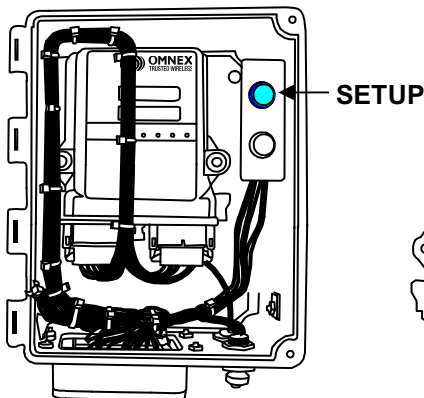
请依下方所示将发射机的独有联讯编码 (ID CODE) 下载至接收机。这联讯编码下载步骤可容许使用任何一部同型号的**T300**发射机与任何一部同型号的**R160**接收机达成射频联接 (配套)。详细的参考提示录在二十二页的**Troubleshooting Chart #4** 内。

备注：在更换系统中发射机或接收机时，必须重做一次联讯编码下载步骤以达至发射机与接收机的联讯。

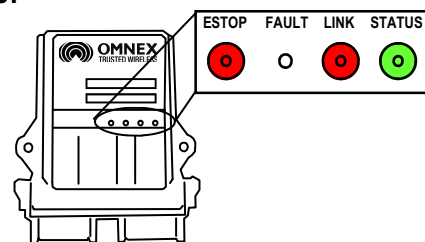
备注：如用线控连接电缆将发射机与接收机接上，只须按下列的第三及第五点步骤所示方法进行联讯编码下载 (没有需要去开启无线接收系统 (R41) 的容器及使用**SETUP**按钮)。

1. 打开及启动R41

将**R41**的盖子打开，在机箱内的左上方找寻[**SETUP**]按钮开关。



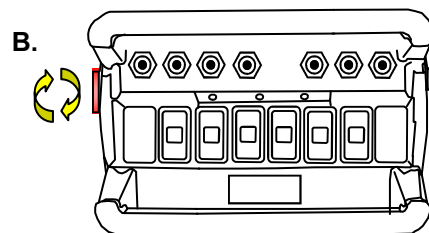
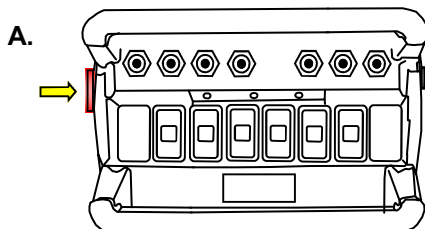
将**R41**接上电源之後，(ESTOP) 和 (LINK) 位置灯号会亮起红色，同时 (STATUS) 位置的灯号会亮起绿色。



2. 启动T300 进行联讯编码下载

A. 按下急停开关[E-Stop]

B. 顺时针方向将急停开关[E-Stop]转动及释出。



Light Legend

Solid

Slow Flash

Fast Flash

Red Light

Green Light

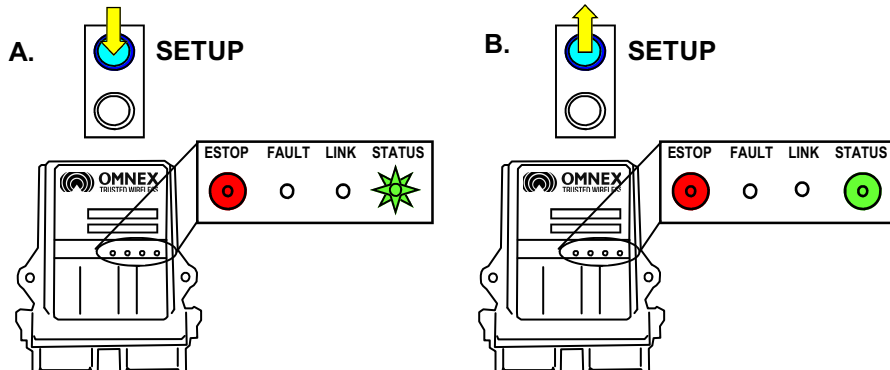
Yellow Light

Alternating Red & Green Light

3. 设置R160接收机作联讯编码下载

A. 按下[SETUP]按钮直至(STATUS)灯号从慢闪(约每秒一次)转为快速闪亮为止(约需时五秒)

B. 释出[SETUP]按钮, (STATUS)灯号转为持续亮起, 同时(LINK)灯号会除即关闭。

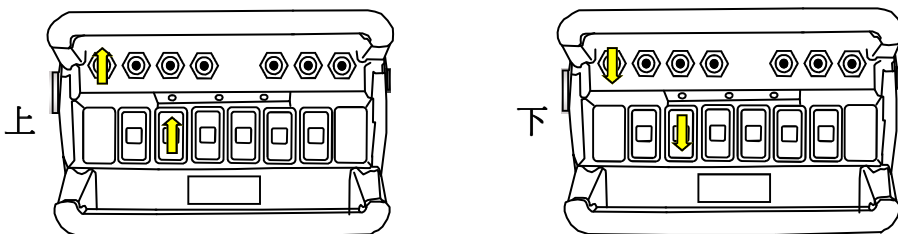


备注一: 当重新将主发射机的联讯编码下载至接收机的同时, 所有以往存入的联讯编码亦经消除。(每一部R160接收机可同时与四台发射机单独联讯)。

备注二: 在释出[SETUP]按钮及(STATUS)灯号转为持续亮起及(LINK)灯号关闭後之三十秒内, 如发射机尚未被设置完备及开始进行编码下载至接收机的情况下, R160接收机作联讯编码下载设置因越时而被取消。与此同时, (LINK)及(STATUS)灯号均会显示高速红色闪亮。如欲继续完成联讯编码下载, 重覆上述点三。

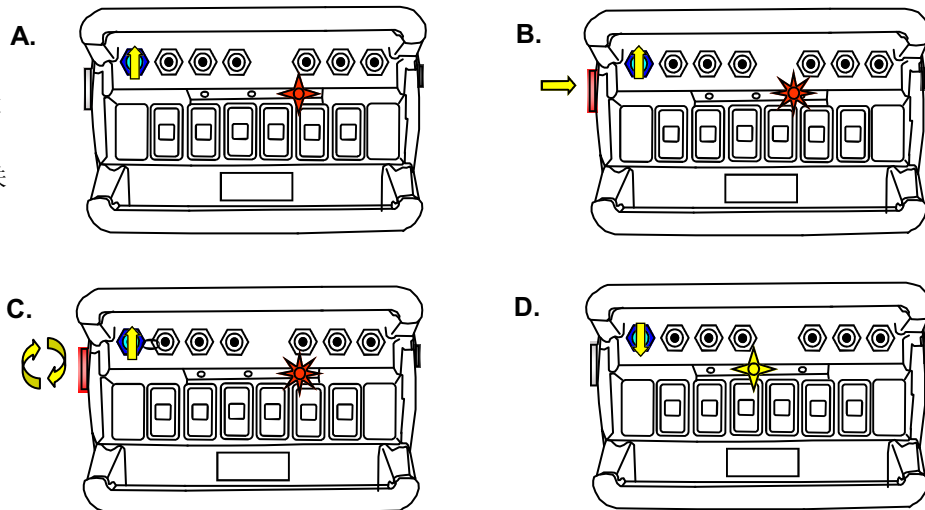
备注: 在本文中所有开关及推杆的操作方向皆阐释如下:

推杆上一向开关方向推上
推杆下一反开关方向拉下
开关上一反推杆方向拨上
开关下一向推杆方向拨下



4. 设置T300发射机作联讯编码下载

- 将[POWER]开关拨上了并保持在该位置
- 同时按下[E-Stop]开关
- 顺时针方向转动及释出[急停E-Stop]开关
- 放开[POWER]开关



Light Legend

Solid		Slow Flash		Fast Flash		Red Light		Green Light		Yellow Light		Alternating Red & Green Light	
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Download ID Code (Continued)

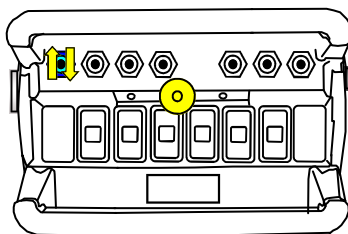
5. 联讯编码下载

备注：当下载一个新的联讯编码至**R160**接收机之时，为避免发射机错误地下载联讯编码至邻近别的接收机，须将发射机移近所欲配套的接收机进行下载。

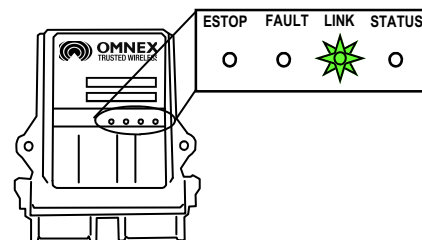
A. 将[Power]开关推上及放开

B. **R160**上的(Link)灯号亮起绿色。下载完成後，发射机会自动关闭及**R160**上的(Link)灯号会转为红色。

A.



B.

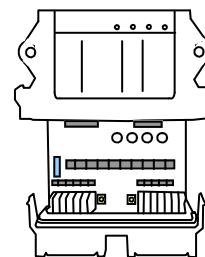
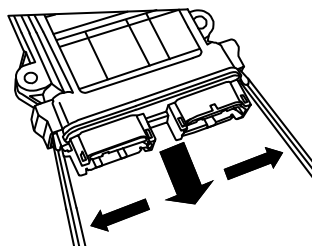


6. R160接收机盖子 拆除方法

如需要检视**R160**内置保险丝的工作状况，请按下列方法将接收机外壳拆除。

首先将接驳在**R160**接收机输出端子上的两束电缆连同端子拔出，再将固定**R160**接收机在**R41**容器上的两根螺丝钉用适当的螺丝起子拆除。

R160的盖子是利用两片连接在塑胶质输出端子盖上的键扣锁上以达至防渗效果，请依付图用螺丝刀将键扣松开(将键扣向内压)并将**R160**电路板拉出。



Light Legend

Solid

Slow Flash

Fast Flash

Red Light

Green Light

Yellow Light

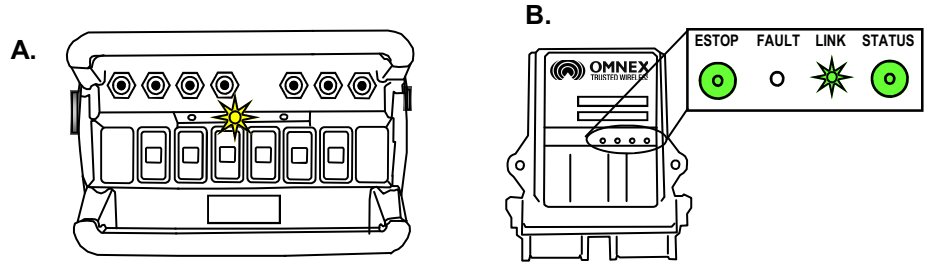
Alternating Red & Green Light

Calibrating Proportional Controls 比例操纵讯号的强弱幅度重调步骤

发射机上的六个比例操纵杆所提供的比例操纵讯号是透过无线电传送到接收机再转译为比例讯号输出。在使用比例操纵杆前，须将臂架操作开关拨向上方，否则将不能达至所需操控目的。当比例操纵杆被推上或拉下之时，接收机上的比例讯号输出幅度会因应推杆的操作幅度作出相应增减。在使用时，操作人员亦可依照下述方法去自行调节各段所需输出幅度。在比例讯号输出幅度重调间，请依据下列各图来对照发射机上的输出幅度调节状态灯号显示。

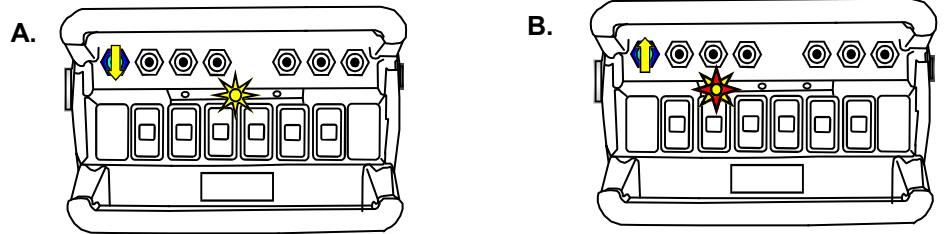
1. 启动T300及启动R160

- 请依照第十页上的启动发射机而行
- 将R41接上电源



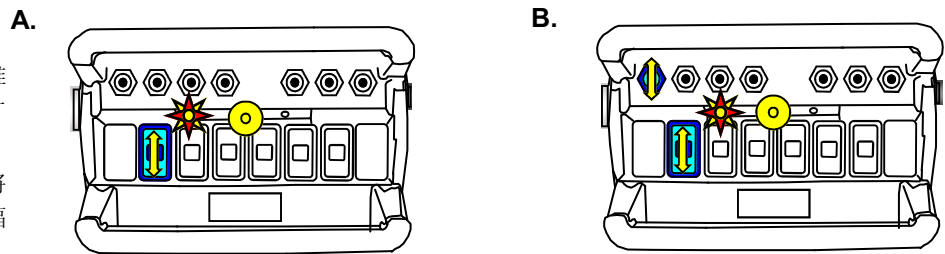
2. 设置T300发射机处于比例操纵输出强度重调状态

- 将[POWER]开关拨下并使之保持在该位置五秒直至在发射机左方的电池状态显示灯号红黄色交互闪动为止。
- 将[POWER]开关松开。



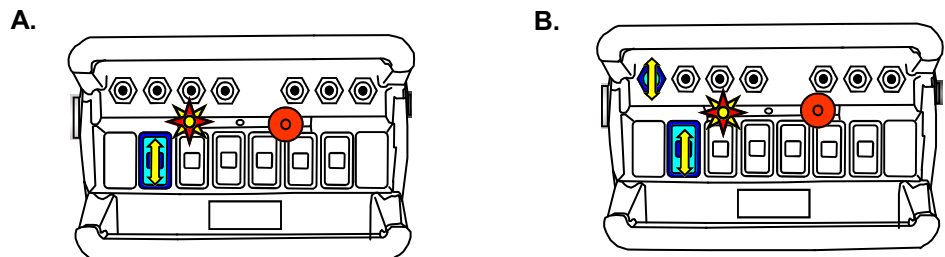
3. 最低输出水平调节

- 将欲调节之频道比例操纵杆按所需方向推上或拉下直至发射机中间的(ACTIVE)灯号亮起
- 将比例操纵杆保持在该位置并同时将[POWER]推上(增加幅度)或拉下(减低幅度)



4. 最高输出水平调节

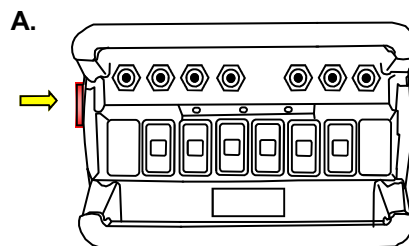
- 将欲调节之频道比例操纵杆按所需方向全程推上或拉下直至发射机右方的(E-Stop)灯号亮起。
- 将比例操纵杆保持在该位置并同时将[POWER]推上(增加幅度)或拉下(减低幅度)



备注：如要继续重调其它频道之输出幅度，祇需在关上发射机前重覆以上第三及第四点。

5. 关上发射机

- 按下[E-Stop]开关。



Light Legend

Solid		Slow Flash		Fast Flash		Red Light		Green Light		Yellow Light		Alternating Red & Yellow Light	
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Program Selection 机车类别及控制模式选择

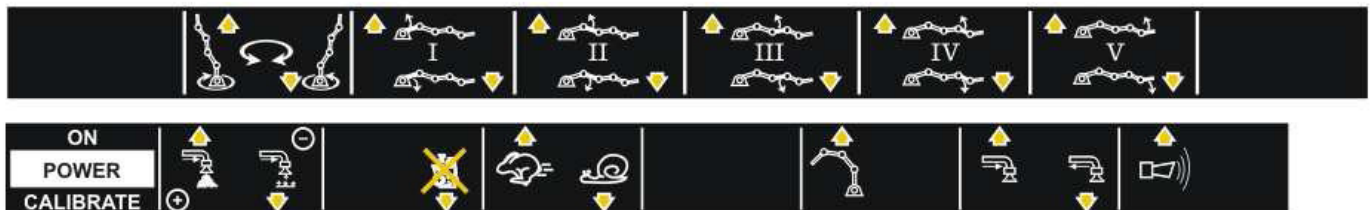
此系统可兼容八种(图示六种)不同的控制软件适用于不同模式的机车结构（现储为专供三一重工的四级臂泵车或五级臂泵车专用，如下列的**4A**和**5A**）供操作者选用。用户可根据所使用的机车类型而选择适当的控制模式用于该设备上。选择控制模式可利用接收机内的[**PROGRAM SELECT 程序选项**]按钮及显示灯作模式选择。随机附有适用于不同机车结构的标签以供选用。

控制模式设置程序

1. 将发射机电源关闭(按下红色紧急按钮)并将接收机接上电源。
2. 根据下表选择所需机车操作模式依次按下[**PROGRAM SELECT 程序选项**]按钮。

Program	Configuration	Indicator LED Light	Indicator LED Lights
4A	4 Section Boom 三一重工四节臂混凝土泵车	GREEN (ESTOP) light	
4B	SANY Model 4B 三一重工4B型机车(备用)	GREEN (FAULT) light	
4C	SANY Model 4C 三一重工4C型机车(备用)	GREEN (LINK) light	
5A	5 Section Boom 三一重工五节臂混凝土泵车	RED (ESTOP) light	
5B	SANY Model 5B 三一重工5B型机车(备用)	RED (FAULT) light	
5C	SANY Model 5C 三一重工5C型机车(备用)	RED (LINK) light	

3. 当所需机车操作模式灯号亮起，将接收机的电源关断(截断)及再次接上电源。此操作目的为将以选择的控制模式储存於内置记忆体中。
4. 选择并贴上适当的操作符号标签，控制模式选择程序完成。



Note: Clean the transmitter surface thoroughly with alcohol to allow the labels to adhere properly. Heat the label and transmitter surface for maximum adhesion. Label will need to cure overnight before use.

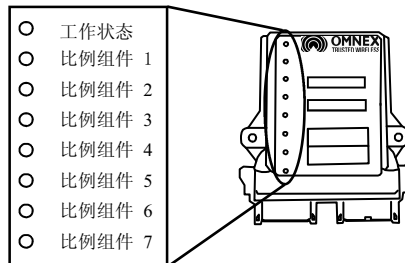
Diagnostics—T300 Transmitter 发射机之运作检查参考

	线控电缆已联接显示
	低电池容量显示。在红灯开始闪亮後，机内原有电池可供继续操作二十小时。
	发射机被设置在比例操纵输出幅度调节状态之中
	在发射机被关上後五秒之内，如再将发射机的POWER开关推上将显示此错误操作灯号。
	此短暂固定操作灯号显示有操控指令在开始正常进行中。
	此固定操作灯号显示联讯编码下载在进行中。
	此闪动操作灯号(大约每秒两次)显示发射机在发送讯号到接收机中。
	在启动发射机时如有指令开关放置在指令发送位置上，此灯号亮起以作提示。
	在启动发射机时(将POWER开关推上并放开之後)此灯号亮起，提示须将急停开关按入并释出以完成启动发射机程序。

Diagnostics - D180 Expansion Module 比例操纵组件之运作检查参考

D180比例操纵组件显示灯

工作状态显示



STATUS	工作正常	STATUS	电源电压过低
STATUS	比例操纵组件故障	STATUS	保险丝开路
STATUS	有比例操纵操控指令在进行中		

Module 1-7 Indicators

MODULE	此位置装有比例操纵组件及工作正常	MODULE	比例操纵组件与电源正极短路
MODULE	比例操纵组件与电源负极短路及电流过大	MODULE	此位置不用

Light Legend

Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Yellow Light
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Diagnostics - R160 Receiver 接收机组件之运作检查参考

系统正常操作显示

	Transmitter is OFF If the transmitter is off, the receiver is operating properly.
	Transmitter is ON When the transmitter is turned on, the Link light (fast flashing) and E-Stop (GREEN) indicates the receiver is operating properly
	Transmitter is in Operation When a function is activated on the transmitter, the Fault light will turn on GREEN. This indicates the receiver is operating properly
	Transmitter is OFF When a latched function is activated then the transmitter is turned off, the Fault light will stay on GREEN. If the system was intentionally designed this way, the receiver is operating properly, if not call for service.

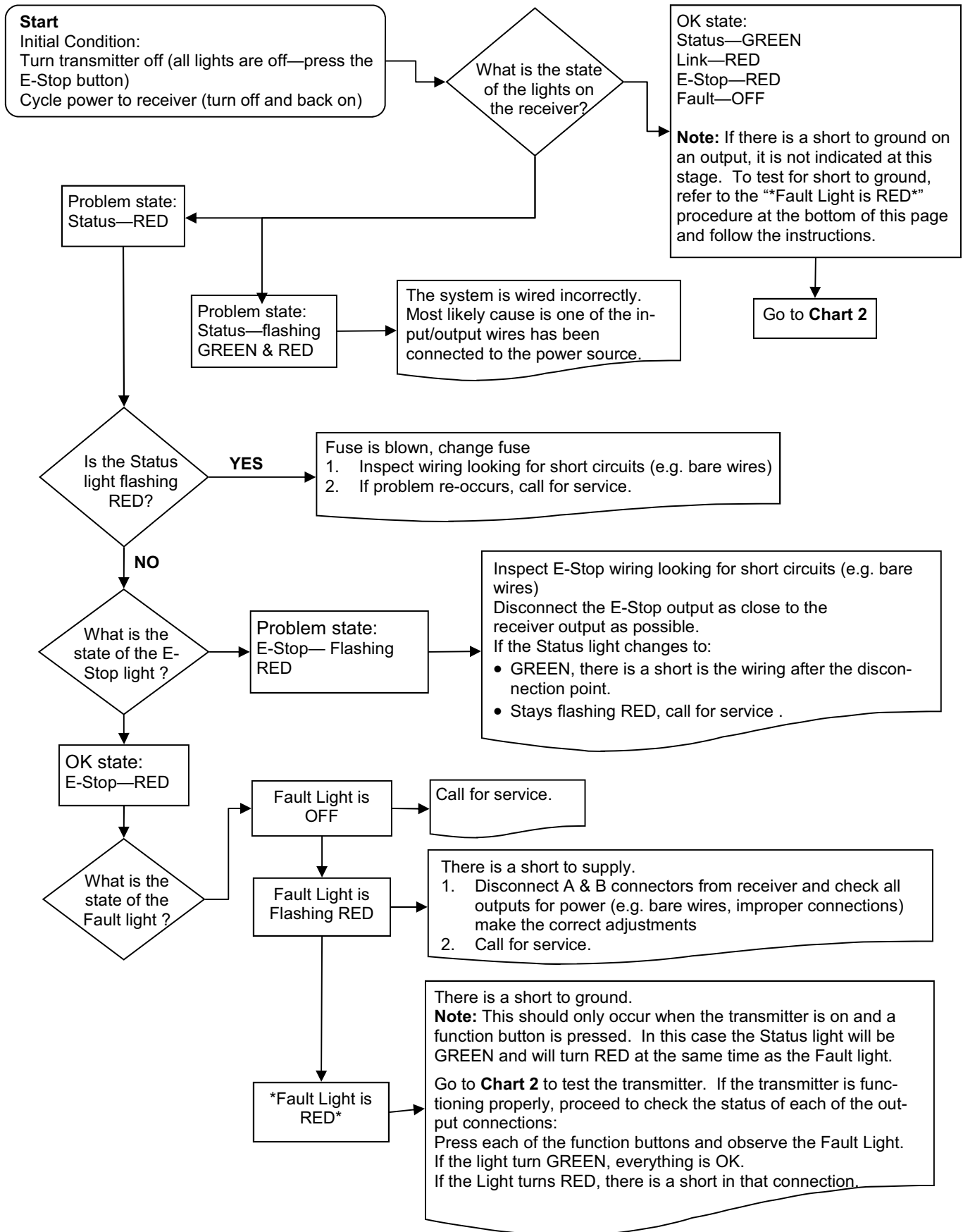
系统非正常操作显示

Note: In some cases, the indicator lights will be different depending on whether the transmitter is on or off. Please note the transmitter status in the "Description" column for each case.

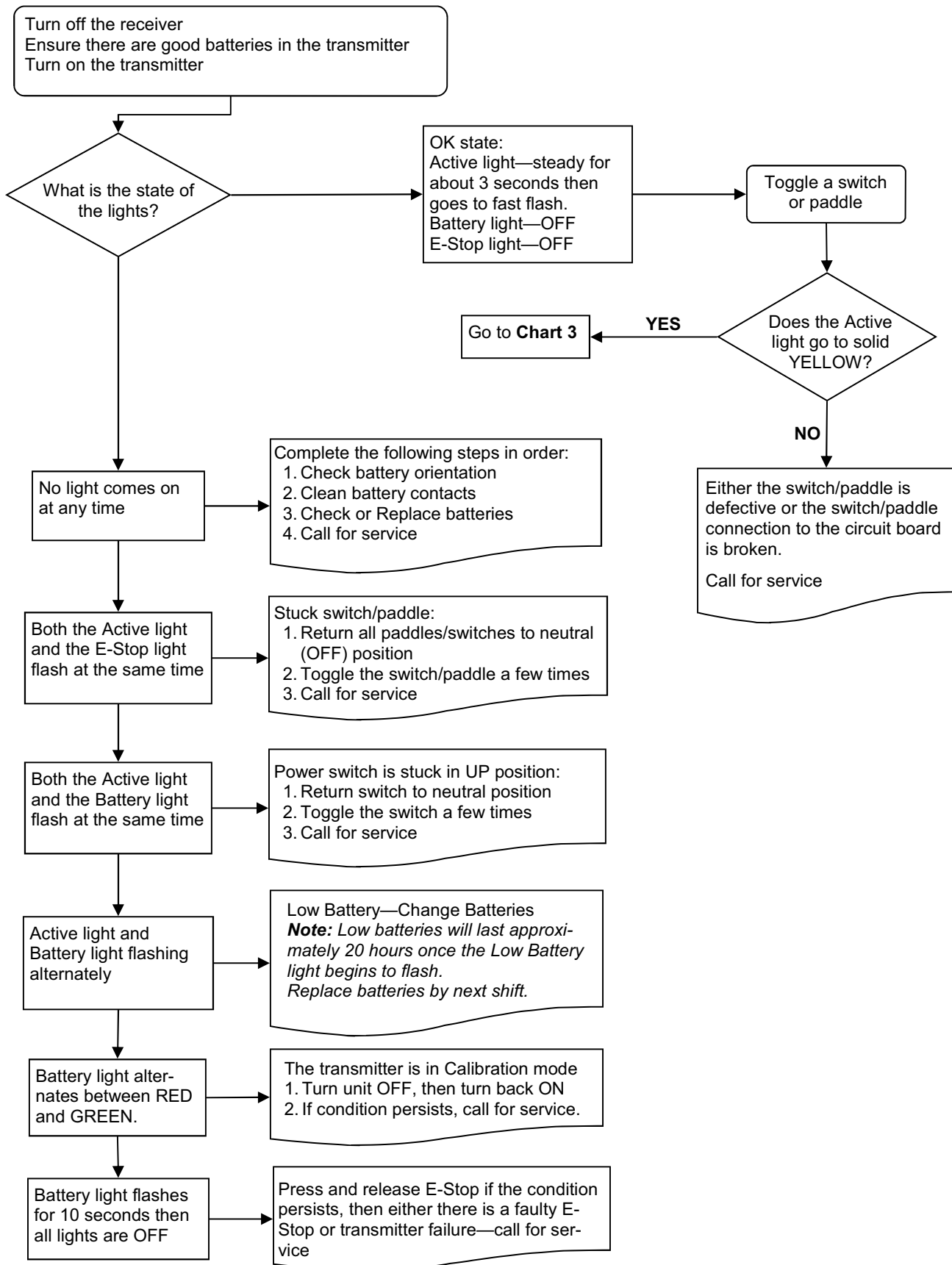
Indicator Lights	Description	Solution
	Transmitter is ON The reason is the transmitter is not communicating with the receiver.	Refer to Troubleshooting Chart #3 for solutions
	Transmitter is ON A low battery condition has been detected.	To detect intermittent conditions caused by poor or corroded ground or power circuits, the GREEN light will continue to flash for 30 seconds after the condition has been removed.
	Transmitter is ON An internal fault with the E-Stop has been detected.	Inspect E-Stop wiring for short circuit. Disconnect E-Stop wire as close to the receiver output as possible. If the Status light changes to: • GREEN, a short occurs after disconnection point. • Stays flashing RED, send it in for service .
	Transmitter is ON A short to ground or excessive current draw on an output. It is most likely caused by a wiring fault.	Ensure transmitter is functioning properly, check status of each output connection: Press each function button and observe Fault Light. • If GREEN, everything is OK. • If RED, there is a short in that connection.
	Transmitter is ON The E-Stop output has been connected with one of the other outputs	Follow the wire and check for connections with other wires, disconnect to see if condition clears. If not, call for service.
	Transmitter is OFF A wiring short to the battery has been detected.	Refer to Troubleshooting Chart #1 for solutions
	Transmitter is OFF The receiver has detected an internal fault.	Refer to Troubleshooting Chart #1 for solutions
	Transmitter is OFF Blown fuse detected.	Refer to Page 14 for instructions on how to open the receiver case to access fuse. Check wiring for shorts or bare spots. If fuses continue to blow, call for service.
	Transmitter is ON A setup failure has occurred.	Either hold the Setup button for 5 seconds to return to Setup mode or cycle power to return to the normal operating mode.
	Transmitter is OFF The receiver is powered incorrectly.	Most likely cause of this condition is that an output wire or the E-Stop wire has been connected to the power supply while the power wire is disconnected from the power supply.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light
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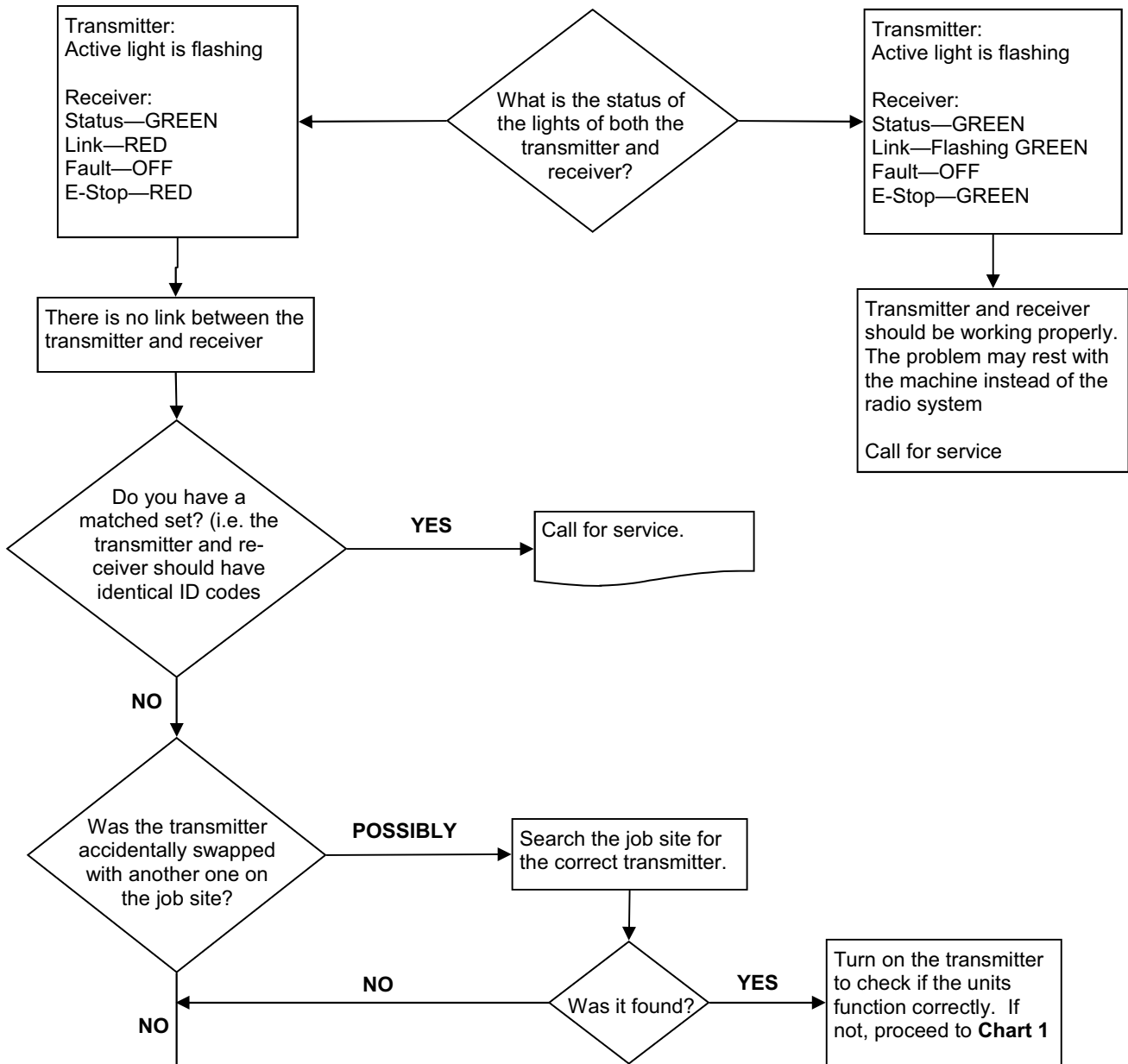
Test the Receiver—R160



Test the Transmitter—T300



Testing the Transmitter / Receiver Communication



!!Caution!!

Note: Before you proceed with the Download ID procedure located on **Page 12**, great care and caution must be adhered to. Also, refer to **Chart #4** for Tips and Considerations.

If by accident, the transmitters have been switched with another unit, by downloading the ID code to a new receiver, it is possible for the transmitter to operate 2 units at the same time (if the original receiver unit is still on the job site). Therefore it must be certain that the transmitter / receiver pair are the correct set.

Secondly, once the download procedure is completed, ensure all other units on the job site are stopped. Test the operation of the newly configured set to ensure no other machines on the site work with the same transmitter.

Once you are certain that the transmitter / receiver pair are a unique set, continue normal operations.

Considerations when Downloading the ID

Potential downloading issues

If testing of the receiver and transmitter both show the system as working (Chart 1 & 2), then the transmitter and receiver will both go into Download/Configuration mode.

Possible issues could arise during Step 4, the download phase of reprogramming. In this case there are 2 symptoms to look for:

1. The Link light on the receiver will not turn GREEN when the power switch is toggled on the transmitter to download
2. The receiver will "time out" indicating that it didn't receive a signal from the transmitter within the 30 seconds from the time the receiver was put into Setup Mode.

If all indications appear normal during the download phase, test the link by turning on the transmitter (note: the transmitter shuts off after transmitting the ID code in Step 4)

1. If the Link light on the receiver doesn't turn GREEN, the receiver didn't receive all of the information that was sent from the transmitter.

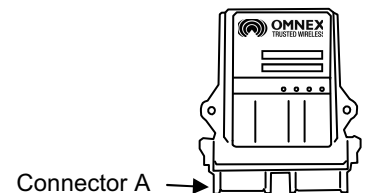
Possible Solutions

1. Try the Downloading steps again
2. If this doesn't correct the problem, send both the transmitter and receiver in for service.

Note: you could try to determine whether the fault lies with the transmitter or receiver by completing the downloading procedure with a different transmitter. If this step works, then the fault lies with the original transmitter. If not, the fault may lie with the receiver.

!!Caution!!

Note: Before attempting downloading with another transmitter, understand that reprogramming the receiver with another transmitter, could result in two receivers on the job site responding to the one transmitter. If the original transmitter was sent in for repair, Disconnect the receiver (disconnect connector A) to continue using the machine without remote capability and without fear of inadvertently operating the machine with the other transmitter.



Reprogramming Tips:

1. Use a pointy instrument to depress the Setup button on the receiver (i.e. a pen) as the button is relatively small
2. Follow each step as laid out in the procedure
3. Never lay the receiver circuit board down on anything metallic (there are contact points on the back which could contact the metal and damage the receiver)

Parts & Accessories

Part	OMNEX Part Number	Description
Batteries	B0012	4 x "C" alkaline
Fuse	F0039	36V Bi-directional, Bussman ATC-15
Shoulder Strap	FMEC-2709-01	T300 Tear-away shoulder strap
Output Cable	ACAB-2493-01	R160 Output Cable, Generic
	ACAB-2493-03	R160 Output Cable, Generic, Tethered
Pendant Cable	ACAB-2455-01	Tether Cable, 10m
	ACAB-2455-02	Tether Cable, 8m
	ACAB-2710-01	Tether Cable, 4-12ft
Connector Kit	AKIT-2337-01	Includes Deutsch socket connectors, wedges, pins and sealing plugs
Bipolar Diode Kit	AKIT-2492-01	Motorola P6KE36CA



Shoulder Strap



Pendant Cable



Pendant Coil



R160 Output Cable

Specifications

	D180 Module	R160 Receiver	T300 Transmitter
Size	5.1" x 4.7" x 1.4" (130mm x 119mm x 36mm)	5.1" x 4.7" x 1.4" (130mm x 119mm x 36mm)	9.5" x 6.0" x 5.0" (240mm x 152mm x 127mm)
Weight	0.65lbs (0.295kg)	0.65lbs (0.295kg)	3.5 lbs (incl. batteries) (1.2kg)
Construction	High impact plastic, weather-proof	High impact plastic, weather-proof	High impact, low temperature plastic, weatherproof
Input Power	+9V to 30VDC	+9V to 30VDC	4C alkaline batteries
Battery Life	N/A	N/A	500 hours (continuous use)
Operating Temperature Range	-40F to 158F (-40C to 70C)	-40F to 158F (-40C to 70C)	-40F to 140F (-40C to 60C)
Outputs	3A (max) each (sourcing), 15A (max) each (combined)	3A (max) each (sourcing), 10A (max) each (combined)	N/A
Antenna	N/A	External	Internal
Approvals	USA- FCC part 15.247 Canada- ISC RSS 210 Issue 6, Sept. 2005		

FCC Rules and Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Part 15.247
ISC RSS 210 Issue 6, Sept. 2005

Warranty

OMNEX Control Systems ULC warrants to the original purchaser that the OMNEX products are free from defects in materials and workmanship under normal use and service for a period of ONE YEAR, parts (EXCLUDING: SWITCHES, CRYSTALS, OR PARTS SUBJECT TO UNAUTHORIZED REPAIR OR MODIFICATION) and labor from the date of delivery as evidenced by a copy of the receipt. OMNEX's entire liability and your exclusive remedy shall be, at OMNEX's option, either the (a) repair or (b) replacement of the OMNEX product which is returned within the warranty period to OMNEX freight collect by the OMNEX APPROVED carrier with a copy of the purchase receipt and with the return authorization of OMNEX. If failure has resulted from accident, abuse or misapplication, OMNEX shall have no responsibility to repair or replace the product under warranty. In no event shall OMNEX be responsible for incidental or consequential damage caused by defects in its products, whether such damage occurs or is discovered before or after replacement or repair and whether or not such damage is caused by the negligence of OMNEX Control Systems ULC.

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