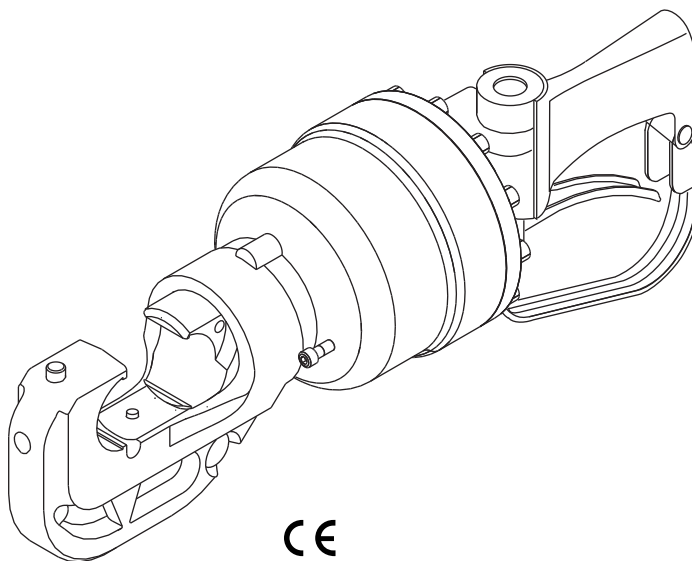


使用手册



LPK1230和LPK1240 12吨液压压接工具

序列号 FYB 和 FYD



在操作和维修此工具前，请阅读并理解本手册所有的说明和安全信息。

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说明

Greenlee Utility 12 吨液压压接工具设计用于将电缆端子压接在电缆上。

- LPK1230 — 30 mm (1.18") 钳口开度

- LPK1240 — 42 mm (1.65") 钳口开度

这两种型号的压接工具均可与开中位式或闭中位式液压系统一起使用。

这些工具接受单独购买的工业标准12吨U型可更换模。

安全性

在使用和维护Greenlee Utility工具和设备时, 安全至关重要。本使用手册和工具上的所有标记提供有避免与工具使用相关的危险或不安全做法的信息。请遵守所有提供的安全信息。

本手册的目的

本手册旨在让所有人员了解以下Greenlee Utility工具的安全操作、维护和维修程序。

- LPK1230 (49340) 序列号FYB

- LPK1240 (49345) 序列号FYD

让所有人员能用到本手册。

承索可免费更换手册。

LPK1230和LPK1240 受5,778,775号美国专利的保护。

所有规格为标称规格, 并会随设计的改进发生变化。Greenlee Textron注册公司对其产品误用导致的损坏不负任何责任。

Loctite和242是Loctite公司的注册商标。

请保留本手册

重要安全信息



安全警示符号

此符号是提醒您注意可能导致人身伤害或财产损坏的危险或不安全的做法。定义在其下的警示符号表示危险的严重性。警示符号后的内容提供用于防止或避免该危险的信息。



危险

如不可避免会导致严重的人身伤害或死亡即刻危险。



警告

如不可避免可能导致严重的人身伤害或死亡的危险。



注意

如不可避免可能导致严重的人身伤害或财产损坏的危险或不安全的做法。



警告

在操作和维修此工具前，请阅读并理解本手册的所有说明和安全信息。

如不遵守本警告，可能会导致严重的人身伤害或死亡。



警告

电击危险：

此工具不绝缘。当在通电电线附近使用此装置时，只可使用经过认证的绝缘软管并使用适当的个人防护设备。

如不遵守本警告，可能会导致严重的人身伤害或死亡。



警告

皮肤受喷射危险：

- 不要用手去查漏。
- 当液压系统受压时，不要手持软管或接头。
- 在维修液压系统前应先减压。

压力油很容易穿透皮肤而引起严重的人身伤害、坏疽或死亡。

如果受到漏油的伤害，应立即就医。



警告

在操作或维修此工具时，应佩戴护目镜。

未佩戴护目镜，可能导致眼睛受到飞溅的碎屑或液压油的严重伤害。



警告

当使用此工具时，应佩戴听力保护设备。

长期暴露在高噪音级的环境中，可能损害听力。



警告

在操作中或操作后，液压缸可能会发烫。发烫的表面可能导致严重的烫伤。



警告

压接时，手应远离模具。

不遵守本警告，可能导致严重的人身伤害或死亡。



重要安全信息



警告

压接不完全可能导致火灾。

- 使用适当的模具、连接器和电缆组合。不当的组合可能导致压接不完全。
- 安全阀发出声音表明压接完全。如果未听到安全阀的声音，表明压接不完全。

如不遵守这些警告，可能导致严重的人身伤害或死亡。



警告

请勿超出以下液压动力源的最大值：

- 液压流量：34.1 l/min (9 gpm)
- 压力释放设置：172 bar (2500 psi)
- 回油压力：13.8 bar (200 psi)

如不遵守本警告，可能导致严重的人身伤害或死亡。



警告

工具通电时，请勿更换附件、或检测、调整或清洁工具或附件。意外启动可能导致严重的人身伤害。

如不遵守本警告，可能导致严重的人身伤害或死亡。



警告

在动力源尚在运行或液压液发烫的时候，请勿断开工具、软管或管件。发烫的液压液可能导致严重的烫伤。



警告

- 应在使用前对工具进行检查，更换所有磨损的或损坏的部件。损坏或装配不当的工具可能会折断并伤及附近的人员。

- 每个工作日都应检测液压软管和接头。如有明显的泄漏、破裂、磨损或损坏，应进行修理或更换。损坏的软管或接头可能会发生故障，引起人身伤害或财产损失。

- 请将此工具的使用仅限于厂商所指定的使用。如其使用不同于本手册所述，可能导致人身伤害或财产损失。

如不遵守这些警告，可能导致严重的人身伤害或死亡。



警告

勿倒转液压流。液压流倒转时操作可能引起工具故障。将压力（供油）软管和油箱（回油）软管连至适当的端口。

如不遵守本警告，可能导致严重的人身伤害或死亡。

重要安全信息



液压油可能导致皮肤刺激。

- 操作工具和软管时，应小心避免皮肤接触液压油。
- 一旦皮肤意外接触到液压油，应立即清洗受影响的部位，将油去掉。

如不遵守这些警告，可能导致严重的人身伤害。



• 只有在成套模具到位后才可操作工具，否则可能损坏柱塞或压接工具头。

• 保持适当的基脚以免压接工具意外移动时失去平衡。

• 不要进行不同于本手册所述的维修或维护，否则可能引起人身伤害或工具的损坏。

如不遵守这些警告，可能导致人身伤害和财产损失。

重要

连接或断开液压油管、管件或部件的程序：

1. 将液压动力源上的流量控制杆调到OFF位。
2. 关闭液压动力源。
3. 按照“油管连接”顺序以防止压力恢复。一旦压力恢复，应慢慢松开软管、管件或部件。

重要

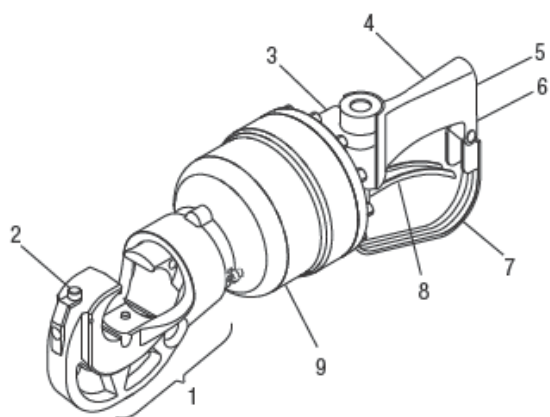
紧急关闭程序：

1. 释放扳手。
2. 切断液压动力源。

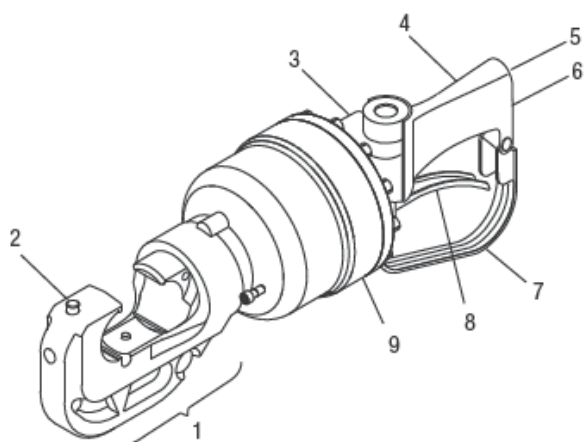
注意：保持所有粘贴标签干净且清晰易读；必要时更换。

处置部件（液压油管、液压油、磨损部件等）时，应按照联邦政府、州和地方法律或条例进行。

标识



LPK1230



LPK1240

1. 压接头
2. 压接头释放装置
3. 泄压阀
4. 手柄
5. 回流口 (离扳机较远)
6. 压力口 (离扳机较近)
7. 扳手护弓
8. 扳手
9. 油缸

规格

压接工具

液压系统型式 开中位式
或闭中位式

液压口

压力 3/4-16 UNF ASE O形圈表面密封
油箱 3/4-16 UNF ASE O形圈表面密封

行程（带模具）

LPK1230 30 mm (1.18")
LPK1240 42 mm (1.65")

压接力

103 bar (1500 psi) 时 106.7 kN (24,000 lb)

噪声级

L_{WA} （声功率级） 55.5 dB

L_{pCpeak} （峰值发射声压级） 68.8 dB

振动 3.15 ms²

质量/重量

LPK1230 8.4 kg (18.5 lb)
LPK1240 8.9 kg (19.7 lb)

长度

LPK1230 490mm (19.3")
LPK1240 516mm (20.3")

宽度 140mm (5.5")

液压动力源



警告

请勿超出以下液压动力源的最大值：

- 液压流量：34.1 l/min (9 gpm)
- 压力释放设置：172 bar (2500 psi)
- 回油压力：13.8 bar (200 psi)

如不遵守本警告，可能导致严重的人身伤害或死亡。

液压系统类型 开中位式
或闭中位式

流量

最小 11.4 l/min (3 gpm)
推荐 22.7 l/min (6 gpm)
最大 34.1 l/min (9 gpm)

卸压设定值

最小 103 bar (1500 psi)
最大 172 bar (2500 psi)

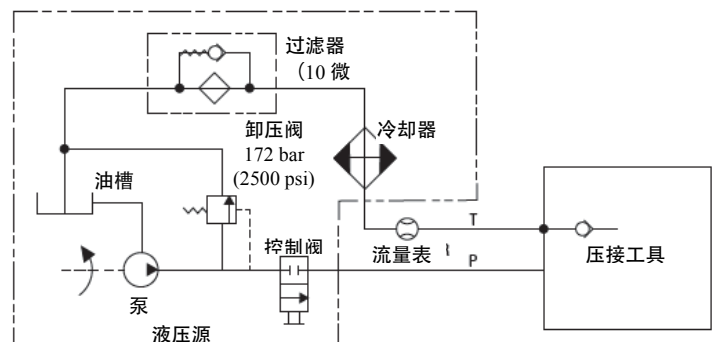
回油压力（最大）* 13.8 bar (200 psi)

过滤 10 微米（标称）

* 13.8 bar (200 psi) 是HTMA（液压工具生产协会）允许的最大标准回油压力。Greenlee Utility工具在此标准下将会良好地工作。

- 1 液压油的最高温度不得超过60°C (140°F)，需要有足够的油冷能力来限制液压油的温度。
- 2 液压流流量不得超过34.1 l/min (9 gpm)。在回油油路上安装一个流量表以测量工具使用前的液压流流率。
- 3 压力释放阀设定值在工具的最大流量下不得超过172 bar (2500 psi)，将压力释放阀安装于供油油路上以限制到工具的过液压压力。

液压示意图



推荐的液压油

使用满足以下规格或HTMA规格的非洗涤型石油基液压油：

相对粘度

38°C (100 °F) 140 到 225

99°C (210 °F) 最小40

闪点 最小70 °C (340 °F)

倾点 最小-34 °C (-30 °F)

卸压阀检查和调节程序

1. 使用以下任一方法检查卸压阀的设定值：
 - 购买一个Greenlee 35887 负载压力表。参见随测压仪提供的说明书，表上指示的适当释放压力位于12吨之内。
 - 在工具输压处安装一个管线压力表。将模具安装到位，进行试压接。适当的释放压力范围应在 103 bar 到 107 bar (1500 psi到1550 psi) 之间。
2. 要改变设定值，移开帽（50），转动调节螺钉（48）：
 - 顺时针转动增加卸放压力
 - 逆时针转动减小卸放压力

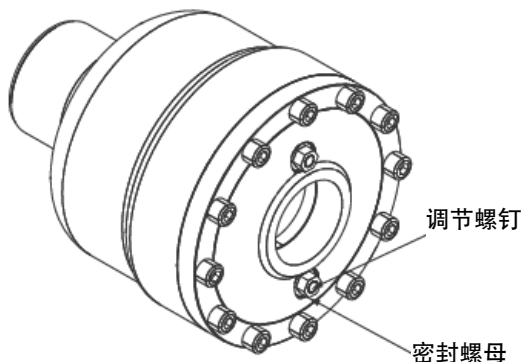
注：当螺帽（50）取下时，铜垫圈（49）可能会掉下。
3. 安装铜垫圈（49）和帽（50）。在不改变调节螺钉（48）设置的情况下，拧紧该帽。
4. 再进行三次试压接，确保卸压阀设定值在步骤3过程中未受干扰。

压接工具设置

该工具可用在开中位式或闭中位式液压系统上。

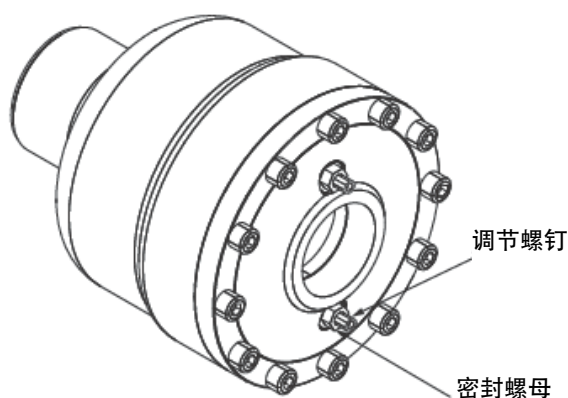
开中位式设置

- 1 退回柱塞，将压接工具与液压动力源断开。
- 2 旋松两个密封螺母，使每一个螺母退到螺钉末端。
- 3 顺时针转动螺钉——均匀地转动，每一到两圈交换一次——直到它们与活塞很好地贴合。
- 4 反向退出螺钉——均匀地转动，每一到两圈交换一次——准确地说四圈整。
- 5 用内六角扳手将螺钉固定到位，上紧密封螺母使之贴靠盖。将密封螺母扭至 6.78 Nm（5 ft-lb）。



闭中位式设置

- 1 将压接工具与液压动力源断开。
- 2 旋松这两个密封螺母。
- 3 逆时针转动螺钉——均匀地转动，每一到两圈交换一次——直到它们接触到止档。
- 4 用内六角扳手将螺钉固定到位，上紧密封螺母使之贴靠盖。将密封螺母紧至 6.78 Nm（5 ft-lb）。



安装模具

- 1 清洗模具座区。
- 2 安装适当规格和型号的压接模具。

软管和管件

安装及维护

参看该手册最后的或 SAE J1273 99930323 号出版物的“油管及油管总成”。

更换

参看Greenlee Utility产品目录或 Greenlee Utility 99910322 号出版物“低压快速接头、适配器和油管”。

油管连接

工具端口标识

Greenlee Utility 工具的压力口和回油口用下列三种方法中的一种标识。请您将工具与本表进行对照。

压力口	回油口
P	T
或	
内	外
或	
3/4-16 O 形圈表面密封	

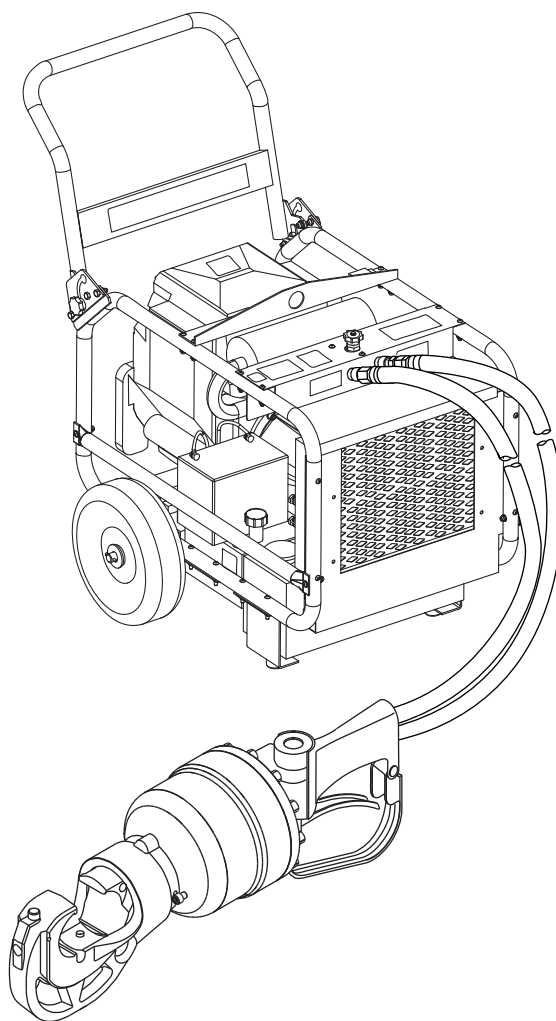
连接油管

1. 将液压动力源上的流量控制杆调到 OFF 位。
2. 关闭液压动力源。
3. 将回油管连接到动力源上的回油口，再连接到工具上的回油口。
4. 将压力管连接到工具上的压力口，再连接到动力源上的压力口。

断开油管

1. 将动力源上的流量控制杆调到 OFF 位。
2. 关闭液压动力源。
3. 将压力管与动力源断开，然后再与工具断开。
4. 将回流管与工具断开，然后再与动力源断开。

典型设置



操作

	 警告
	电击危险： 此工具不绝缘。当在通电的电线附近使用此装置时，只可使用经过认证的绝缘软管并使用适当的个人防护设备。 如不遵守本警告，可能会导致严重的人身伤害或死亡。

 警告
压接不完全可能导致火灾。 - 使用适当的模具、连接器和电缆组合。不适当的组合可能导致压接不完全。 - 卸压阀发出声音表明压接完全。如果未听到安全阀的声音，表明压接不完全。 如不遵守这些警告，可能导致严重的人身伤害或死亡。

	 警告
	皮肤受喷射危险： - 不要用手去检漏。 - 当液压系统受压时，不要手持软管或接头。 - 在维修液压系统前应先减压。 压力油很容易穿透皮肤而引起严重的人身伤害、坏疽或死亡。 如果受到漏油的伤害，应立即就医。

	 警告
	在操作或维修此工具时，应佩戴护目镜。 未佩戴护目镜，可能导致眼睛受到飞溅的碎屑或液压油的严重伤害。

	 警告
	压接时，手应远离模具。 不遵守本警告，可能导致严重的人身伤害或死亡。

- 参考连接器厂商有关电缆端子厂商的须知和压接程序。
- 将连接器置于模具间或尖点压头中心位置。
- 按下扳机，推动模具或点压头。
 - 将扳机完全按下可加快推动。
 - 将扳机部分按下可减缓推动。
- 继续压接直到压力释放阀激活。

注：压力卸放可从压接工具所发出的声音变化和液压管突然变硬体现出来。
- 压力卸放之后，释放扳机。模具退回。
- 完成端子厂商规定的压接次数。
- 未使用工具时，应断开动力源以减少工具部件发热和磨损。

维护

	警告 皮肤受喷射危险： - 不要用手去检漏。 - 当液压系统受压时，不要手持软管或接头。 - 在维修液压系统前应先减压。 压力油很容易穿透皮肤而引起严重的人身伤害、坏疽或死亡。 如果受到漏油的伤害，应立即就医。
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	警告 在操作或维修此工具时，应佩戴护目镜。 未佩戴护目镜，可能导致眼睛受到飞溅的碎屑或液压油的严重伤害。
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注：

- 保持所有粘贴标签干净且清晰易读；必要时，进行更换。
- 处置部件（液压油管、液压油、磨损部件等）时，应按照联邦政府、州和地方法律或条例进行。

日常

- 将所有工具表面彻底擦拭干净。清除所有氧化物抑制剂、连接器触点剂料和沙粒，使其脱离模具座区、模具和模具固定装置。
- 检查液压油管和管件是否有泄漏、破裂、磨损或损坏的迹象；必要时，进行更换。
- 当工具断开时，应在液压口安装防尘盖。

每月

- 按照本手册后面或 版本号 99930323 的 SAE J1273 中“油管和油管总成”所述，彻底检查液压软管和管件。
- 将所有运动部件抹上轻质油。

每季度或每压接 500 次

进行压力释放阀定期检查

每年

如果您所在单位条例要求，可将工具送往 Greenlee Utility 授权的维修中心。

压力释放阀定期检查

对压接工具进行定期测试，以确保压力释放阀在适当的压力下激活。

- 采用 Greenlee 测压装置或管线上压力表对压接工具进行测试。
 - 购买 Greenlee 测压装置，样本编号为 35887。参见随测压装置提供的说明书。
 - 将管线上压力表安装在工具的输入侧。将模具安装到位，进行试压接。
- 压力释放应在 103 到 107 bar（1500 到 1550 psi）之间发生。
- 如果压力释放在规定范围之外发生，请将压接工具送往 Greenlee Utility 授权的维修中心。

故障排除

排除故障前应确认问题出在工具、油管还是动力源中。用已知完好的工具、油管或动力源进行替换，以便识别出故障项目。

如果问题出现在工具中，请参考以下故障排除表；若问题出现在动力源，则参见动力源使用说明手册中的故障检修部分。

问题	可能的原因	可能的排除方法
工具不工作。	动力源不正常。	确认动力源是否符合规格要求。参见“规范”部分。
	液压油液位低。	检查液位，检查系统是否存在泄漏。
	液压油粘度不正确。	使用粘度正确的液压油，参见“规格”部分
工具运转缓慢或异常。	液压油油温低。	将液压油加温至工作温度。 间歇性启动工具以减少加温时间
	动力源调整有误。	参见动力源操作手册。将流量和压力设定在工具对应的值上。
	液压油液位低。	检查液位，检查系统是否存在泄漏。
	液压系统中有空气。	参见动力源厂商说明书，将系统中的空气除去。
	液压粘度不正确。	使用粘度正确的液压油，参见“规格”部分。
	液压油液面低。	检查液位，检查系统是否泄漏。
设备过热。	液压油粘度不正确。	使用粘度正确的液压油，参见“规格”部分。
	液压油不干净。	参见动力源厂商手册，了解更换液压油和过滤器的相关步骤。
	该工具反向运转。	降低液压系统压力。改正油管连接。
压接工具不能泄压。	连接到工具的油管接反了。	检查动力源规格是否符合规格要求。参见“规格”。
模具不退回。	动力源不正常。	检查动力源规格是否符合规格要求。参见“规格”。
	模具卡在了压接端子上。	将压接工具左右扭动将其从端子中取出。
	系统回油压力过大。	排除液压系统故障。

拆卸

不推荐对设备完全拆卸。如需要大修，请将您的设备送往最近的 Greenlee Utility 授权服务中心或直接送到 Greenlee Utility。

设备部件的拆装程序按工具组成划分。请只拆装需要维修的部分。

请在清洁、平整的表面上拆卸，并注意在拆卸中不要遗失或损坏可能掉落的零件。

手柄

1. 卸下 4 颗螺钉 (31) 和扳机护弓 (30)。
2. 卸下定位环 (34) 然后将扳机枢销 (33) 滑出手柄总成 (26)。取下扳机 (32)。
3. 将 12 颗螺钉 (27) 和缸盖 (20) 从油缸 (6) 取下，然后取下 O 形圈 (73, 19)。
4. 从手柄总成 (26) 上卸下定位环 (28)，然后取接管总成 (22) 和 O 形圈 (24)。
5. 相对手柄扳机面，取出定位环 (40)、弹簧帽 (39) 和弹簧 (37)。
6. 从手柄扳机面取下定位环 (40) 和垫圈 (36)。向扳机方向取下滑塞总成 (41)，并从滑塞上取下阀塞槽 O 形圈 (35)。
7. 相对扳机面，将滑塞外径 O 形圈 (38) 从手柄取下。
8. 从手柄上取下帽 (50)、铜垫圈 (49)、调节螺钉 (48)、弹簧 (47) 和阀销 (46)。
9. 取下定位环 (60)、球挡 (59) 和球 (58)。
10. 取接管塞 (45)。
11. 若有必要可从盖 (20) 上拆下滑阀止动环 (14)：取下密封螺母 (44)，然后均匀地转动螺钉 (15) ——一到两圈交换——直到其脱离盖 (20) 上。接着从滑阀止动环上取出定位环 (16) 和螺钉 (15)。
12. 如有必要，可通过低温加热使将手柄和缸盖粘结到一起的螺纹锁固剂松开来从盖 (20) 取下手柄 (26)。然后卸下手柄 (26)、填充片 (21) 和 O 形圈 (29)。

油缸和柱塞

1. 取下 4 个螺钉 (51) 和垫圈 (57)。在活塞 (7) 的螺纹孔中旋上 2 个 5/16-18 的螺钉 (不提供)，然后抓住这些螺钉将活塞拉出油缸。
2. 从活塞取下活塞密封 (18)、挡圈 (17) 和 O 形圈 (24) 连同挡圈 (25)。
3. 从活塞上取下 2 个螺钉 (13)、垫圈 (12) 和滑阀滑塞 (11)。
4. 从油缸 (6) 上取下旋转止动螺钉 (5)。
5. 将压接头总成 (1) 从油缸上卸下。
6. 然后从油缸上取下柱塞总成 (2)、垫圈 (3) 和防尘圈 (4)。
7. 从柱塞 (2) 上取下 O 形圈 (10) 和挡圈 (9)。

检查

用溶剂清洗所有的零件，然后彻底干燥。检查各部件，对磨损或损坏件进行更换。

组装

有关零部件的正向朝向和位置，参见图解说和零部件清单。

对所有拆下部件的 O 形圈、V 型环、密封件和密封垫进行更换。还应在所有 O 形圈和其安装时有接触滑动的金属表面上涂一层液压油或 O 形圈润滑剂。当安装需在尖锐表面上滑动的 O 形圈时，应采用旋转运动，并注意不要损坏 O 形圈。

组装会造成金属间接触的地方，应在接触面上涂上液压油或 O 形圈润滑剂。

组装程序中有的步骤需要用到可拆型螺纹密封和锁固剂，如乐泰®242®或等同产品，其固化请参照厂家说明书处理。

油缸和柱塞

1. 将 O 形圈 (10)、挡圈 (9)、防尘圈 (4) 和垫圈 (3) 装到柱塞 (2) 上。
2. 将柱塞总成滑入油缸 (6) 直到其尾部露出。
3. 将压接头总成 (1) 旋到油缸 (6) 上。
4. 在旋转止动螺钉 (5) 上涂一层螺纹锁固剂，然后将其装到油缸 (6) 上。
5. 将挡圈 (17)、密封件 (18)、带挡圈 (25) 的 O 形圈 (24) 装到活塞 (7) 上。
6. 涂一层螺纹锁固剂在螺钉 (13) 上，然后安装滑阀阀塞 (11)、垫圈 (12) 和螺钉 (13)。组装完成后清除多余的锁固剂，再在周围涂一薄层润滑油。
7. 在柱塞的螺纹孔处涂一点螺纹锁固剂——整个螺纹孔长度只要一滴锁固剂。然后将活塞 (7) 装进油缸 (6)，并用螺钉 (51) 和垫圈 (57) 将其固定在柱塞 (2) 上。紧至 16.9 Nm (150 in-lb)。

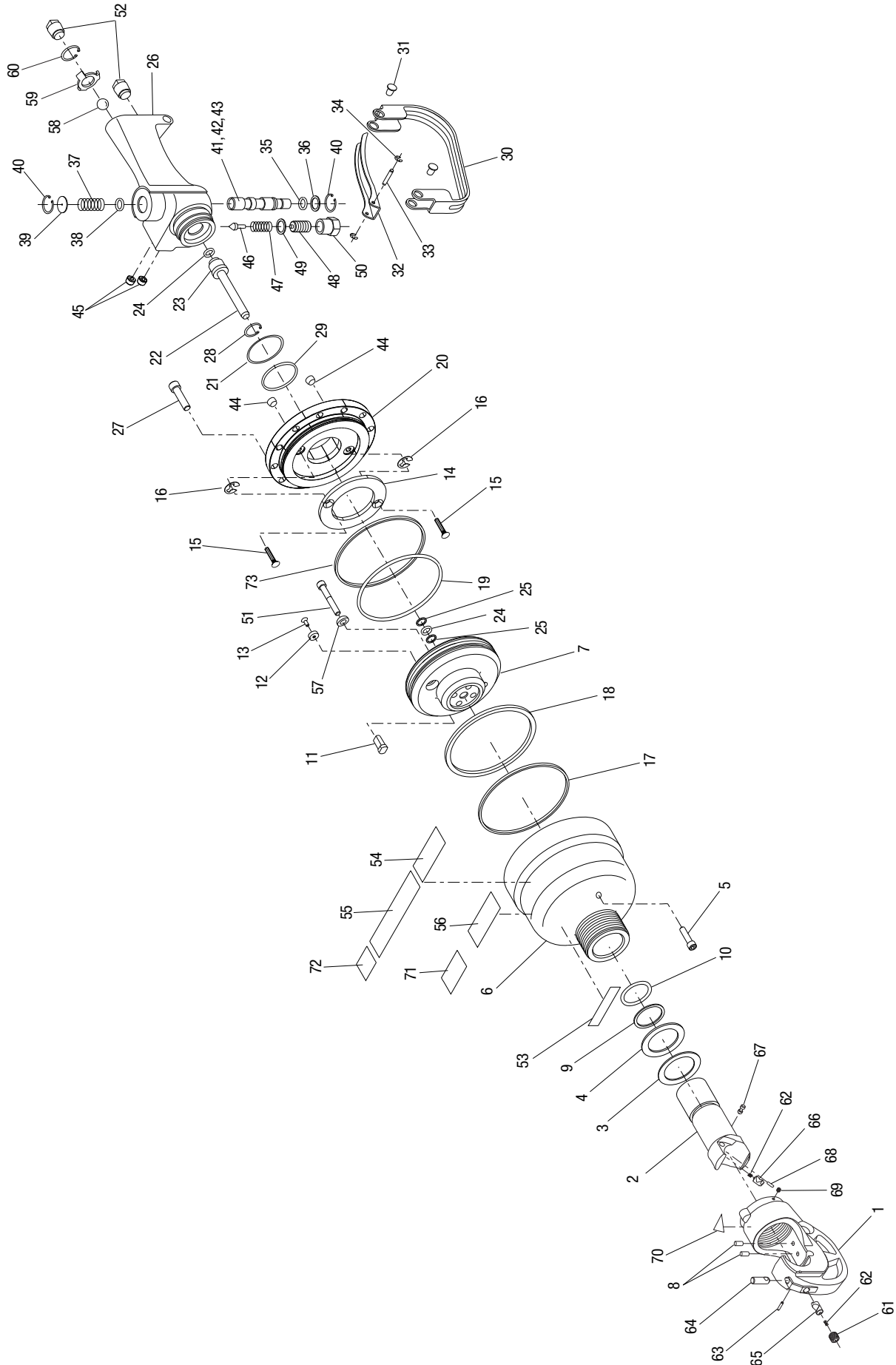
手柄和缸盖

1. 装上球 (58)、球挡 (59) 和定位环 (60)。
2. 将两个 1/8" 的管塞 (45) 装进手柄 (26)。
3. 将 O 形圈 (24) 装到管总成 (22) 上。然后把管总成滑入手柄 (26)，并用定位环 (28) 固定。
4. 将阀塞外径 O 形圈 (38) 装入手柄，然后把阀塞槽 O 形圈 (35) 安装到阀塞 (41) 上。从扳机面将阀塞总成 (41) 装到手柄 (26) 中。
5. 相对扳机面，装上弹簧 (37)、弹簧帽 (39)，并用定位环 (40) 对两者进行固定。
6. 从扳机面将止动垫圈 (36) 和定位环 (40) 装入手柄。
7. 把阀销 (46)、弹簧 (47)、调节螺钉 (48)、铜垫圈 (49) 和帽 (50) 装入手柄。
8. 将手柄总成 (26) 旋入盖 (20)，直到其妥贴。加装或取出填隙片 (21)——最多六片——以便能接近止动环调节螺钉 (15) 和螺母 (44)。装完适量填隙片后，安装 O 形圈 (29)。在螺纹处用螺纹锁固剂将手柄接到盖上。
9. 若前面取下了的话，现请将螺钉 (15) 装到滑阀止动环 (14) 上，并用定位环 (16) 把它们固定住，然后将总成安装到盖 (20) 上，最后把密封螺母 (44) 套上螺钉 (15)。
注：现阶段螺钉 (15) 的设置并不十分重要——您将会在后面的组装步骤中将其调到适当位置。
10. 将 O 形圈 (73, 19) 组装到缸盖 (20) 上。
11. 把盖 (20) 装入油缸 (6)，将手柄和压接头对正。用 12 个有头螺钉 (27) 将其固定，紧至 32.5 Nm (24 ft-lb)。
12. 将扳机 (32) 在手柄 (26) 上定位，使孔对齐。装上扳机枢销 (33) 并用 5/32" 外部定位环 (34) 将其固定。将扳机护弓 (30) 置于手柄上并用 4 个螺钉 (31) 将其固定。

最后设定值

1. 如果滑阀止动环 (14) 被取下了，参见“工具设置”部分将其调整到原来的位置（开中位式或闭中位式操作都适用）
2. 将安全阀设定到合适的压力。参见“安全阀检查和调节程序”。

图解说明



部件清单

通用产品代码编号			
编号	78-3310-	件号	描述
1	05372	50053728	压接头 (LPK1230) (包括物项 8、61-65、69 及 70) ... 1
	49348	50493485	压接头 (LPK1240) (包括物项 8、61-65 及 70) 1
2	49342	50493426	柱塞 (LPK1230) 1
	49112	50491121	柱塞 (LPK1240) 1
3*			柱塞垫圈 1
4*			柱塞防尘圈 1
5			螺钉、螺帽 1/4 - 20 x .87、内六角 1
6	49344	52026772	油缸 (LPK1230) (包括物项 53 - 56、71 及 72) 1
	49349	50493493	油缸 (LPK1240) (包括物项 53 - 56、71 及 72) 1
7	48733	50487337	活塞 1
8*			槽销 (6 mm x 12 mm) 2
9*			挡圈 1.375 x 1.62 x .121 1
10*			O 形圈 1.375 x 1.62 x .125 1
11	43546	50435469	滑阀滑塞 2
12	43547	50435477	滑阀垫圈 2
13			螺钉、螺帽 #6 - 32 x .375, 扁平头 2
14	48727	50487272	滑阀挡圈 1
15	48728	50487280	止动环螺钉 2
16*			定位环 2
17*			挡圈 4.312 x 4.500 x .125 1
18*			密封装置 1
19*			O 形圈 1
20	45659	50456598	油缸盖 1
21	48737	50487370	手柄填隙片 6 (最多)
22	43554	50435540	管子 1
23	42685	50426851	密封托架 1
24*			O 形圈 .375 x .500 x .062 - 70 2
25*			挡圈 .382 x .486 x .045 2
26	48736	50487361	手柄 1
27			螺钉、螺帽 5/16 - 18 x 1.25, 内六角 12
28*			定位环 .750 1
29*			O 形圈 1.625 x 1.750 x .062 - 70 1
30	43699	50436996	扳机护弓 1
31			螺钉、螺帽 #10 - 32 x .375, 按钮式内六角 4
32	42576	50425760	扳机 1
33	42547	50425471	扳机枢轴 1
34*			定位环 2
35*			O 形圈 .437 x .562 x .062 - 68 1
36	43401	50434012	垫圈 .75 x .50 x .03 1
37	42865	50428651	阀柱塞弹簧 1
38*			O 形圈 .562 x .750 x .093 - 68 1

通用产品代码编号			
编号	78-3310-	件号	描述
39	41095	50410952	帽 1
40*			定位环.750 2
41		52063245	滑塞 1
42	43556	50435566	滑塞 1
43*			O 形圈 .250 x .375 x .062 - 90 1
44*			螺母 1/4 - 20, 液压锁 2
45			管塞 1/8 NPTF 2
46	30146	50301462	阀销.305 x .870 1
47	40692	50406921	卸载阀弹簧 1
48	48261	50482610	调节螺钉 1/2 - 20 1
49*			铜质平垫圈 .514 x .030, 1
50	48260	50482602	卸压阀帽 1
51	54163	90541634	凹头螺钉、螺帽, 1/4 -
52	41432	50414323	端口塞 2
53	49947	50499475	粘贴标签 1
54	48734	50487345	OC/CC 设置标签 1
55	49946	50499467	警告标签 1
56	41547	50415471	Greenlee Utility 标签 1
57	54913	90549139	锥形垫圈 .55 x .25 x .05 4
58	41873	50418730	钢球 .5 1
59	49234	50492349	球挡 1
60	41600	50416003	定位环 .687 1
61	55060	90550609	调节螺钉 M12-1.75 x 12mm 1
62	03821	50038214	弹簧 2
63	55063	90550633	槽销, 3mm 1
64	05317	50053175	模具释放按钮 1
65	05319	50053191	模具释放销 1
66	05316	50053167	模具释放销 1
67	05318	50053183	模具释放按钮 1
68	55064	90550641	滚销, 3mm x 10mm 1
69	55061	90550617	调节螺钉, M5-.8 x 5mm 1
70	06214	50062140	夹手警告标签 1
71	49506	50495062	CE 标签 1
72	49959	50499599	声音标签 1
73*			挡圈 1
维修套件			
*	49343	50493434	包装套件 (包括用星号*标记的物项) 1
标签			
	49947	50499475	压力/流量标签 1
	48734	50487345	OC/CC 设置标签 1
	49946	50499467	警告标签 1
	41547	50415471	Greenlee Utility 标签 1
	06214	50062140	夹手警告标签 1
	49506	50495062	CE 标签 1
	49959	50499599	声音标签 1

油管 and 油管套件

油管 and 油管套件的选择、安装和维护—SAE J1273 1986

SAE 推荐做法

1. 范围

油管（亦包括油管总成）具有有限的寿命并且很多因素会缩短其寿命。

此推荐做法其目的旨在作为指南，去帮助那些系统设计师和/或使用用户对油管进行挑选、安装和维护。设计师和用户必须对每一种应用情况做系统的审查，然后挑选、安装和维护油管以满足应用要求。以下是总的原则但未必是完整列表。

警告

挑选、安装或维修不当可能导致永久失效、人身伤害或财产损失。

2. 挑选

以下是在最终挑选油管前，必须考虑到的因素的列表。

- 2.1 压力——在测定了系统压力后，挑选油管时必须使推荐的最大操作压力大于或等于该系统压力。波动压力高于最大操作压力将缩短油管寿命，液压系统设计师必须考虑到这一点。
- 2.2 抽吸——挑选抽吸用油管时必须确保该油管将能够承受系统负压。
- 2.3 温度——必须小心确保流体和环境的静态和瞬态温度，不超过该油管的限度。当线路接近热歧管时要特别小心。
- 2.4 流体相容性——油管的挑选必须保证油管管子、盖子和流体配件与所用流体相互适合。挑选气用油管时必须格外小心。
- 2.5 尺寸规格——通过加压液体传递的动力会随流动压力及流速的变化而变化。部件的尺寸规格必须适当，以使压力损失降至最小并避免因发热或过度紊流而造成油管损坏。

- 2.6 路线——必须关注路线的优化，以尽量减少内在问题。
- 2.7 环境——必须注意确保油管及管件与其所处的环境相容或保护其免于受所处的环境之害。诸如紫外线、臭氧、咸水、化学制品和大气污染物等环境条件可以引起劣化和早期失效，因此必须予以考虑。
- 2.8 机械载荷——外力能大大降低油管寿命。必须考虑的机械载荷包括过度弯曲、扭曲、扭结、拉伸或边缘荷载、弯曲半径和振动。可能需要使用回旋式管件或适配器，以确保不会把扭曲带入油管。特殊的应用可能需要在挑选油管之前做特殊试验。
- 2.9 磨损——尽管油管设计时考虑了合理的抗磨强度，但还是必须注意保护油管，避免油管保护层受到可导致磨蚀、打磨和切割的过度磨损。钢丝层暴露会大大加快油管故障的发生。
- 2.10 正确的终端接头——必须注意要确保基于按工业标准（如 SAE J517d）进行试验落实的制造厂家的标准选择的油管和接头之间的正确兼容。
- 2.11 长度——当确定适当的油管长度时，必须考虑运动吸收、因压力引起的油管长度变化及油管和机械公差。
- 2.12 规格和标准——当挑选油管时，政府、行业和厂商的规范及建议需得到复审而成为适用的。
- 2.13 油管清洁度——油管组件因清洁度级别而异。必须注意确保所选总成有足够级别适合应用的清洁度。
- 2.14 电导率——某些应用需要油管绝缘，以防止电流流动。而其它应用则需要导电性能足以排除静电的油管。选择油管和配件必须记着这些要求。

油管和油管套件

3. 安装

在选择了适合的油管后，安装者必须考虑下列因素。

- 3.1 安装前检查——安装前，先要仔细检查油管。所有的部件的类型、尺寸规格和长度必须正确。另外，还需检查油管的清洁程度、内径、阻塞情况、水泡、盖子松或任何其它外观缺陷。
- 3.2 按照厂商的装配指示操作。
- 3.3 最小弯曲半径——小于最小弯曲半径的安装会大大缩短油管的寿命。尤其要避免油管/管接头结合处出现锐弯。
- 3.4 扭转角度和方向——油管的安装必须确保机器部件的相对运动只会使油管弯曲而不会扭转。
- 3.5 安全性——在许多应用情况中，可能需要限制、保护或引导油管使之免于因不必要的弯曲、压力波动及与其它机械部件接触而造成的损坏。必须注意确保这些限制不会产生额外的应力或磨损点。
- 3.6 孔口条件恰当——油管的正确物理安装要求有一个正确安装的孔口连接，同时确保不会将扭转或转矩带给油管。
- 3.7 避免外部损坏——如果不能确保张力、边缘荷载、扭折、压扁、潜在的磨损、螺纹损伤或密封表面损伤已经得以纠正或消除，就不能算完整的安装。
- 3.8 系统检验——在完成安装之后，必须去除所有的滞留空气，将系统加压至最大系统压力，检验运转能否正常且无泄漏。

注意：检测时要避开潜在的危險区域。

4. 维护

即使进行了恰当的挑选和安装，如果没有一个持续的维护计划，油管的寿命也会大打折扣。维护频率应根据应用的严酷程度和潜在风险加以确定。

一个维护计划应当至少包含以下的条款。

- 4.1 油管的储存——油管产品在储存中会受到由温度、湿度、臭氧、阳光、油、溶剂、腐蚀性液体、烟雾、昆虫、啮齿

性动物和辐射性物质带来的不良影响。因此油管的储存地点应该选择相对凉爽阴暗、没有尘土、干燥和防霉的地方。

- 4.2 外观检查——任何下列情况都应更换油管：

- a. 管件处或或油管里有泄漏（泄漏的液体是火灾的隐患）。
- b. 保护层有损坏、切口或磨损（钢丝层暴露）。
- c. 油管扭折、变形、压扁或扭曲。
- d. 油管变硬、变僵、开裂或炭化。
- e. 保护层起泡、退化或松动。
- f. 管件开裂、损坏的或严重腐蚀。
- g. 管件在油管上的打滑。

- 4.3 外观检查——以下各项须上紧、维修或更换（必要时）：

- a. 孔口泄漏情况
- b. 夹具、防护装置、护罩。
- c. 去掉过多的积尘。
- d. 系统液位、流体类型和所有滞留空气。

- 4.4 功能测试——在最大操作压力下操作系统，检查可能有的异常且无泄露。

注意：检测时要避开潜在的危險区域。

- 4.5 更换间隔——具体的更换时间间隔必须根据以往的使用寿命、政府或行业建议或可能导致不能接受的故障时间、损坏或伤害风险的故障的发生时间来考虑。

经允许翻印自 1990SAE 手册。

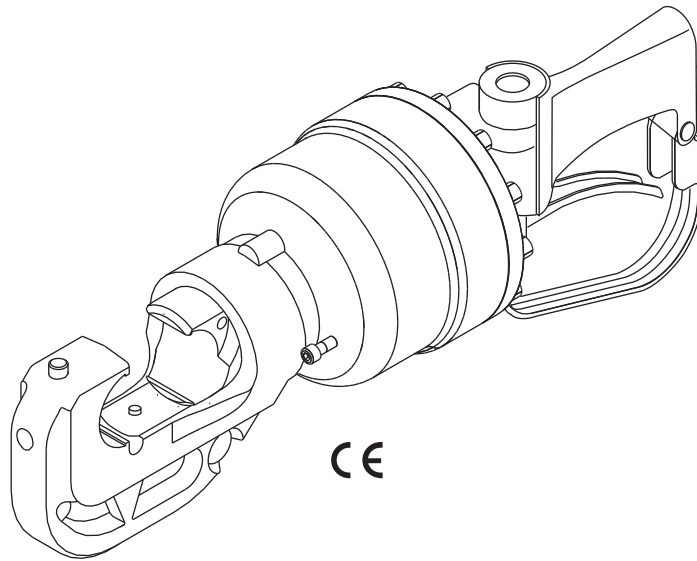


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www.greenlee.com

INSTRUCTION MANUAL



LPK1230 and LPK1240 12-ton Hydraulic Crimping Tools

Serial Codes FYB and FYD



Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

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Description

Greenlee Utility 12-ton Hydraulic Crimping Tools are intended to crimp connectors onto electrical cable.

- LPK1230 — 30 mm (1.18") jaw opening
- LPK1240 — 42 mm (1.65") jaw opening

Both of these crimping tools can be adapted for use with either open-center or closed-center hydraulic systems.

These tools accept industry standard 12-ton Type U removable dies, which are purchased separately.

Safety

Safety is essential in the use and maintenance of Greenlee tools and equipment. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

Purpose of this Manual

This instruction manual is intended to familiarize all personnel with the safe operation, maintenance, and service procedures for the following Greenlee Utility tools:

- LPK1230 (49340) Serial Code FYB
- LPK1240 (49345) Serial Code FYD

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge.

LPK1230 and LPK1240 are protected by U.S. Patent Number 5,778,755.

All specifications are nominal and may change as design improvements occur. Greenlee Textron Inc. shall not be liable for damages resulting from misapplication or misuse of its products. Loctite and 242 are registered trademarks of Loctite Corporation.

KEEP THIS MANUAL



IMPORTANT SAFETY INFORMATION



SAFETY ALERT SYMBOL

This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

⚠ DANGER

Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

⚠ WARNING

Hazards which, if not avoided, **COULD** result in severe injury or death.

⚠ CAUTION

Hazards or unsafe practices which, if not avoided, **MAY** result in injury or property damage.



⚠ WARNING

Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

Failure to observe this warning could result in severe injury or death.



⚠ WARNING

Electric shock hazard:

This tool is not insulated. When using this unit near energized electrical lines, use only certified non-conductive hoses and proper personal protective equipment.

Failure to observe this warning could result in severe injury or death.

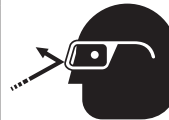


⚠ WARNING

Skin injection hazard:

- Do not use hands to check for leaks.
- Do not hold hose or couplers while the hydraulic system is pressurized.
- Depressurize the hydraulic system before servicing.

Oil under pressure easily punctures skin causing serious injury, gangrene or death. If you are injured by escaping oil, seek medical attention immediately.



⚠ WARNING

Wear eye protection when operating or servicing this tool.

Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.



⚠ WARNING

Wear hearing protection when using this tool.

Long-term exposure to high noise levels could result in hearing loss.



⚠ WARNING

The hydraulic cylinder may be hot during and after operation. Hot surfaces could cause serious burns.



⚠ WARNING

Keep hands away from dies when crimping.

Failure to observe this warning could result in severe injury or death.



IMPORTANT SAFETY INFORMATION

⚠ WARNING

An incomplete crimp can cause a fire.

- Use proper die, connector, and cable combinations. Improper combinations can result in an incomplete crimp.
- The relief valve sounds to indicate a completed crimp. If you do not hear the sound of the relief valve, the crimp is not complete.

Failure to observe these warnings could result in severe injury or death.

⚠ WARNING

Do not exceed the following hydraulic power source maximums:

- Hydraulic flow: 34.1 l/min (9 gpm)
- Pressure relief setting: 172 bar (2500 psi)
- Back pressure: 13.8 bar (200 psi)

Failure to observe this warning could result in severe injury or death.

⚠ WARNING

Do not change accessories, inspect, adjust, or clean tool or accessories when it is connected to a power source. Accidental start-up can result in serious injury.

Failure to observe this warning could result in severe injury or death.

⚠ WARNING

Do not disconnect tool, hoses, or fittings while the power source is running or if the hydraulic fluid is hot. Hot hydraulic fluid could cause serious burns.

⚠ WARNING

- Inspect tool before use. Replace any worn or damaged parts. A damaged or improperly assembled tool can break and strike nearby personnel.
- Inspect the hydraulic hoses and couplings every operating day. Repair or replace if leakage, cracking, wear, or damage is evident. Damaged hoses or couplings can fail, resulting in injury or property damage.
- Use this tool for manufacturer's intended use only. Use other than that which is described in this manual could result in injury or property damage.

Failure to observe these warnings could result in severe injury or death.

⚠ WARNING

Do not reverse hydraulic flow. Operation with hydraulic flow reversed can cause tool malfunction. Connect the pressure (supply) hose and tank (return) hose to the proper ports.

Failure to observe this warning could result in severe injury or death.



IMPORTANT SAFETY INFORMATION

⚠ CAUTION

Hydraulic oil can cause skin irritation.

- Handle the tool and hoses with care to prevent skin contact with hydraulic oil.
- In case of accidental skin contact with hydraulic oil, wash the affected area immediately to remove the oil.

Failure to observe these precautions may result in injury.

⚠ CAUTION

- Do not operate the tool without a set of dies in place. Damage to the ram or crimping tool head can result.
- Maintain proper footing to prevent loss of balance in case of unexpected movement of the crimping tool.
- Do not perform any service or maintenance other than as described in this manual. Injury or damage to the tool may result.

Failure to observe these precautions may result in injury and property damage.

IMPORTANT

Procedure for connecting or disconnecting hydraulic hoses, fittings, or components:

1. Move the flow control lever on the hydraulic power source to the OFF position.
2. Stop the hydraulic power source.
3. Follow the sequence under “Hose Connections” to prevent pressure buildup. In case some pressure has built up, loosen hoses, fittings, or components slowly.

IMPORTANT

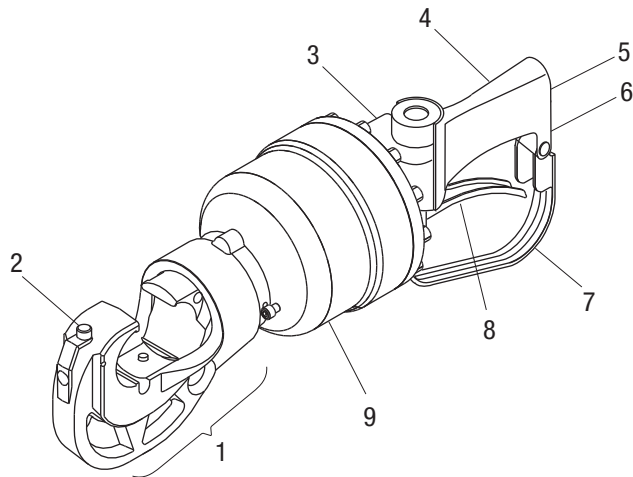
Emergency stop procedure:

1. Release the trigger.
2. Shut off the hydraulic power source.

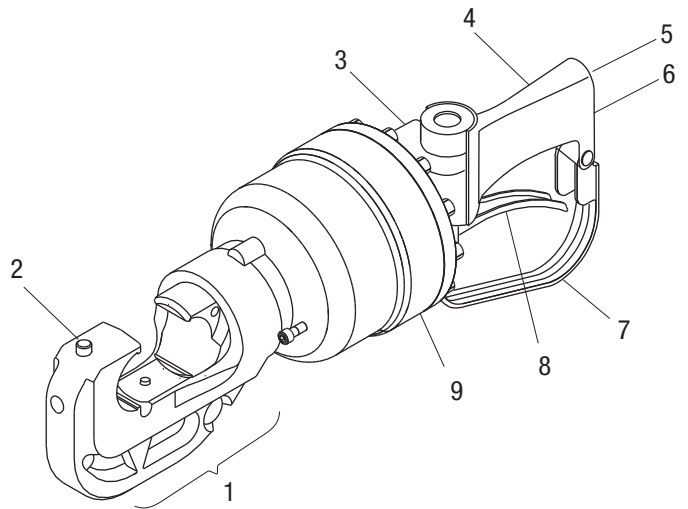
Note: Keep all decals clean and legible, and replace when necessary.

When disposing of any components (hydraulic hoses, hydraulic fluid, worn parts, etc.), do so in accordance with federal, state, and local laws or ordinances.

Identification



LPK1230



LPK1240

1. Crimping Head
2. Crimping Head Release Mechanism
3. Relief Valve
4. Handle
5. Return Port (farther from trigger)
6. Pressure Port (closer to trigger)
7. Trigger Strap
8. Trigger
9. Cylinder

Specifications

Crimping Tool

Type of Hydraulic System.....Open-center
or closed-center

Hydraulic Ports

Pressure3/4-16 UNF SAE O-ring Boss
Tank.....3/4-16 UNF SAE O-ring Boss

Stroke (with dies)

LPK123030 mm (1.18")
LPK124042 mm (1.65")

Crimping Force @

103 bar (1500 psi).....106.7 kN (24,000 lb)

Noise Levels

L_{WA} (sound power level)55.5 dB
L_{pCpeak} (peak emission
sound pressure level)68.8 dB

Vibration3.15 ms²

Mass/Weight

LPK12308.4 kg (18.5 lb)
LPK12408.9 kg (19.7 lb)

Length

LPK1230490 mm (19.3")
LPK1240516 mm (20.3")

Width140 mm (5.5")

Hydraulic Power Source

⚠ WARNING

Do not exceed the following hydraulic power source maximums:

- Hydraulic flow: 34.1 l/min (9 gpm)
- Pressure relief setting: 172 bar (2500 psi)
- Back pressure: 13.8 bar (200 psi)

Failure to observe this warning could result in severe injury or death.

Type of Hydraulic System.....Open-center
or closed-center

Flow

Minimum11.4 l/min (3 gpm)
Recommended.....22.7 l/min (6 gpm)
Maximum34.1 l/min (9 gpm)

Pressure Relief Setting

Minimum103 bar (1500 psi)
Maximum172 bar (2500 psi)

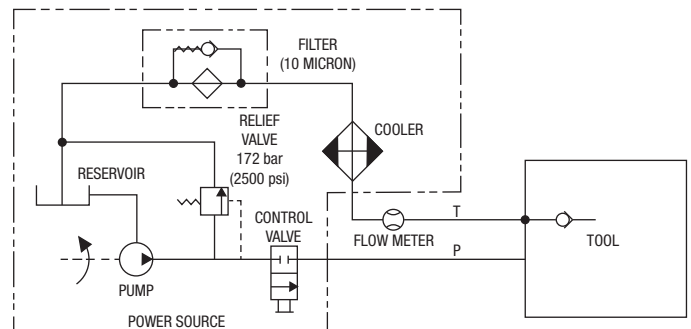
Back Pressure (maximum)*13.8 bar (200 psi)

Filtration.....10 Micron (nominal)

* 13.8 bar (200 psi) is the maximum agreed standard back pressure for the HTMA (Hydraulic Tool Manufacturers Association). Greenlee Utility tool will operate satisfactorily at this standard.

1. Maximum hydraulic fluid temperature must not exceed 60 °C (140 °F). A sufficient oil cooling capacity is needed to limit the hydraulic fluid temperature.
2. Hydraulic flow must not exceed 34.1 l/min (9 gpm). Install a flow meter in the return line to measure to rate of hydraulic flow before using the tool.
3. Pressure relief valve setting must not exceed 172 bar (2500 psi) at your tool's maximum flow. Locate the pressure relief valve in the supply circuit to limit excessive hydraulic pressure to the tool.

Hydraulic Schematic



Recommended Hydraulic Fluids

Use any non-detergent, petroleum-based hydraulic fluid which meets the following specifications or HTMA specifications.

S.U.S. @

38 °C (100 °F).....140 to 225
99 °C (210 °F).....40 minimum

Flash Point.....170 °C (340 °F) minimum

Pour Point.....-34 °C (-30 °F) minimum

Relief Valve Check and Adjustment Procedure

1. Use one of these methods for checking the setting of the relief valve:
 - Purchase a Greenlee 35887 Load Cell. Refer to the instructions supplied with the load cell. The proper relief pressure is within the 12-ton range indicated on the gauge.
 - Install an in-line pressure gauge at the tool's input. With dies in place, perform a test crimp. The proper relief pressure range is 103 bar to 107 bar (1500 psi to 1550 psi).
2. To change the setting, remove the cap (50) and rotate the set screw (48):
 - clockwise to increase the relief pressure
 - counterclockwise to decrease the relief pressure

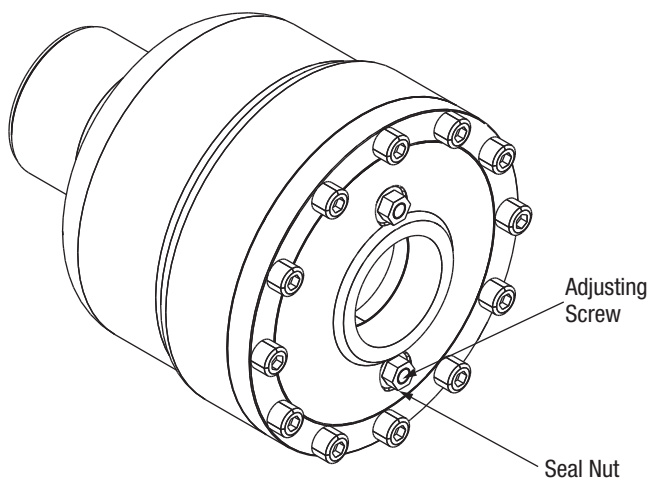
Note: The copper washer (49) may fall free when the cap (50) is removed.
3. Install the copper washer (49) and cap (50). Without changing the setting of the set screw (48), tighten the cap.
4. Perform three more test crimps to be sure that the relief valve setting was not disturbed during Step 3.

Tool Setup

This tool can be used on either open-center or closed-center hydraulic systems.

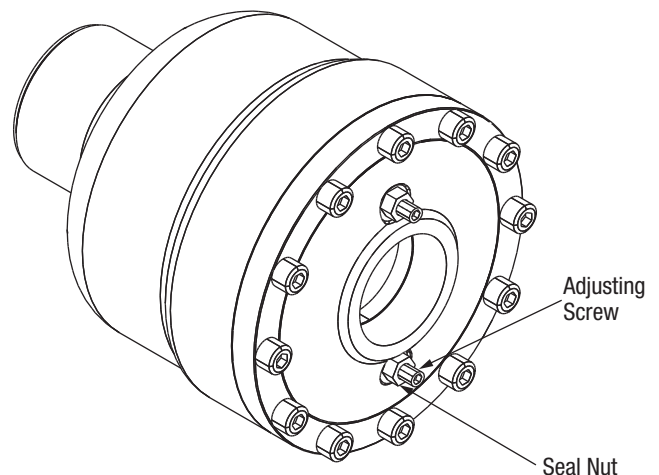
Open-Center Setting

1. With the ram retracted, disconnect the crimping tool from the hydraulic power source.
2. Loosen the two seal nuts. Back each seal nut out to the end of the screw.
3. Turn the screws clockwise — evenly, alternating every one to two turns — until they contact the piston and feel snug.
4. Back the screws out — evenly, alternating every one to two turns — exactly four complete turns.
5. Hold the screws in place with an Allen wrench and tighten the seal nuts against the cover. Torque the seal nuts to 6.78 Nm (5 ft-lb).



Closed-Center Setting

1. Disconnect the crimping tool from the hydraulic power source.
2. Loosen the two seal nuts.
3. Turn the screws counterclockwise — evenly, alternating every one to two turns — until they contact the stops.
4. Hold the screws in place with an Allen wrench and tighten the seal nuts against the cover. Torque the seal nuts to 6.78 Nm (5 ft-lb).



Installing Dies

1. Clean the die seat area.
2. Install the proper size and type of crimping dies.

Hoses and Fittings

Installation and Maintenance

Refer to “Hose and Hose Assemblies” at the end of this manual or publication 99930323, SAE J1273.

Replacement

Refer to a Greenlee Utility catalog or publication 99910322, Low Pressure Quick Couplers, Adapters and Hoses.

Hose Connections

Tool Port Identification

One of three methods is used to identify the pressure and return ports of Greenlee Utility tools. Match your tool to this table.

Pressure Port	Return Port
P	T
or	
In	Out
or	
3/4-16 O-ring Boss	

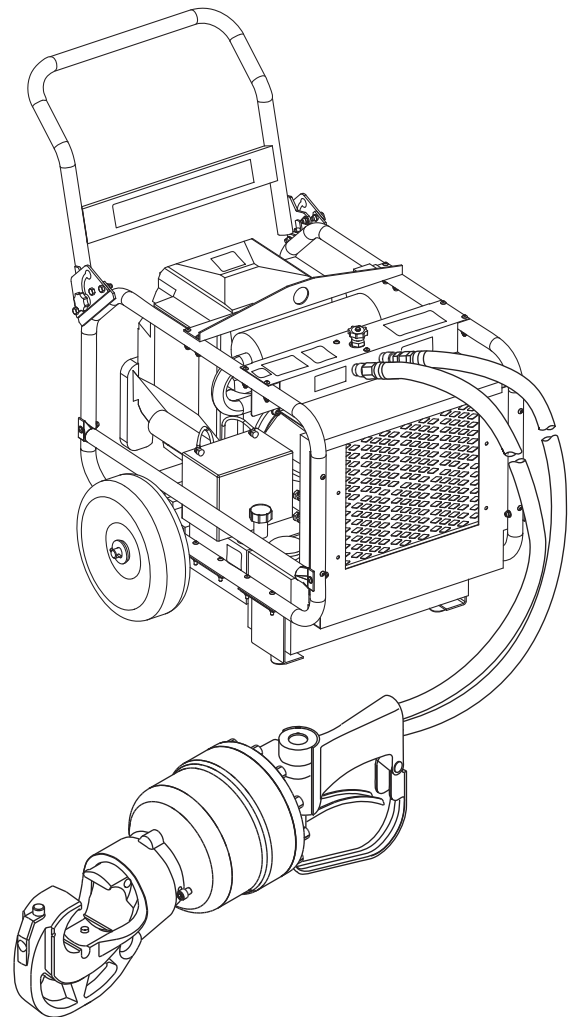
Connecting Hoses

1. Move the flow control lever on the hydraulic power source to the OFF position.
2. Stop the hydraulic power source.
3. Connect the return hose to the return port on the power source, and then to the return port on the tool.
4. Connect the pressure hose to the pressure port on the tool, and then to the pressure port on the power source.

Disconnecting Hoses

1. Move the flow control lever on the hydraulic power source to the OFF position.
2. Stop the hydraulic power source.
3. Disconnect the pressure hose from the power source, and then from the tool.
4. Disconnect the return hose from the tool, and then from the power source.

Typical Setup



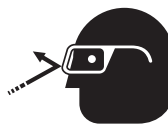
Operation

	⚠ WARNING
	Electric shock hazard: This tool is not insulated. When using this unit near energized electrical lines, use only certified non-conductive hoses and proper personal protective equipment. Failure to observe this warning could result in severe injury or death.

⚠ WARNING
An incomplete crimp can cause a fire. • Use proper die, connector, and cable combinations. Improper combinations can result in an incomplete crimp. • The relief valve sounds to indicate a completed crimp. If you do not hear the sound of the relief valve, the crimp is not complete. Failure to observe these warnings could result in severe injury or death.

	⚠ WARNING
	Skin injection hazard: • Do not use hands to check for leaks. • Do not hold hose or couplers while the hydraulic system is pressurized. • Depressurize the hydraulic system before servicing. Oil under pressure easily punctures skin causing serious injury, gangrene or death. If you are injured by escaping oil, seek medical attention immediately.

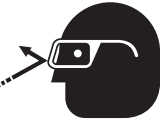
1. Refer to the connector manufacturer's instructions for cable preparation and the crimping procedure.
2. Center the connector between the dies or nibs.
3. Press the trigger to advance the dies or nibs.
 - Press the trigger down completely for fast advance.
 - Press the trigger down partially for slow advance.
4. Continue crimping until the pressure relief valve activates.
Note: Pressure relief is indicated by a change in the sound from the crimping tool and a sudden stiffening of the hydraulic hoses.
5. After achieving pressure relief, release the trigger. The dies retract.
6. Complete the number of crimps specified by the connector manufacturer.
7. When the tool is not in use, stop the power source to reduce heat and wear on tool components.

	⚠ WARNING
	Wear eye protection when operating or servicing this tool. Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.

	⚠ WARNING
	Keep hands away from dies when crimping. Failure to observe this warning could result in severe injury or death.

Maintenance

	⚠ WARNING
	Skin injection hazard: • Do not use hands to check for leaks. • Do not hold hose or couplers while the hydraulic system is pressurized. • Depressurize the hydraulic system before servicing. Oil under pressure easily punctures skin causing serious injury, gangrene or death. If you are injured by escaping oil, seek medical attention immediately.

	⚠ WARNING
	Wear eye protection when operating or servicing this tool. Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.

Notes:

- Keep all decals clean and legible, and replace when necessary,
- When disposing of any components (hydraulic hoses, hydraulic fluid, worn parts, etc.), do so in accordance with federal, state and local laws or ordinances.

Daily

1. Thoroughly wipe all tool surfaces clean. Remove any oxide inhibitor, connector contact compound, and grit from the die seat areas, dies and die holders.
2. Inspect the hydraulic hoses and fittings for signs of leaks, cracks, wear or damage. Replace if necessary.
3. Install dust caps over the hydraulic ports when the tool is disconnected.

Monthly

1. Perform a thorough inspection of the hydraulic hoses and fittings as described in “Hose and Hose Assemblies” at the end of this manual or in publication 99930323, SAE J1273.
2. Apply a light oil to all moving parts.

Quarterly or Every 500 Crimps

Perform the Periodic Pressure Relief Valve Check.

Annually

If required by your organization’s regulations, send the tool to a Greenlee Utility Authorized Service Center.

Periodic Pressure Relief Valve Check

Test the crimping tool periodically to ensure that the pressure relief valve activates at the proper pressure.

1. Test the crimping tool with either a Greenlee load cell or with an in-line pressure gauge.
 - Purchase a Greenlee Load Cell, catalog number 35887. Refer to the instructions supplied with the load cell.
 - Install an in-line pressure gauge on the input side of the tool. With dies in place, perform a test crimp.
2. Pressure relief should occur at 103 to 107 bar (1500 to 1550 psi).
3. If pressure relief occurs outside of the specified range, send the crimping tool to a Greenlee Utility Authorized Service Center.

Troubleshooting

Before troubleshooting, determine whether the problem is in the tool, the hoses, or the power source. Substitute a tool, hoses, or power source known to be in good working order to identify the item that is not operating.

If the problem is in the tool, refer to the troubleshooting table below. If the problem is in the power source, refer to the troubleshooting section of the power source instruction manual.

Problem	Probable Cause	Probable Remedy
Tool does not operate.	Improper power source.	Verify that the power source meets the specifications. Refer to the “Specifications” section.
	Hydraulic fluid level low.	Check the fluid level. Check system for leaks.
	Incorrect hydraulic fluid viscosity.	Use hydraulic fluid with the correct viscosity. Refer to the “Specifications” section.
Tool operates slowly or erratically.	Hydraulic fluid cold.	Allow fluid to warm to the operating temperature. Actuate the tool intermittently to reduce the warming time.
	Power source not adjusted correctly.	Refer to power source operator’s manual. Set the flow and pressure to correspond with the tool.
	Hydraulic fluid level low.	Check the fluid level. Check system for leaks.
	Air in the hydraulic system.	Refer to power source manufacturer’s instructions for removing air from the system.
	Incorrect hydraulic fluid viscosity.	Use hydraulic fluid with the correct viscosity. Refer to the “Specifications” section.
Tool feels hot.	Hydraulic fluid level low.	Check the fluid level. Check system for leaks.
	Incorrect hydraulic fluid viscosity.	Use hydraulic fluid with the correct viscosity. Refer to the “Specifications” section.
	Hydraulic fluid dirty.	Refer to the power source owner’s manual for procedure to replace hydraulic oil and filter.
Tool operates backward.	Hose connections at tool are reversed.	Depressurize the hydraulic system. Switch the hose connections.
Crimping tool does not achieve pressure relief.	Improper power source	Verify that the power source meets the specifications. Refer to the “Specifications” section.
Dies do not retract.	Dies caught on crimped connector.	Twist crimping tool from side to side to free it from the connector.
	Excessive system back pressure.	Troubleshoot the hydraulic system.



Disassembly

Complete disassembly of the tool is not recommended. If a complete overhaul is necessary, return the tool to your nearest Greenlee Utility Authorized Service Center or to Greenlee.

The disassembly procedure is divided into sections of the tool. Disassemble only the section(s) necessary to complete the repair.

Disassemble the tool on a flat, clean surface. Take care not to lose or damage any parts that may fall free during disassembly.

Handle

1. Remove four screws (31) and the trigger strap (30).
2. Remove one retaining ring (34) and slide the trigger pivot pin (33) out of the handle assembly (26). Remove the trigger (32).
3. Remove 12 screws (27) and cover (20) from the cylinder (6). Remove the O-rings (73, 19).
4. Remove the retaining ring (28) from the handle assembly (26). Remove the tube assembly (22) and O-ring (24).
5. Opposite the trigger side of the handle, remove the retaining ring (40), spring cap (39), and spring (37).
6. On the trigger side of the handle, remove the retaining ring (40) and washer (36). Remove the spool assembly (41) toward the trigger side. Remove the spool groove O-ring (35) from the spool.
7. Opposite the trigger side, remove the spool OD O-ring (38) from the handle.
8. Remove cap (50), copper washer (49), adjusting screw (48), spring (47), and valve pin (46) from the handle.
9. Remove retaining ring (60), ball stop (59), and ball (58).
10. Remove pipe plugs (45).
11. If necessary, disassemble the shuttle stop ring (14) from the cover (20): Remove the seal nuts (44). Then turn the screws (15) evenly — alternating every one to two turns — until they disengage from the cover (20). Remove the retaining rings (16) and screws (15) from the shuttle stop ring.
12. If necessary, remove the handle (26) from the cover (20) by using low heat to break loose the thread locking compound that holds them together. Remove the handle (26), shims (21), and O-ring (29).

Cylinder and Ram

1. Remove four screws (51) and washers (57). Thread two 5/16-18 screws (not provided) into the tapped holes in the piston (7). Grasp these screws to pull the piston out of the cylinder.
2. Remove the piston seal (18), backup ring (17) and O-ring (24) with backup rings (25) from the piston.
3. Remove two screws (13), washers (12), and shuttle spools (11) from the piston.
4. Remove the rotational stop screw (5) from the cylinder (6).
5. Remove the C-head assembly (1) from the cylinder.
6. Remove the ram assembly (2), washer (3), and wiper (4) from the cylinder.
7. Remove the O-ring (10) and backup ring (9) from the ram (2).

Inspection

Clean all parts with solvent and dry them thoroughly. Inspect each component, and replace any that shows wear or damage.

Assembly

Refer to the illustration and parts list for the correct orientation and placement of parts.

Replace any O-rings, V-rings, seals, and gaskets on parts that have been disassembled. Apply hydraulic fluid or O-ring lubricant to all O-rings and all metal surfaces which they must slide over. When installing an O-ring which must slide over sharp surfaces, use a rolling motion and be careful not to damage the O-ring.

Wherever the assembly results in metal-to-metal contact, coat the surfaces with hydraulic fluid or O-ring lubricant.

Some steps of the assembly procedure require a removable type of thread sealing and locking compound, such as Loctite® 242® or equivalent. Follow the manufacturer's instructions for curing.

Cylinder and Ram

1. Install O-ring (10), backup ring (9), wiper (4), and washer (3) onto the ram (2).
2. Slide the ram assembly into the cylinder (6) until it bottoms out.
3. Screw the C-head assembly (1) onto the cylinder (6).
4. Apply a thread locking compound to the rotational stop screw (5) and install it into the cylinder (6).
5. Install backup ring (17), seal (18), and O-ring (24) with backup rings (25) onto the piston (7).
6. Apply a thread locking compound to the screws (13). Install shuttle spools (11), washers (12), and screws (13). Remove excess compound after assembly and apply a thin coat of oil to the surrounding area.
7. Apply a thread locking compound to the threaded holes of the ram — one bead of compound along the entire length of the thread. Install the piston (7) into the cylinder (6) and secure it to the ram assembly (2) using screws (51) with washers (57). Torque to 16.9 Nm (150 in-lb).

Handle with Cylinder Cover

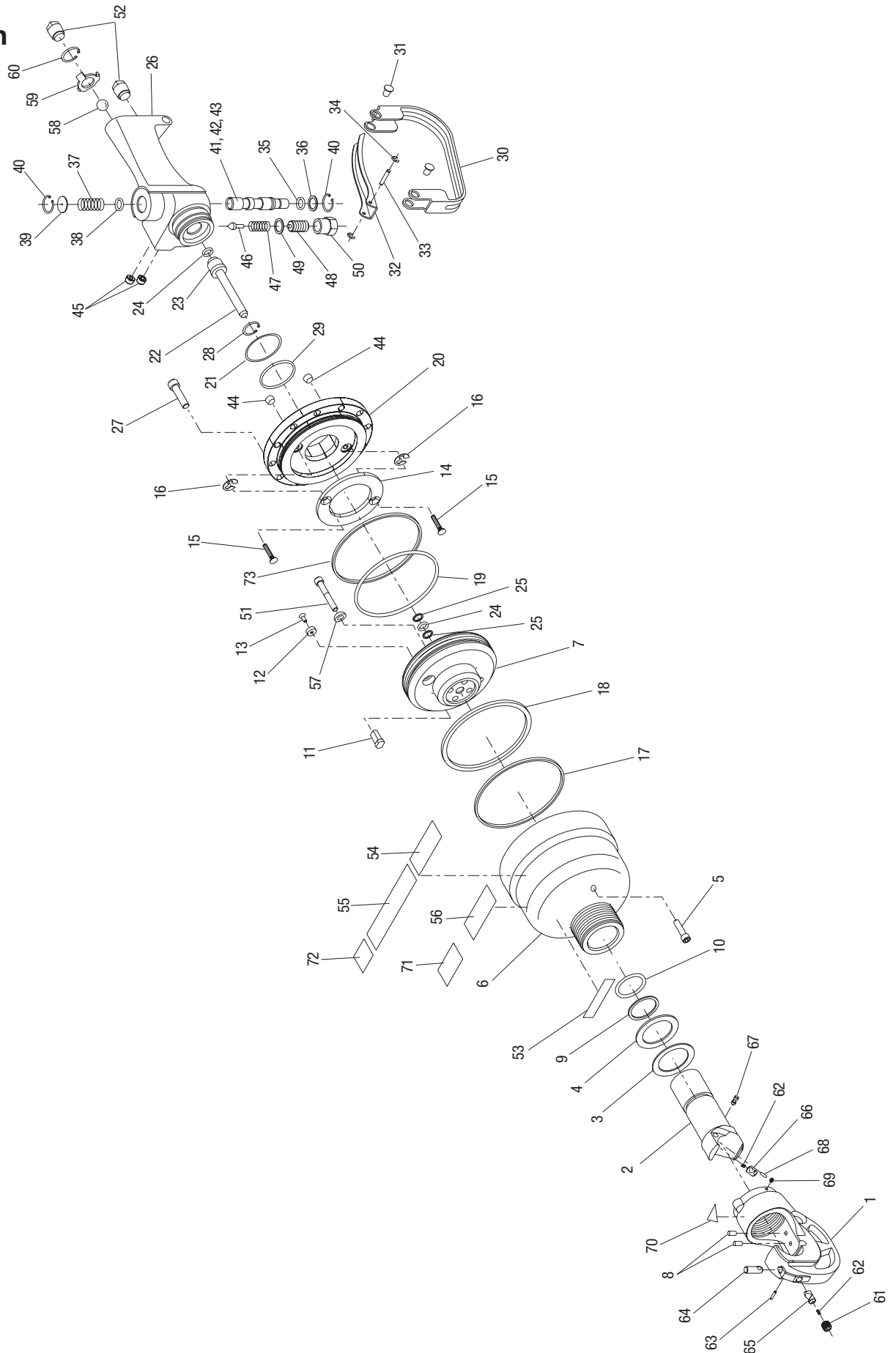
1. Install the ball (58), ball stop (59), and retaining ring (60).
2. Install two 1/8" pipe plugs (45) into the handle (26).
3. Install the O-ring (24) onto the tube assembly (22). Slide the tube assembly into the handle (26) and secure it with the retaining ring (28).
4. Install the spool OD O-ring (38) into the handle, and install the spool groove O-ring (35) onto the spool (41). From the trigger side, install the spool assembly (41) into the handle (26).
5. Opposite the trigger side, install the spring (37) and spring cap (39), and secure them with a retaining ring (40).
6. From the trigger side, install the stop washer (36) and retaining ring (40) into the handle.
7. Install the valve pin (46), spring (47), adjusting screw (48), copper washer (49) and cap (50) into the handle.
8. Screw the handle assembly (26) into the cover (20) until it is snug. Add or remove shims (21) — six maximum — to allow access to the stop ring adjustment screws (15) and nuts (44). After installing the proper number of shims, install the O-ring (29). Reassemble using a thread locking compound on the threads that mate the handle to the cover.
9. If removed, assemble the screws (15) to the shuttle stop ring (14) and secure them with the retaining rings (16). Install that assembly to the cover (20) and start the seal nuts (44) onto the screws (15).
Note: The setting of the screws (15) isn't important now — you will adjust them to the proper position later in the assembly procedure.
10. Assemble the O-rings (73, 19) to the cover (20).
11. Install the cover (20) into the cylinder (6), aligning the handle with the C-head. Secure with 12 cap screws (27). Torque to 32.5 Nm (24 ft-lb).
12. Position the trigger (32) onto the handle (26), aligning the holes. Install the trigger pivot (33) and secure it with 5/32" external retaining rings (34). Position the trigger strap (30) onto the handle and secure it with four screws (31).

Final Settings

1. If the shuttle stop ring (14) was removed, refer to "Tool Setup" to adjust it to its previous position (for either open-center or closed-center operation).
2. Set the relief valve to the proper pressure. Refer to "Relief Valve Check and Adjustment Procedure."



Illustration



Parts List

UPC No.					UPC No.				
Key	78-3310-	Part No.	Description	Qty	Key	78-3310-	Part No.	Description	Qty
1	05372	50053728	C-Head unit (LPK1230) (includes items 8, 61-65, 69 & 70).....1		39	41095	50410952	Cap.....1	
	49348	50493485	C-Head unit (LPK1240) (includes items 8, 61-65, & 70).....1		40*			Retaining ring, .750.....2	
2	49342	50493426	Ram (LPK1230).....1		41		52063245	Spool.....1	
	49112	50491121	Ram (LPK1240).....1		42	43556	50435566	Plug, spool.....1	
3*			Washer, ram.....1		43*			O-ring, .250 x .375 x .062-90.....1	
4*			Wiper, ram.....1		44*			Nut, 1/4-20, Hydra-Lok seal.....2	
5			Screw, cap, 1/4-20 x .87, socket head.....1		45			Plug, pipe, 1/8 NPTF.....2	
6	49344	52026772	Cylinder (LPK1230) (includes items 53-56, 71 & 72).....1		46	30146	50301462	Pin, valve, .305 x .870.....1	
	49349	50493493	Cylinder (LPK1240) (includes items 53-56, 71 & 72).....1		47	40692	50406921	Spring, unloading valve.....1	
7	48733	50487337	Piston.....1		48	48261	50482610	Screw, set, 1/2-20, adjusting.....1	
8*			Pin, groove (6 mm x 12 mm).....2		49*			Washer, flat, .514 x .030, copper.....1	
9*			Backup ring, 1.375 x 1.62 x .121.....1		50	48260	50482602	Cap, relief valve.....1	
10*			O-ring, 1.375 x 1.62 x .125.....1		51			Screw, cap, 1/4-20 x 1.625, socket.....4	
11	43546	50435469	Spool, shuttle.....2		52	41432	50414323	Plug, port.....2	
12	43547	50435477	Washer, shuttle.....2		53	49947	50499475	Decal.....1	
13			Screw, cap, #6-32 x .375, flat head socket.....2		54	48734	50487345	Decal, OC/CC setting.....1	
14	48727	50487272	Ring, shuttle stop.....1		55	49946	50499467	Decal, warning.....1	
15	48728	50487280	Screw, stop ring.....2		56	41547	50415471	Decal, Greenlee Utility.....1	
16*			Retaining ring.....2		57	54913	90549139	Washer, conical, .55 x .25 x .05.....4	
17*			Backup ring, 4.312 x 4.500 x .125.....1		58	41873	50418730	Ball, steel, .5.....1	
18*			Seal unit.....1		59	49234	50492349	Stop, ball.....1	
19*			O-ring.....1		60	41600	50416003	Retaining ring, .687.....1	
20	45659	50456598	Cover, cylinder.....1		61	55060	90550609	Screw, M12-1.75 x 12mm set.....1	
21	48737	50487370	Shim, handle.....6 (max)		62	03821	50038214	Spring.....2	
22	43554	50435540	Tube.....1		63	55063	90550633	Pin, grooved, 3mm.....1	
23	42685	50426851	Carrier, seal.....1		64	05317	50053175	Button, die release.....1	
24*			O-ring, .375 x .500 x .062-70.....2		65	05319	50053191	Pin, die release.....1	
25*			Backup ring, .382 x .486 x .045.....2		66	05316	50053167	Pin, die release.....1	
26	48736	50487361	Handle.....1		67	05318	50053183	Button, die release.....1	
27			Screw, cap, 5/16-18 x 1.25, socket head.....12		68	55064	90550641	Rollpin, 3mm x 10mm.....1	
28*			Retaining ring, .750.....1		69	55061	90550617	Screw, M5-.8 x 5mm set.....1	
29*			O-ring, 1.625 x 1.750 x .062-70.....1		70	06214	50062140	Decal, pinch warning.....1	
30	43699	50436996	Strap, trigger.....1		71	49506	50495062	Decal, CE.....1	
31			Screw, cap, #10-32 x .375, button socket head.....4		72	49959	50499599	Decal, sound.....1	
32	42576	50425760	Trigger.....1		73*			Backup ring.....1	
33	42547	50425471	Pivot, trigger.....1		Repair Kit				
34*			Retaining ring.....2		* 49343		50493434	Packing kit (includes items marked with an asterisk).....1	
35*			O-ring, .437 x .562 x .062-68.....1		Decals				
36	43401	50434012	Washer, .75 x .50 x .03.....1		49947		50499475	Decal, press/flow.....1	
37	42865	50428651	Spring, valve plunger.....1		48734		50487345	Decal, OC/CC setting.....1	
38*			O-ring, .562 x .750 x .093-68.....1		49946		50499467	Decal, warning.....1	
					41547		50415471	Decal, Greenlee Utility.....1	
					06214		50062140	Decal, pinch warning.....1	
					49506		50495062	Decal, CE.....1	
					49959		50499599	Decal, sound.....1	



HOSE AND HOSE ASSEMBLIES

SELECTION, INSTALLATION AND MAINTENANCE OF HOSE AND HOSE ASSEMBLIES —SAE J1273 1986

SAE Recommended Practice

1. Scope

Hose (also includes hose assemblies) has a finite life and there are a number of factors which will reduce its life.

This recommended practice is intended as a guide to assist system designers and/or users in the selection, installation, and maintenance of hose. The designers and users must make a systematic review of each application and then select, install, and maintain the hose to fulfill the requirements of the application. The following are general guidelines and are not necessarily a complete list.

WARNING

Improper selection, installation, or maintenance may result in premature failures, bodily injury, or property damage.

2. Selection

The following is a list of factors which must be considered before final hose selection can be made.

- 2.1 Pressure – After determining the system pressure, hose selection must be made so that the recommended maximum operating pressure is equal to or greater than the system pressure. Surge pressures higher than the maximum operating pressure will shorten hose life and must be taken into account by the hydraulic designer.
- 2.2 Suction – Hoses used for suction applications must be selected to insure the hose will withstand the negative pressure of the system.
- 2.3 Temperature – Care must be taken to insure that fluid and ambient temperatures, both static and transient, do not exceed the limitations of the hose. Special care must be taken when routing near hot manifolds.
- 2.4 Fluid Compatibility – Hose selection must assure compatibility of the hose tube, cover, and fittings with fluid used. Additional caution must be observed in hose selection for gaseous applications.
- 2.5 Size – Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage to the hose due to heat generation or excessive turbulence.
- 2.6 Routing – Attention must be given to optimum routing to minimize inherent problems.
- 2.7 Environment – Care must be taken to insure that the hose and fittings are either compatible with or protected from the environment to which they are exposed. Environmental conditions such as ultra-violet light, ozone, salt water, chemicals, and air pollutants can cause degradation and premature failure and, therefore, must be considered.
- 2.8 Mechanical Loads – External forces can significantly reduce hose life. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel type fittings or adapters may be required to insure no twist is put in the hose. Unusual applications may require special testing prior to hose selection.
- 2.9 Abrasion – While a hose is designed with a reasonable level of abrasion resistance, care must be taken to protect the hose from excessive abrasion which can result in erosion, snagging and cutting of the hose cover. Exposure of the reinforcement will significantly accelerate hose failure.
- 2.10 Proper End Fitting – Care must be taken to insure proper compatibility exists between the hose and coupling selected based on the manufacturer's recommendations substantiated by testing to industry standards such as SAE J517d.
- 2.11 Length – When establishing proper hose length, motion absorption, hose length changes due to pressure, as well as hose and machine tolerances must be considered.
- 2.12 Specifications and Standards – When selecting hose, government, industry, and manufacturer's specifications and recommendations must be reviewed and applicable.
- 2.13 Hose Cleanliness – Hose components vary in cleanliness levels. Care must be taken to insure that the assemblies selected have an adequate level of cleanliness for the application.
- 2.14 Electrical Conductivity – Certain applications require that the hose be non-conductive to prevent electrical current flow. Other applications require the hose to be sufficiently conductive to drain off static electricity. Hose and fittings must be chosen with these needs in mind.



HOSE AND HOSE ASSEMBLIES (cont'd)

3. Installation

After selection of proper hose, the following factors must be considered by the installer.

- 3.1 Pre-Installation Inspection – Prior to installation, a careful examination of the hose must be performed. All components must be checked for correct style, size, and length. In addition, the hose must be examined for cleanliness, I.D. obstructions, blisters, loose cover, or any other visual defects.
 - 3.2 Follow Manufacturers' Assembly Instructions.
 - 3.3 Minimum Bend Radius – Installation at less than minimum bend radius may significantly reduce hose life. Particular attention must be given to preclude sharp bending at the hose/fitting juncture.
 - 3.4 Twist Angle and Orientation – Hose installations must be such that relative motion of machine components produces bending of the hose rather than twisting.
 - 3.5 Securement – In many applications, it may be necessary to restrain, protect, or guide the hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not produce additional stress or wear points.
 - 3.6 Proper Condition of Ports – Proper physical installation of the hose requires a correctly installed port connection while insuring that no twist or torque is put into the hose.
 - 3.7 Avoid External Damage – Proper installation is not complete without insuring tensile loads, side loads, kinking, flattening, potential abrasion, thread damage, or damage to sealing surfaces are corrected or eliminated.
 - 3.8 System Check Out – After completing the installation, all air entrapment must be eliminated and the system pressurized to the maximum system pressure and checked for proper function and freedom from leaks.
- 4.1 Hose Storage – Hose products in storage can be affected adversely by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive material. Storage areas should be relatively cool and dark, and free of dust, dirt, dampness and mildew.
 - 4.2 Visual Inspection – Any of the following conditions requires replacement of the hose:
 - a. Leaks at fitting or in hose.
(Leaking fluid is a fire hazard).
 - b. Damaged, cut or abraded cover.
(Any reinforcement exposed).
 - c. Kinked, crushed, flattened or twisted hose.
 - d. Hard, stiff, heat cracked or charred hose.
 - e. Blistered, soft degraded or loose cover.
 - f. Cracked, damaged, or badly corroded fittings.
 - g. Fitting Slippage on hose.
 - 4.3 Visual Inspection – The following items must be tightened, repaired, or replaced as required:
 - a. Leaking port conditions.
 - b. Clamps, guards, shields.
 - c. Remove excessive dirt buildup.
 - d. System fluid level, fluid type, and any air entrapment.
 - 4.4 Functional Test – Operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks.
Note: Avoid potential hazardous areas while testing.
 - 4.5 Replacement Intervals – Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable down time, damage, or injury risk.

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Note: Avoid potential hazardous area while testing.

4. Maintenance

Even with proper selection and installation, hose life may be significantly reduced without a continuing maintenance program. Frequency should be determined by the severity of the application and risk potential.

A maintenance program should include the following as a minimum.

