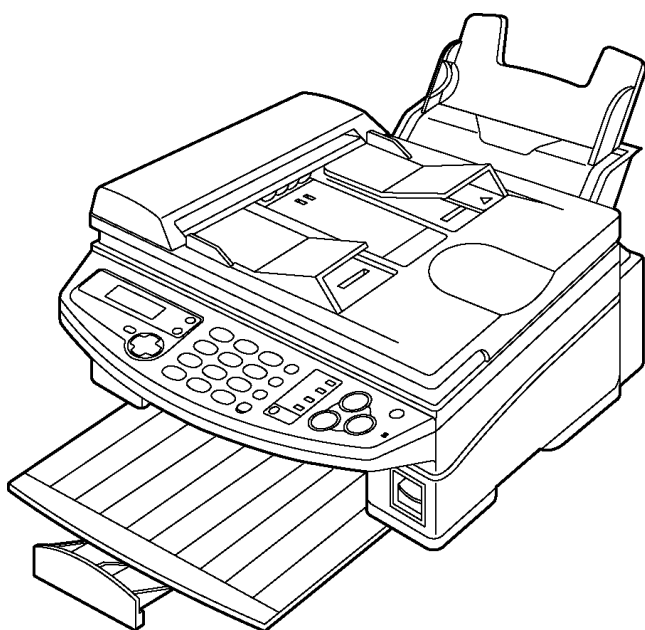


维 修 手 册

平台普通纸传真机

KX-FB423CN



警 告

本维修资料只是为有维修经验的技术人员设计的，不适用于一般人员使用。资料中未对非专业人员试图维修产品所潜在的危险加以警告或提示。电气产品只应该由有经验的专业技术人员进行维修。任何其他人试图用此维修手册对本产品进行维护或修理都可能导致产品的严重损坏或人员伤亡。

流水号为11位数。流水号数在本机的底部可以找到。

有关无铅(PbF)焊接的重要信息

如果在本产品制造过程中使用了无铅焊料，则电路板会标有"PbF"。

对于未标有"PbF"的电路板，可以照常使用标准含铅(Pb)焊料。

如果确实出现此标记，则请阅读本手册中的特别指示，了解PbF的用法，以及如何能够在维修工作中使用Pb焊料，并遵照执行。

Panasonic®

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目录

	页数		页数
1 简介	3	10 机壳、机械零件和电气元件位置	177
1.1. 关于无铅焊料 (PbF: 无铅)	3	10.1. 综合部分	177
1.2. 如何识别是否使用了无铅焊料	4	10.2. 上部 ADF 部分	178
1.3. 安全预防措施	5	10.3. 传送块部分	179
1.4. 绝缘电阻测试	5	10.4. 下部 ADF 部分	180
1.5. 对维修技师的说明	5	10.5. 上部打印机盖和载纸盘部分	181
1.6. 电池注意事项	5	10.6. 下部打印机盖部分	182
1.7. 交流电注意事项	6	10.7. 记录纸通过部分	183
1.8. 个人安全预防措施	7	10.8. 上部主机壳部分	184
1.9. 维修预防措施	8	10.9. 下部主机壳部分	185
2 特点和技术规格	9	10.10. 螺丝和垫圈的实际尺寸	186
2.1. 特点	9	11 附件和包装材料	187
2.2. 技术规格	10	12 更换零件表	188
2.3. 任选附件	10	12.1. 机壳和电气元件	188
3 安装	11	12.2. 附件和包装材料	190
3.1. 控制位置	11	12.3. 数字板部件	190
3.2. 连接	13	12.4. 模拟板部件	193
3.3. 安装	14	12.5. 操作板部件	194
4 维修	22	12.6. 电源板部件	194
4.1. 维修项目和元件位置	22	12.7. ADF 继电器板部件	195
4.2. 打印与纸张退出方式	24	12.8. PF 传感器板部件	195
4.3. 纸张拾取与纸张退出方式	24	12.9. CIS 继电器板部件	195
4.4. 扫描仪 (ADF)	25	12.10. CIS 传感器板部件	195
4.5. 维修	26	12.11. 扫描仪马达驱动板部件	195
4.6. 记录纸卡纸	29	12.12. 夹具和工具	195
4.7. 文稿卡住 - 发送	31	13 印刷电路板	196
5 拆卸说明	32	13.1. 数字板 (PCB1)	196
5.1. 拆卸流程图	32	13.2. 模拟板 (PCB2)	198
5.2. 拆卸工序	36	13.3. 操作板 (PCB3) / 芦苇 SW 板	200
5.3. 装配注意事项	52	13.4. 电源板 (PCB4)	201
5.4. 引线的安装位置	53	13.5. 传感器板 (PCB5/PCB6/PCB7/PCB8/PCB9)	202
6 故障检修指南	56	14 示意图说明	203
6.1. 用户可修复的故障	56	15 示意图	204
6.2. 编程和图表	58	15.1. 数字板 (PCB1)	204
6.3. 测试功能	61	15.2. 模拟板 (PCB2)	208
6.4. 遥控编程	64	15.3. 操作板 (PCB3) / 芦苇 SW 板	209
6.5. 故障检修细节	71	15.4. 电源板 (PCB4)	210
7 电路操作	124	15.5. 传感器板 (PCB5/PCB6/PCB7/PCB8/PCB9)	211
7.1. 接线图	124		
7.2. 总方框图	126		
7.3. 传真部分	128		
7.4. 扫描块	137		
7.5. 步进马达驱动部分	138		
7.6. 传感器和开关	145		
7.7. 操作板部分	150		
7.8. LCD 部分	151		
7.9. 电源板部分	152		
7.10. 热敏头	155		
8 基准资料数据	159		
8.1. IC 的晶体管和二极管的终端指南	159		
8.2. 如何更换扁平插件 IC	160		
8.3. 数字板部分	162		
8.4. 调制解调器部分	164		
8.5. NCU 部分	170		
8.6. ITS (综合电话系统) 和监听器部分	172		
8.7. 测试图表	174		
9 夹具和工具	176		

1 简介

1.1. 关于无铅焊料 (PbF: 无铅)

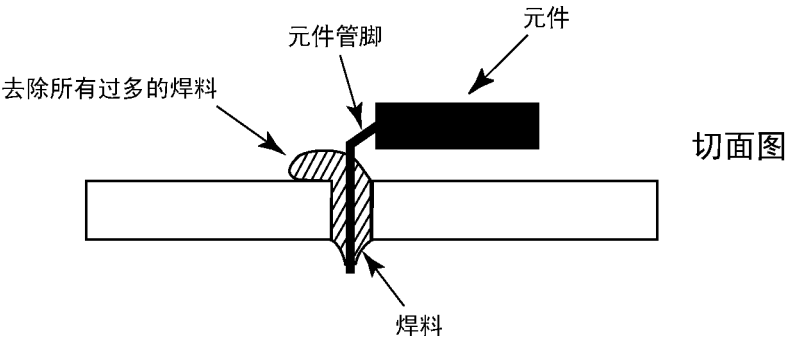
注: 在下面的资料中，元素周期表中代表铅的符号 Pb 将用于指示标准焊料或含有铅的焊料。

在讨论我们制造工艺中所使用的无铅焊料（含锡 (Sn)、银 (Ag) 和铜 (Cu)）时，则使用 PbF。

本型号以及使用无铅焊料制造的其他类似产品，其印刷电路板上将印有 PbF 标记。对于维护和修理工作，我们建议使用相同类型的焊料，尽管也可以使用标准 Pb 焊料，但需小心谨慎。

注意

- PbF 焊料的熔点比Pb焊料高30℃～ 40℃。请使用带有温度控制的烙铁，并将其温度调到370±10℃。如果使用高温烙铁，则请小心，加热时间不要过长。
- 如果 PbF 焊料的加热温度过多地超过其熔点（大约 600℃），则焊料可能会溅开。
- 如果必须在用PbF焊料制造的印刷电路板上使用Pb焊料，则须尽可能将原来的PbF焊料去除干净，并且在施用Pb焊料之前，务必将所有的残余焊料熔开。
- 在将 PbF 焊料施用到双层电路板时，请检查元件一侧，看是否有过多的焊料流到另一侧（见下图）。



1.1.1. 建议的 PbF 焊料

在市场上可购买数种 PbF 焊料。本产品系使用锡、银和铜 (Sn+Ag+Cu) 制造而成，但是您也可以使用锡和铜 (Sn+Cu) 或锡、锌和铋 (Sn+Zn+Bi)。请查看制造厂商的具体指示，了解其产品的熔点以及将其他材料用于其产品时的注意事项。

在维修本产品时，建议使用下列规格的无铅 (PbF) 焊线：0.3mm、0.6mm 和 1.0mm。

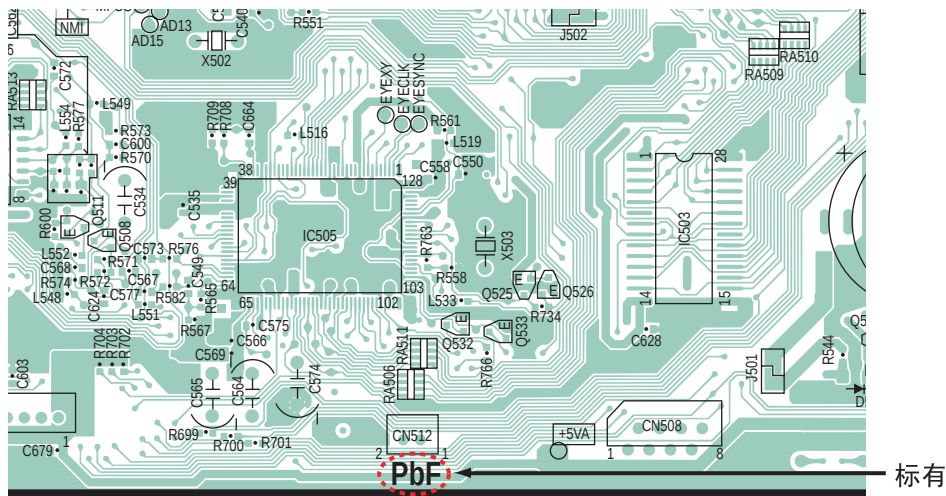
0.3mm X 100g	0.6mm X 100g	1.0mm X 100g

1.2. 如何识别是否使用了无铅焊料

标有“PbF”的印刷电路板使用了无铅焊料。（见下图。）

本产品的电源板未使用无铅焊料。

（例如：数字板）



数字板元件视图

注：

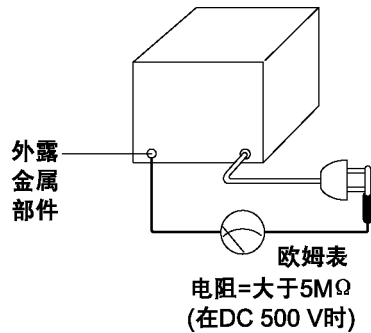
“PbF”可能会标在相同印刷电路板的不同位置，具体取决于制造日期。

1.3. 安全预防措施

1. 维修前，拔下交流电源线以防触电。
2. 更换零件时，仅使用厂家推荐的产品。
3. 检查电源线的状况，如有磨损或明显的损坏，就应更换。
4. 维修后，务必将导线护套、绝缘套、绝缘纸、护罩等重新装好。
5. 在把维修好的机器交还给用户之前，务必进行以下绝缘电阻测试，以防止用户受到电击的危险。

1.4. 绝缘电阻测试

1. 拔下电源线，用一根跨接线使插头的两个插脚短路。
2. 接通电源开关。
3. 用欧姆表测量跨接的 AC 插头和每个外露金属机壳部分（例如螺丝头、控制轴、底架等）之间的电阻值。
注：某些外露的部件按设计可能与机壳绝缘。这些电阻值读数将无穷大。
4. 如果测量值超出规定的范围，则可能有电击的危险。



1.5. 对维修技师的说明

IC 和 LSI 易受静电损坏。

在维修时，以下预防措施将有助于防止再发生故障。

1. 用铝箔将塑料部件的盒子盖好。
2. 使烙铁接地。
3. 在桌台上铺上导电的垫子。
4. 勿用裸手指抓握 IC 或 LSI。

1.6. 电池注意事项

注意：

若电池更换不当，则有发生爆裂的危险，只能用厂家推荐的同样的或相等型号的电池更换。
请按厂家的指示处理用过的电池。

锂电池是关键部件（型号：CR2032），更换和放入电池时，请注意其极性和正确位置。

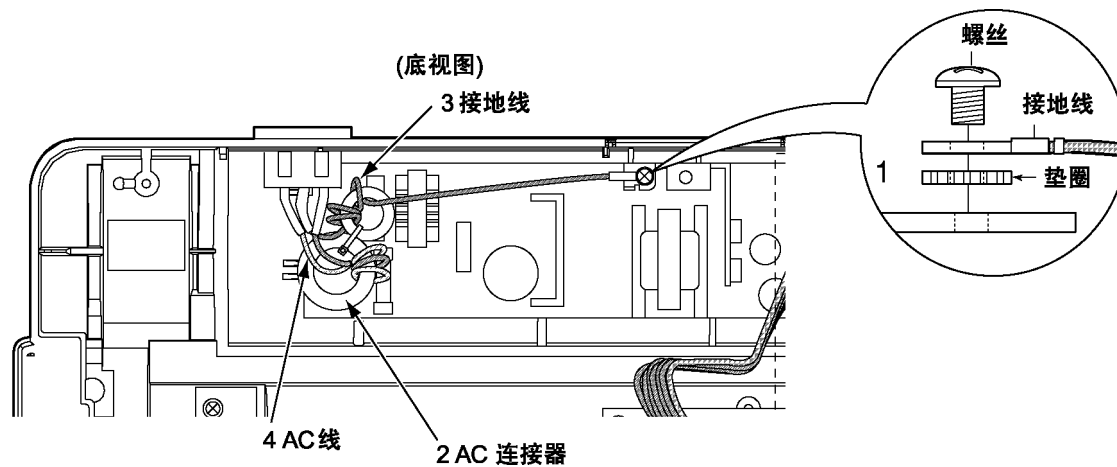
建议使用的型号：

CR2032 (BAT501)：松下、索尼、东芝或日立制造

1.7. 交流电注意事项

为安全起见，在关上下机壳之前，请检查以下预防措施。

1. 用螺丝固定接地线。
2. 正确连接 AC 连接器。
3. 将接地线在芯线上缠绕 3 次。
4. 将 AC 线在芯线上缠绕 3 次。

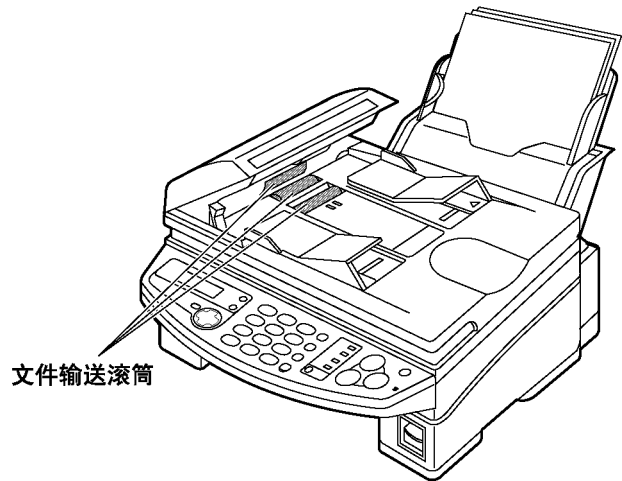
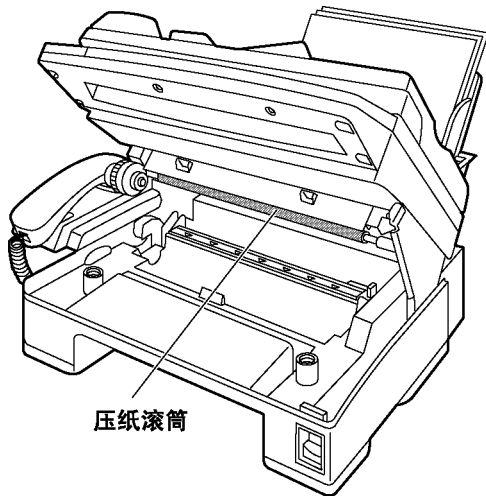


1.8. 个人安全预防措施

1.8.1. 机器的运动部分

小心别让您的头发、衣服、手指、装饰品等卷入本机的任何运动部分。

本机的运动部分有滚筒和一个齿轮。有一个由文件输送马达转动的分离滚筒和一个文件输送滚筒。一个齿轮转动这两个滚筒，小心勿用手触摸它们，尤其在本机工作时。



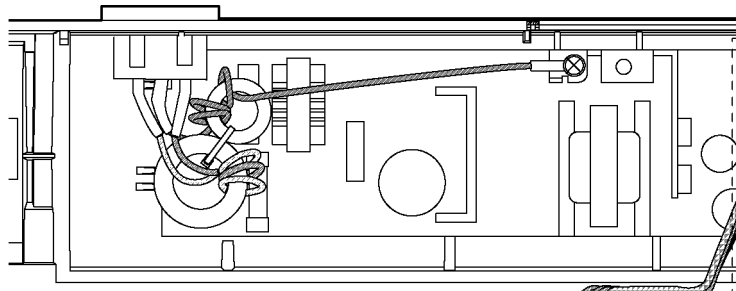
1.8.2. 通电部分

本机的全部电气部分均由通电的 AC 电源线提供 AC 电源。

切勿拆卸维修插入 AC 电源的本机。

注意事项：

给电源装置的初级侧提供 AC 电压。因此，在拆卸本机进行维修前始终应拔掉 AC 电源线。

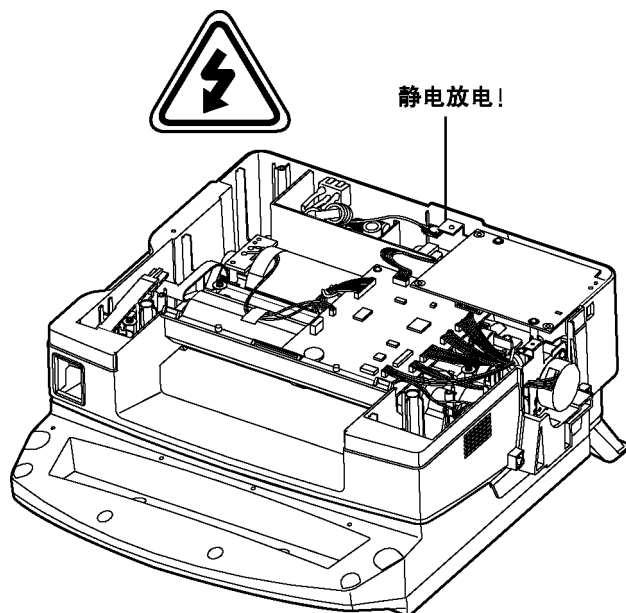


(底视图)

1.9. 维修预防措施

1.9.1. 防止损坏静电的预防措施

电荷积累在人身上，例如，衣服摩擦可以破坏电分子或者改变其电的特性。为了防止静电对人体的伤害，用工具接触接地的金属部件以便释放静电。切勿接触电源部分，如电源装置等。



2 特点和技术规格

2.1. 特点

一般

- 帮助功能
 - 显示：
 - FEATURE LIST
 - DIRECTORY
 - FAX RECEIVING
- LCD（液晶显示）读出
- TAM（答录机）接口

普通纸传真机

- 8 秒传送速度 *
- A4, G3 兼容
- 自动文件输送器（15 页）
- 传真寻呼呼叫
- 快速扫描
- 清晰度：标准 / 精细，半色调（64 级）/ 超精细
- 带查询拨号和组键的广播
- 100 页纸的容量
- 区别铃声检测 **

* 如果进行记忆传送，则 8 秒速度基于 ITU-T1 号测试图。

** 需要申请区别铃声服务。

由 DRAM 完成的大记忆容量

- 约 28 页记忆接收
- 约 25 页记忆传送

综合电话系统

- 挂机拨号
- 监听扬声器
- 语音静音
- 重拨功能
- 带旋转查询拨号 / 单触拨号键的 106 台分机电话号码簿
- 呼叫方可以来电显示 ***

*** 该功能需要某所在地区的电话公司提供签约呼叫识别服务（收费）。您和您的呼叫方必须位于能够提供呼叫识别服务的地区，双方电话公司必须使用对应的设备。该功能在本机与 PBX 系统连接时无效。

强化的复印机功能

- 多张复印（多达 99 页）
- 放大和缩小
- 核对
- 64 级半色调

2. 2. 技术规格

适用线路：	公用交换电话网络
文件尺寸：	宽：最大 216 mm
	长：最大 600 mm
有效扫描宽度：	208 mm
记录纸尺寸：	A4: 210 × 297 mm
有效打印宽度：	208 mm
传送时间 *1：	约 8 秒 / 页（原始方式）*2
扫描密度	水平：
	8 像素 /mm
	垂直：
	3. 85 线 /mm—标准方式
	7. 7 线 /mm—精细 / 半色调方式
	15. 4 线 /mm—超精细方式
半色调级：	64 级
扫描器型式：	接触图像传感器（CIS）
打印机型式：	感热转移于普通纸
数据压缩系统：	改进的霍夫曼方式（MH），改进的 READ（MR），改进又改进的 READ（MMR）
调制解调器速度：	14, 400/12, 000/9, 600/7, 200/4, 800/2, 400bps: 自动降速
操作环境：	温度 5-35℃，相对湿度 20-80%。
尺寸：	约高 210 mm × 宽 472 mm × 深 446 mm
重量：	约 7. 4 kg
耗电量：	待机：约 5. 0 W
	传送：约 18 W
	接收：约 35 W（当接收 20% 黑色文件时）
	复印：约 60 W（当复印 20% 黑色文件时）
	最大：约 135 W（当复印 100% 黑色文件时）
电源：	220-240 V AC, 50/60 Hz
记忆容量：	约 28 页记忆接收
	约 25 页记忆传送
	（在标准清晰度下以 ITU-T 1 号测试图为根据，不使用纠错方式。）

- *1 传真速度取决于各页内容、清晰度、电话线路状态及对方传真机的能力。
- *2 此处提到的传送速度是以 ITU-T 1 号测试稿和辉度方式为根据的。（参考 8. 7. 1. ITU-T 1 号测试图 (P. 174)）
如果对方机器的能力低于您的机器，传送时间也许更长。

注：

- 本说明中的细节若有改变，恕不另行通知。
- 本说明中的图和图解可能与实物略有不同。

设计和规格若有可改，恕不另行通知。

2. 3. 任选附件

- 我们建议您购买 120 米长的更换印字薄膜，可供您的传真机连续使用。为获得最佳效果，请使用如下所示的原装 Panasonic 更换印字薄膜：

型号	说明	规格
KX-FA67E	更换用薄膜	216 mm × 120 m

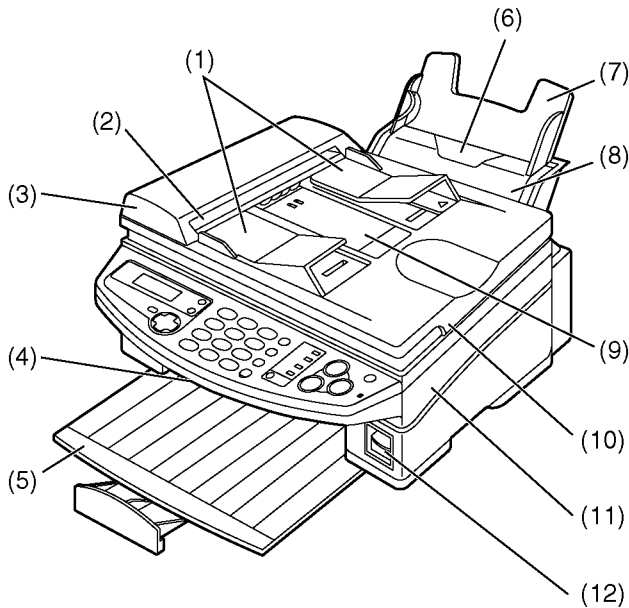
注：

印字薄膜不可循环再用。请勿卷回原位再用。

3 安装

3.1. 控制位置

3.1.1. 正视图

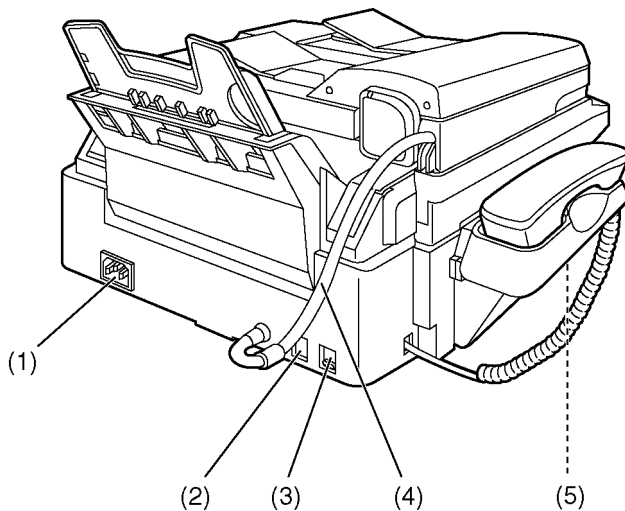


- (1) 文稿引导板
- (2) 文稿出口
- (3) ADF（自动送纸器）盖
- (4) 记录纸出口
- (5) 记录纸支架
- 可能未在所有的插图中标出记录纸支架。
- (6) 记录纸入口
- (7) 载纸盘
- (8) 拉力板
- (9) 文稿入口
- (10) 文稿盖
- (11) 打印机盖
- (12) 打印机盖开盖钮

注释：

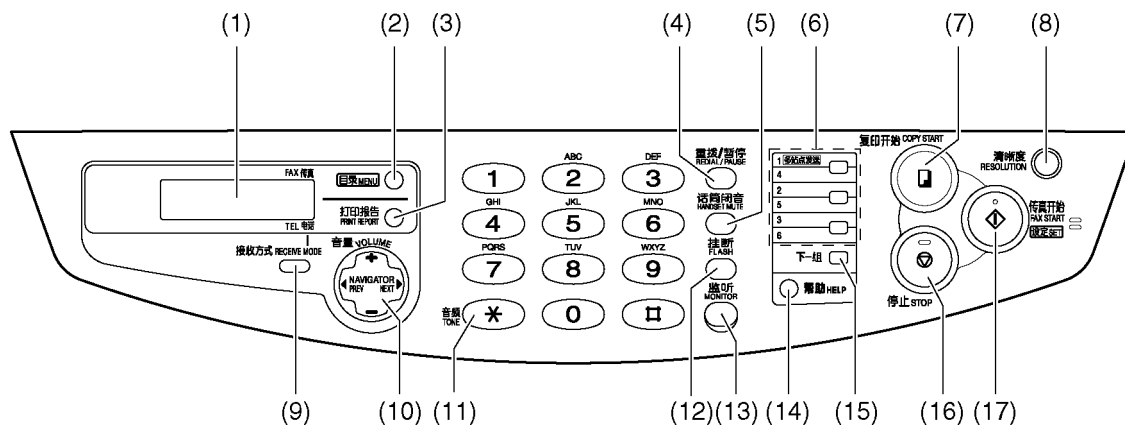
* 可能未在所有的插图中标出记录纸支架。

3.1.2. 后视图



- (1) 电源引入口
- (2) 电话线插口
- (3) 外接电话插口
- (4) ADF（自动送纸器）缆线
- (5) 扬声器

3.1.3. 控件位置



(1) 显示屏

(2) [目录]

- 开始或结束编程。

(3) [打印报告]

- 打印参考列表和报告。

(4) [重拨/暂停]

- 重拨上次最后拨过的号码。如果当使用[监听]按钮拨打电话时占线，本机最多可以自动重拨3次该号码。
- 在拨号中插入暂停。

(5) [话筒闭音]

- 在通话过程中使对方听不到您的声音。再次按此按钮可以继续通话。

(6) 单触键

- 使用单触拨号。
- 向多站点传送。

(7) [复印开始]

- 开始复印。

(8) [清晰度]

- 选择打印质量。

(9) [接收方式]

- 更改接收方式。

(10) [NAVIGATOR, 音量]

- 调节音量。
- 查找存储的名称。
- 在编程时选择功能或功能设定。
- 转到下一个操作。

(11) [音频]

- 当您的线路具有转盘脉冲服务时，在拨号中可暂时将脉冲改为音频。

(12) [挂断]

- 使用特殊的电话服务或转移分机呼叫等。

(13) [监听]

- 在不拿起话筒的情况下拨号。

(14) [帮助]

- 打印快速指南。

(15) [下一组]

- 对于单触拨号选择4 - 6组。

(16) [停止]

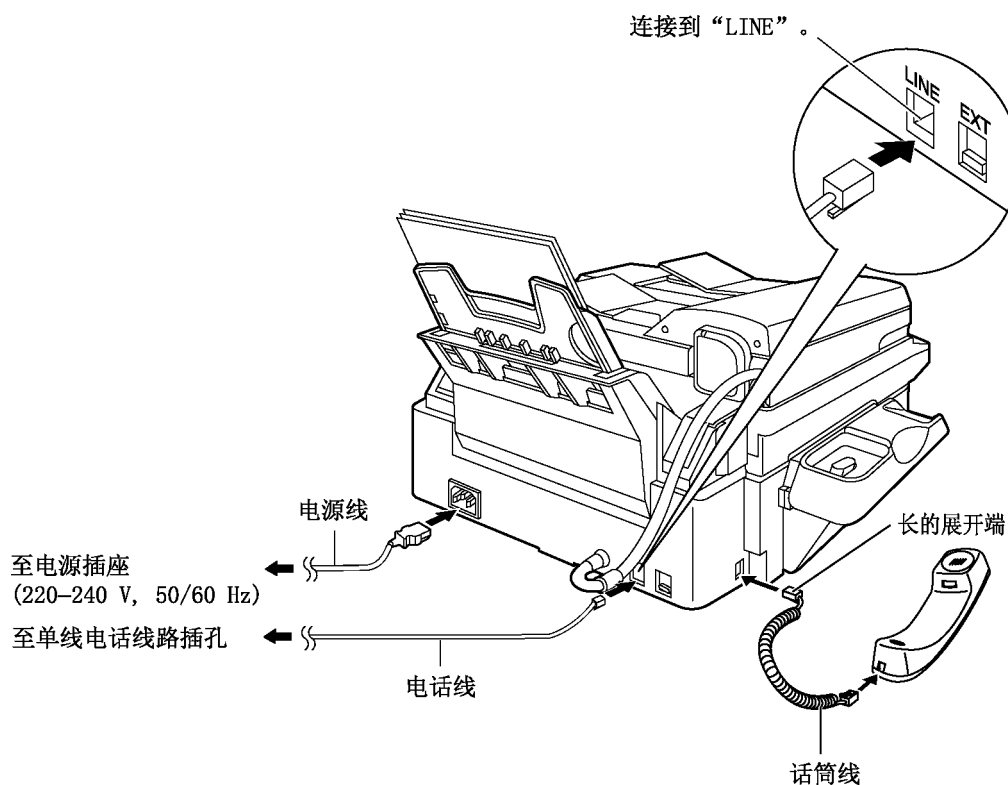
- 停止操作或取消编程。

(17) [传真开始, 设定]

- 开始发送或接收传真。
- 在编程时存储设定。

3.2. 连接

- (1) 连接话筒线
- (2) 连接电话线。
- (3) 连接电源线。

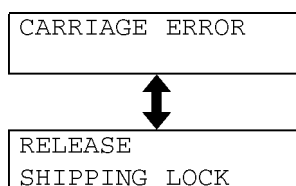


注意：

- 当您操作本机时，应使电源插座靠近本机并且易于插接。

注释：

- 为避免发生故障，请勿将传真机置于电视机或扬声器等会产生强磁场的电器附近。
- 如果同一条线路上连接了任何其他设备，本机可能会干扰设备的网络状况。
- 当打开电源后显示屏中显示下面的信息时，打开运输锁。

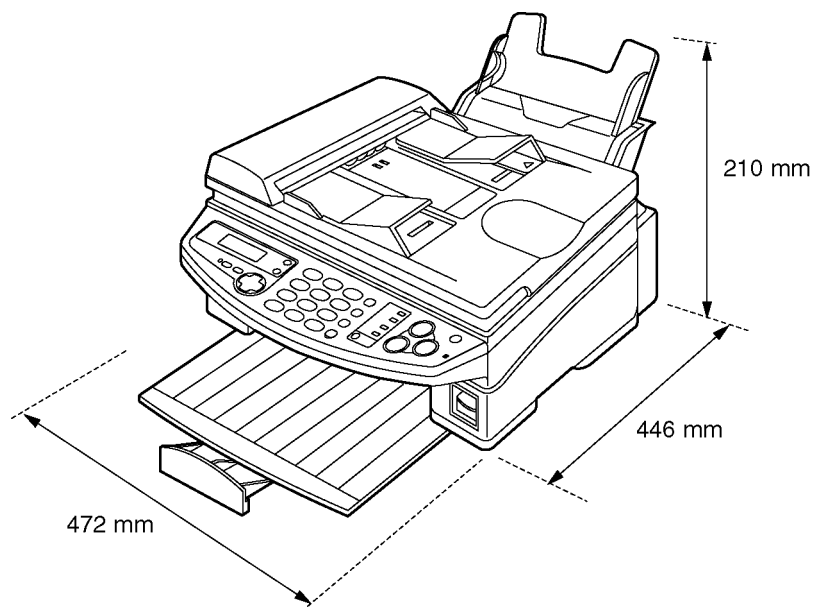


3.3. 安装

3.3.1. 安装空间

安装本机所需的安装空间表示如下。

规定尺寸对本机的有效操作很有必要。



注释：

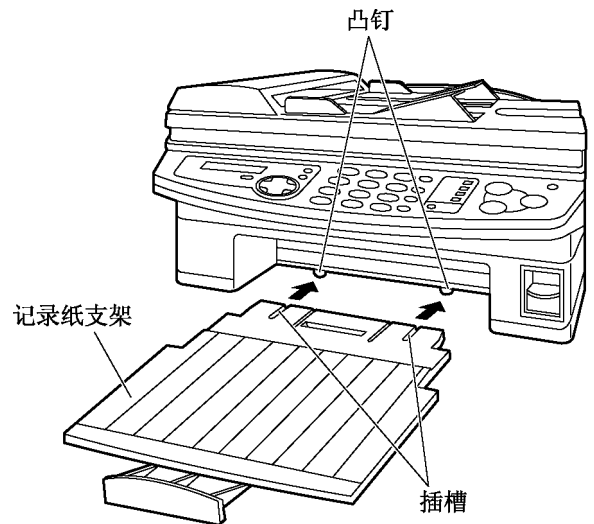
- 避免过热或过湿。
- 在以下温度和湿度范围内使用本机。
- 环境温度：5 °C 至 35 °C。
- 相对湿度：20% 至 80%（无冷凝物）
- 电源线长度应短于 5 米。使用更长的电源线会降低电压或引起故障。
- 避免阳光照射。
- 不要安装在有磁铁或产生磁场的装置附近。
- 不要使本机承受强烈的物理冲击或振荡。
- 保持本机清洁，灰尘堆积可能使本机功能不正常。
- 为了保护本机不受损坏，当您移动它时，应抓住两端。

3.3.2. 记录纸支架和载纸盘

1 记录纸支架

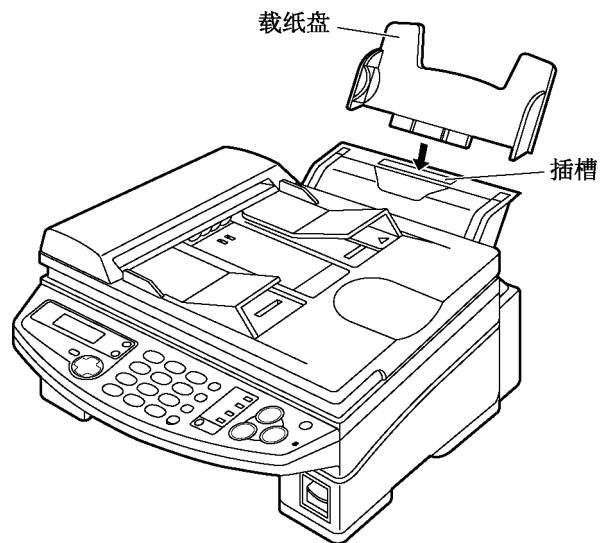
将记录纸支架上的插槽对准本机底部的凸钉，然后滑动，直到凸钉和插槽固定好为止。

- 记录纸支架大约可以装载 100 页打印的纸张。
请在打印的纸张堆满支架前取下它们。



2 载纸盘

将载纸盘插入本机背面的插槽。



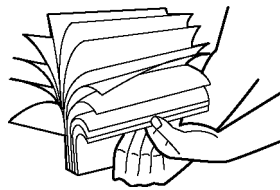
注释:

- 请勿将本机放在载纸盘可能受阻的地方（如靠近墙壁等）。
- 记录纸将从本机的前面排出。请勿在本机前面放置任何东西。

3.3.3. 记录纸

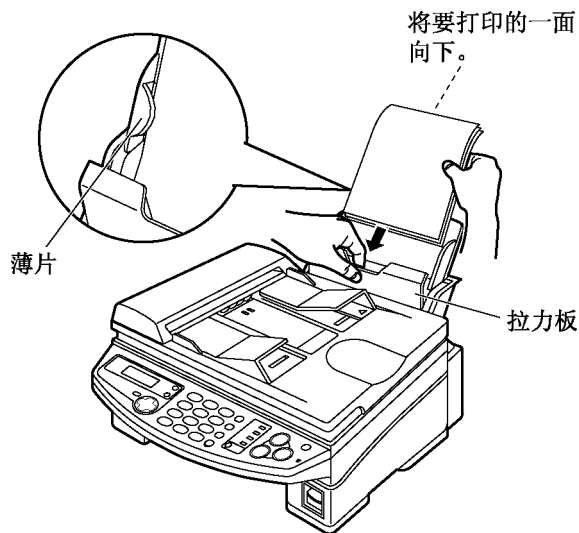
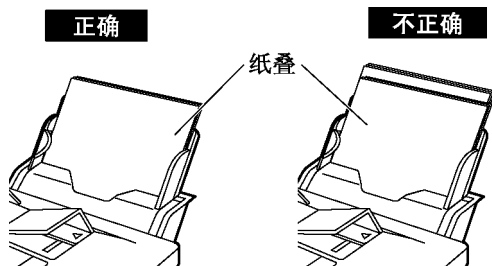
A4 尺寸的记录纸均可装入。本机可装载 100 页 75 g/m² 纸张。您可以使用 60 g/m² 至 90 g/m² 纸张。关于纸张规格。请参阅纸张规格。

- 1 翻松整叠的纸张，以免纸张卡住。



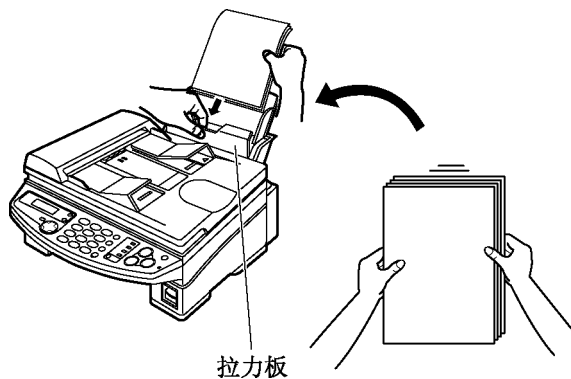
- 2 向前推拉力板，并且在装纸时使其一直打开。

- 不应使纸张超越薄片。
- 如果未正确插入纸张，应重新调整纸张，否则可能会卡纸。



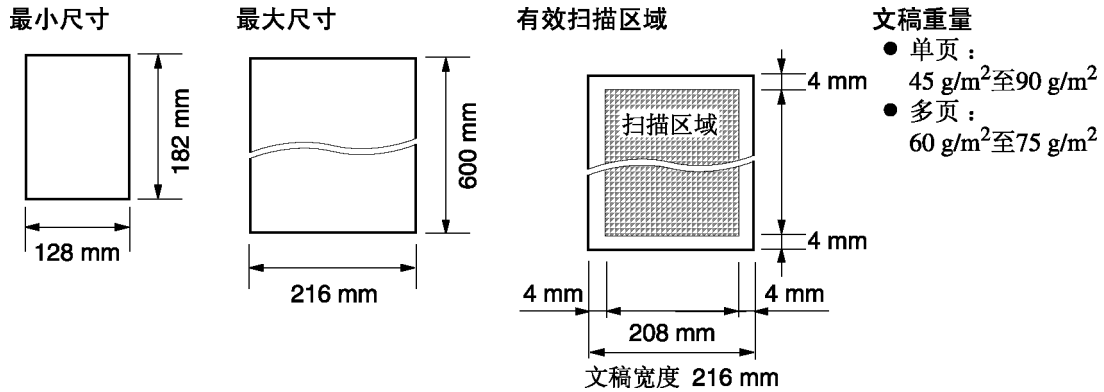
添加纸张

1. 向前推拉力板，并且在取出已装入的纸张时使其一直打开。
2. 将新增纸张与取下的纸张放在一起，并将它们对齐。
3. 翻松整叠的纸张。
4. 向前推拉力板，并且在装纸时使其一直打开。



3.3.4. 可以发送的文稿

3.3.4.1. 使用自动送纸器



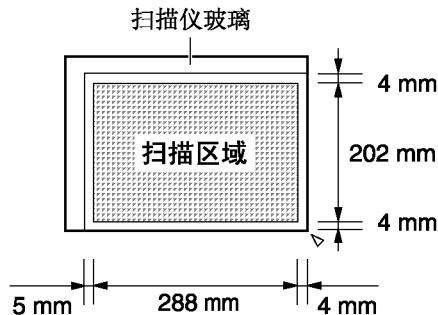
注释：

- 取下回形针、订书钉或其他类似的固定物。
- 请勿发送以下类型的文稿：（使用扫描仪玻璃传送传真。）
 - 碳或无碳复写纸等化学处理纸
 - 带有静电的纸张
 - 严重卷曲、褶皱或撕破的纸张
 - 表面带有涂膜的纸张

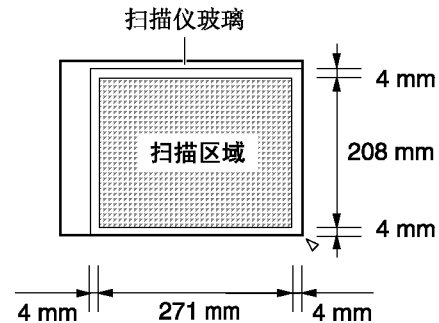
3.3.4.2. 使用扫描仪玻璃

扫描仪玻璃上的有效扫描区域会根据纸张尺寸设定而发生变化。（6.4.2. 编程方式表 (P. 65) 上的特点 #16。）

当纸张尺寸设定为“A4”时：



当纸张尺寸设定为“LETTER”时：

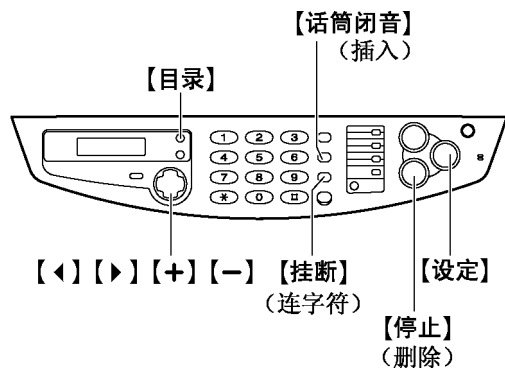


自动送纸器和扫描仪玻璃注意事项

- 检查墨水、浆糊或涂改液是否已经干了。
- 请勿发送以下类型的文稿：（使用复印件传送传真。）
 - 图像模糊的纸张
 - 从正面可以看到反面打印的文字的纸张（如报纸）
- 若要传送宽度小于标准 A4 尺寸 (210 mm) 的文稿，我们建议您使用扫描仪玻璃传送文稿。

3.3.5. 设定您的抬头

抬头可以是贵公司名称、部门名称或个人姓名。



- 1 按【目录】。

SYSTEM SET UP
PRESS NAVI. [◀ ▶]

- 2 按【◀】或【▶】，直到下面的信息显示出来。

YOUR LOGO
PRESS SET

- 3 按【设定】。

LOGO=

- 4 用拨号键盘输入您的抬头，最多 30 个字符。

示例：“BILL”

1. 按【2】两次。

- 光标 () 将出现在显示屏中。

LOGO=

2. 按【4】三次。

LOGO=B

3. 按【5】三次。

LOGO=BI

4. 按【▶】将光标移至下一空格，然后按【5】三次。

LOGO=BIL

- 5 按【设定】。

- 下一个功能将显示出来。

- 6 按【目录】。

注释：

- 您可以在步骤 4 中按【+】或【-】来输入抬头。在此情况下，按【▶】移动光标。

改变大写或小写字母

按【#】键可以交替改变为大写或小写字母。

1. 按【2】两次。

LOGO=

2. 按【4】三次。

LOGO=B

3. 按【#】。

LOGO=B

4. 按【5】三次。

LOGO=Bi

纠正错误

按【◀】或【▶】将光标移至错误的字符，然后改正

删除字符

按【◀】或【▶】将光标移至您想要删除的字符处，然后按【停止】。

插入字符

1. 按【◀】或【▶】将光标移至您想插入字符的位置的右边。
2. 按【话筒闭音】插入空格并输入字符。

3.3.6. 用拨号键盘选择字符

按拨号键可以选择如下所示的字符。

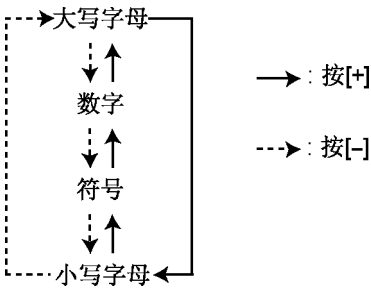
键	字符
【1】	1 [] { } + - / = , . _ ` : ; ?
【2】	A B C a b c 2
【3】	D E F d e f 3
【4】	G H I g h i 4
【5】	J K L j k l 5
【6】	M N O m n o 6
【7】	P Q R S p q r s 7
【8】	T U V t u v 8
【9】	W X Y Z w x y z 9
【0】	0 () < > ! " # \$ % & ¥ * @ ^ ' →
【□】	改变大写或小写字母。
【挂断】	连字符按钮（插入连字符。）
【话筒闭音】	插入按钮（插入一个字符或一个空格。）
【停止】	删除按钮（删除一个字符。）
【▶】	▶ 键（将光标移至右边。） 若要用同样的数字键输入另一个字符，请将光标移至下一个空格。
【◀】	◀ 键（将光标移至左边。）

用 [+] 或 [-] 选择字符

您可以使用 [+] 或 [-] 选择字符，而不用拨号键。

1. 反复按 [+] 或 [-]，直到显示出需要的字符。
2. 按 [▶] 将光标移至下一个空格。
 - 显示的字符被插入。
3. 回到步骤 1 以输入下一个字符。

字符的显示顺序



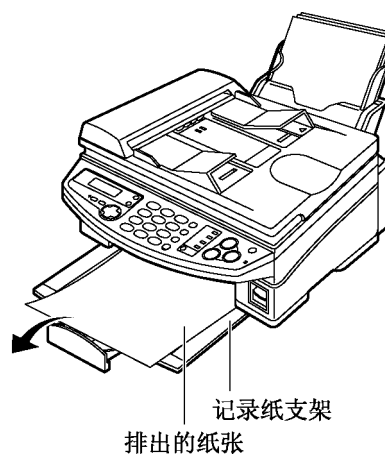
3.3.7. 印字薄膜 – 安装 / 更换

安装随机附带的印字薄膜或用新薄膜替换旧的印字薄膜。

替换薄膜型号 **KX-FA67E**：打印大约 375 页 A4 尺寸的纸张。（参考 2.3. 任选附件 (P.10)。）

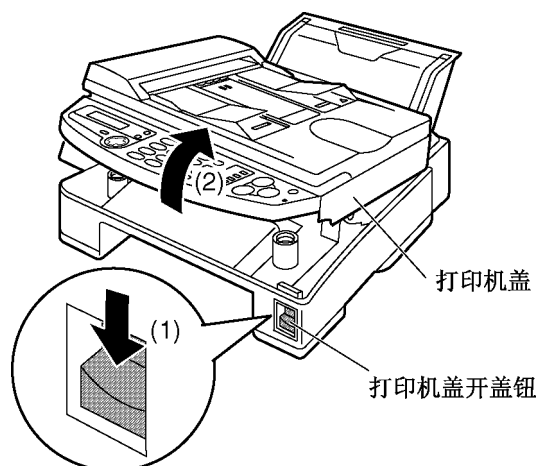
1 仅用于更换：

如果排出的纸张堆叠在记录纸支架上，请取走它。



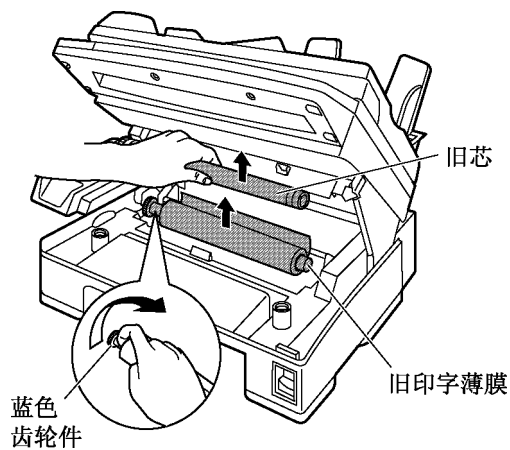
2 按下打印机盖开盖钮 (1)。打开打印机盖 (2)。

• 如果是第一次安装随机附带的印字薄膜，请转到步骤 5。



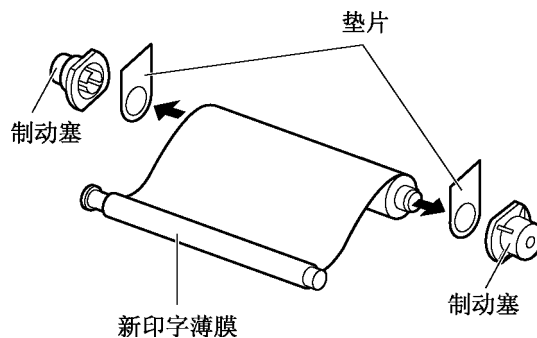
3 仅用于更换：

拉出蓝色齿轮件，取下旧印字薄膜。取下旧芯。

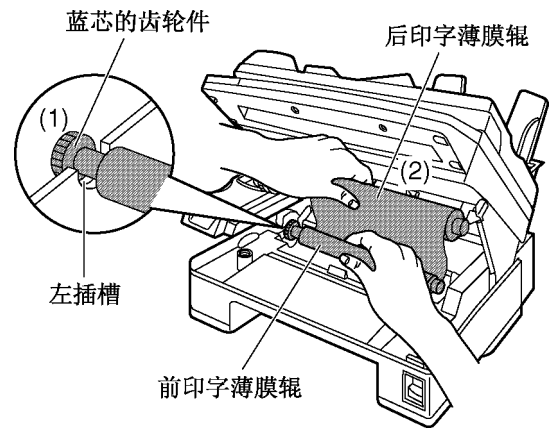


4 仅用于更换：

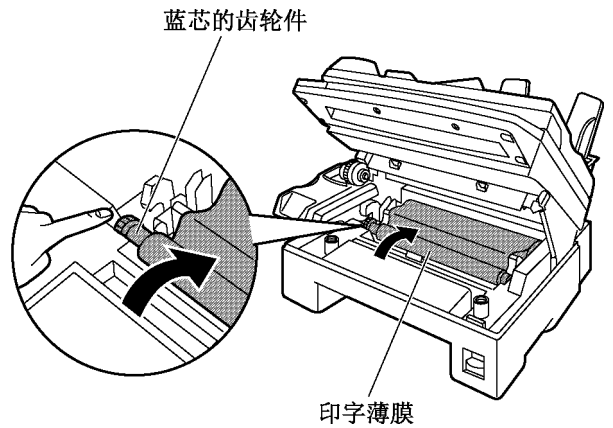
从新印字薄膜上取下制动塞和垫片。



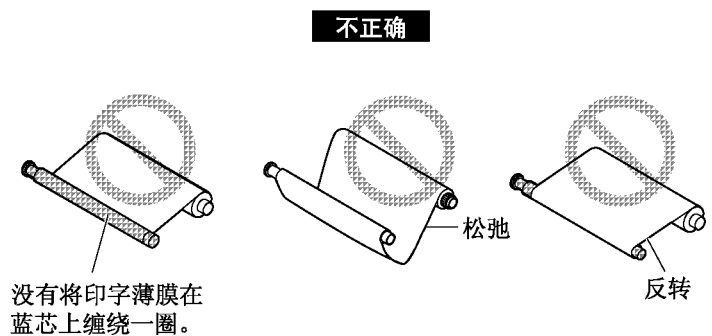
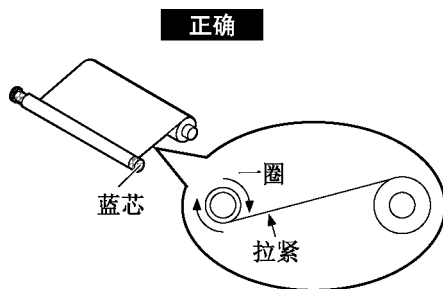
- 5 将前印字薄膜辊蓝芯的齿轮件插入本机的左插槽（1）。插入后印字薄膜辊（2）。



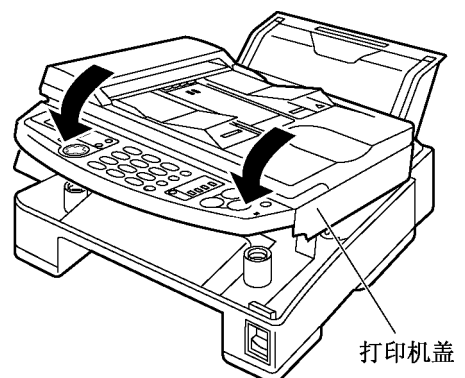
- 6 按箭头所示方向转动蓝芯齿轮件。



- 确保印字薄膜至少在蓝芯上缠绕一圈。



- 7 同时按下打印机盖的两端直到完全到位，关好打印机盖。



注释:

- 可以用手触摸印字薄膜，不会像复写纸那样粘到手上。

4 维修

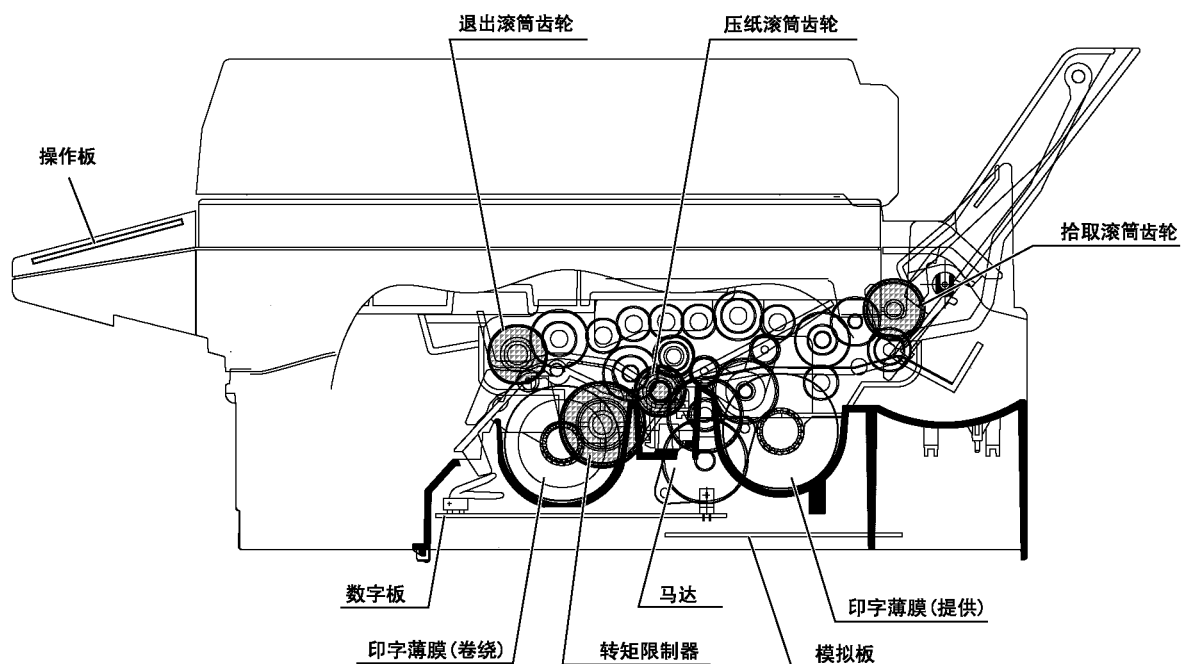
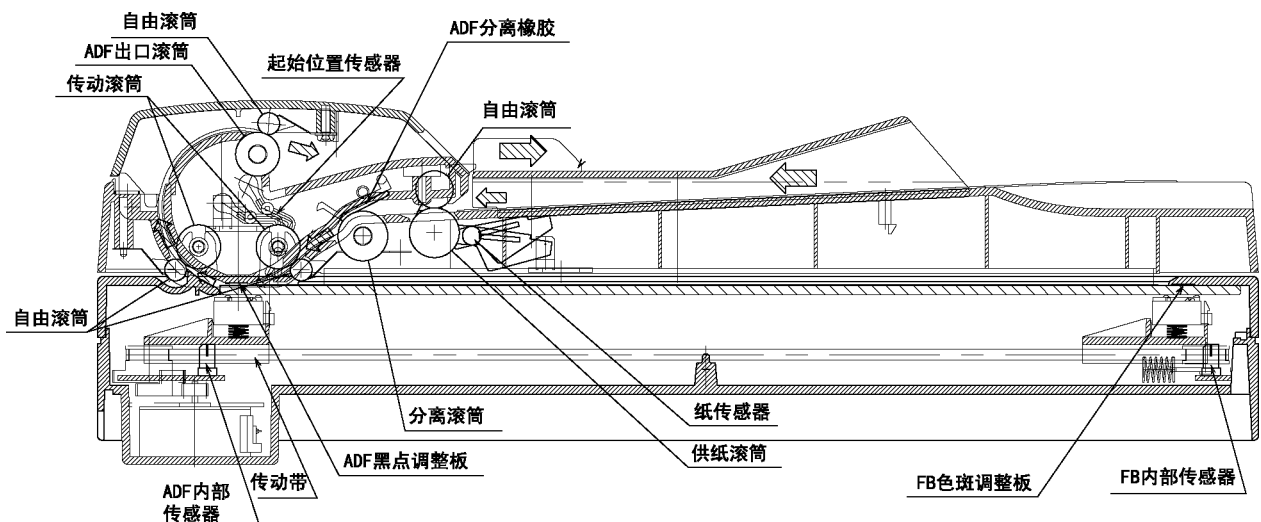
4.1. 维修项目和元件位置

4.1.1. 概要

维修和检修应按以下步骤进行。

1. **定期维修**
定期检查设备，如有必要，应擦干净任何被弄脏的部件。
2. **检查故障**
查找故障并考虑故障发生的原因。
如果设备还能使用，则应进行复印、自测或通信试验。
3. **检查设备**
进行复印、自测和通信试验，以便确定故障是否发生在传送部分、接收部分或电话线上。
4. **确定原因**
通过故障检修确定设备故障的原因。
5. **设备修理**
修理或更换有毛病的部件，并在此阶段采取适当措施，以保证不再出现故障。
6. **确认设备是否工作正常**
在完成修理后，应进行复印、自测和通信试验，以便确认设备是否工作正常。
7. **保留维修记录**
记录排除故障所采取的措施，以备将来参考。

4.1.2. 维修检查项目 / 元件位置



4.1.2.1. 维修表

编号	操作	检查	备注
1	文件通道	清除任何杂物，如纸张。	—
2	滚筒	如果滚筒脏，用湿布擦干净，然后彻底晾干。	参考 4.1.2. 维修检查项目 / 元件位置 (P. 22)。4.5.2. 送纸滚筒 (P. 26)
3	传感器	文稿传感器 (PS500)，记录纸供纸传感器 (PS501)，打印机盖开启开关 (SW101)，ADF 开盖传感器 (SW501)，FB 开盖传感器 (SW500)，ADF CIS 位置传感器 (PS502)，FB CIS 位置传感器 (PS503)，电阻传感器 (PC201)，记录纸出口传感器 (PS50)，记录纸顶部传感器 (PS1)，确认各个传感器的操作状况。	参考 4.1.2. 维修检查项目 / 元件位置 (P. 22) 和 7.6. 传感器和开关 (P. 145)。6.3. 测试功能 (P. 61)。
4	玻璃	如果玻璃脏，用干软布擦净。	参考 4.5. 维修 (P. 26)。
5	零件异常、磨损和破裂或丢失	更换零件。检查全部部件上的螺丝是否上紧	—

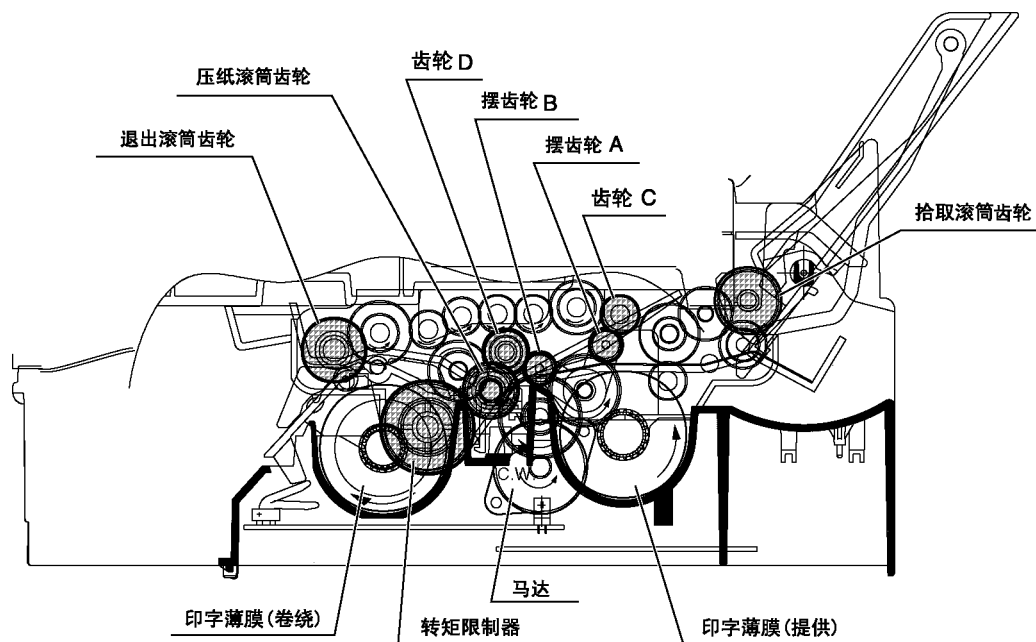
4.1.2.2. 维修周期

编号	项目	擦拭周期	更 换	
			周期	工序
1	ADF 分离滚筒 (参考号 83)	3 个月	7 年 (100,000 份文件)*	参考 5.2.10. 如何卸下输送滚筒和分离滚筒 (P. 43)。
2	输送滚筒 (参考号 82)	3 个月	7 年 (100,000 份文件)*	参考 5.2.10. 如何卸下输送滚筒和分离滚筒 (P. 43)。
3	ADF 分离橡胶 (参考号 43)	3 个月	7 年 (100,000 份文件)*	参考 5.2.11. 如何卸下顶盖和传送块 (P. 44)。
4	驱动滚筒 (参考号 35)	3 个月	7 年 (100,000 份文件)*	参考 5.2.13. 如何卸下 ADF 出口滚筒和驱动滚筒 (P. 45)。
5	ADF 出口滚筒 (参考号 32)	3 个月	7 年 (100,000 份文件)*	参考 5.2.13. 如何卸下 ADF 出口滚筒和驱动滚筒 (P. 45)。
6	拾取滚筒 (参考号 187)	3 个月	7 年 (100,000 份文件)*	参考 5.2.14. 如何卸下拾取滚筒 (P. 46)。
7	压纸滚筒 (参考号 224)	3 个月	7 年 (100,000 份文件)*	参考 5.2.15. 如何卸下退出滚筒和压纸滚筒 (P. 47)。
8	出口滚筒 (参考号 225)	3 个月	7 年 (100,000 份文件)*	参考 5.2.15. 如何卸下退出滚筒和压纸滚筒 (P. 47)。
9	热敏头 (参考号 261)	3 个月	7 年 (100,000 份文件)*	参考 5.2.3. 如何卸下热敏头 (P. 38)。

如果各部分弄脏，请用湿布擦拭，然后彻底晾干。

* 这些值均为标准值，根据使用条件而改变。

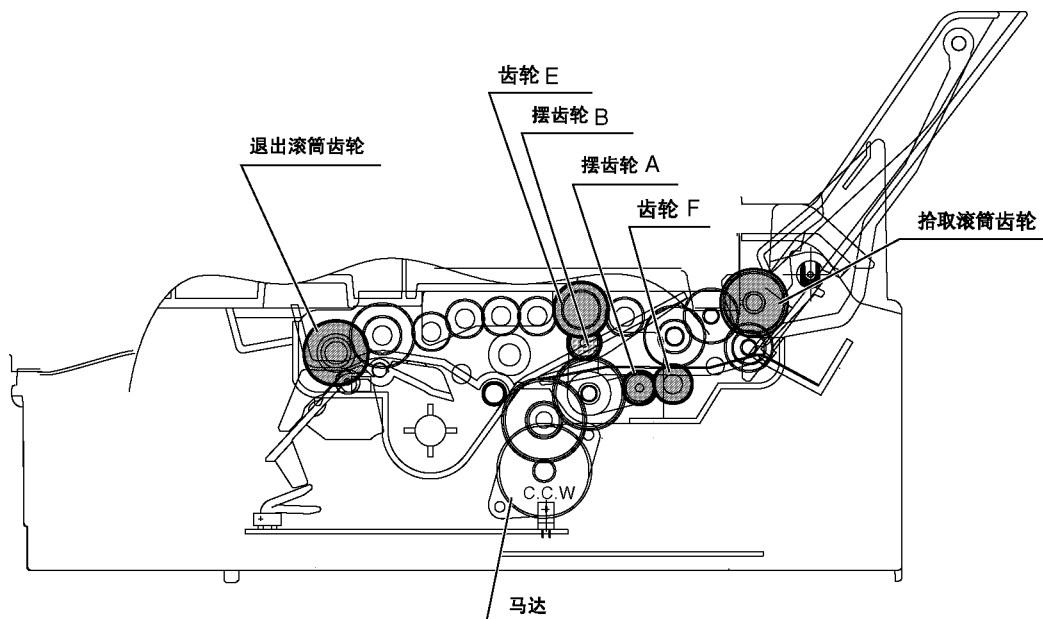
4.2. 打印与纸张退出方式



摆齿轮 A 啮合齿轮 C，并将其力传递给退出滚筒齿轮。

摆齿轮 B 啮合齿轮 D，并将其力传递给压纸滚筒齿轮。

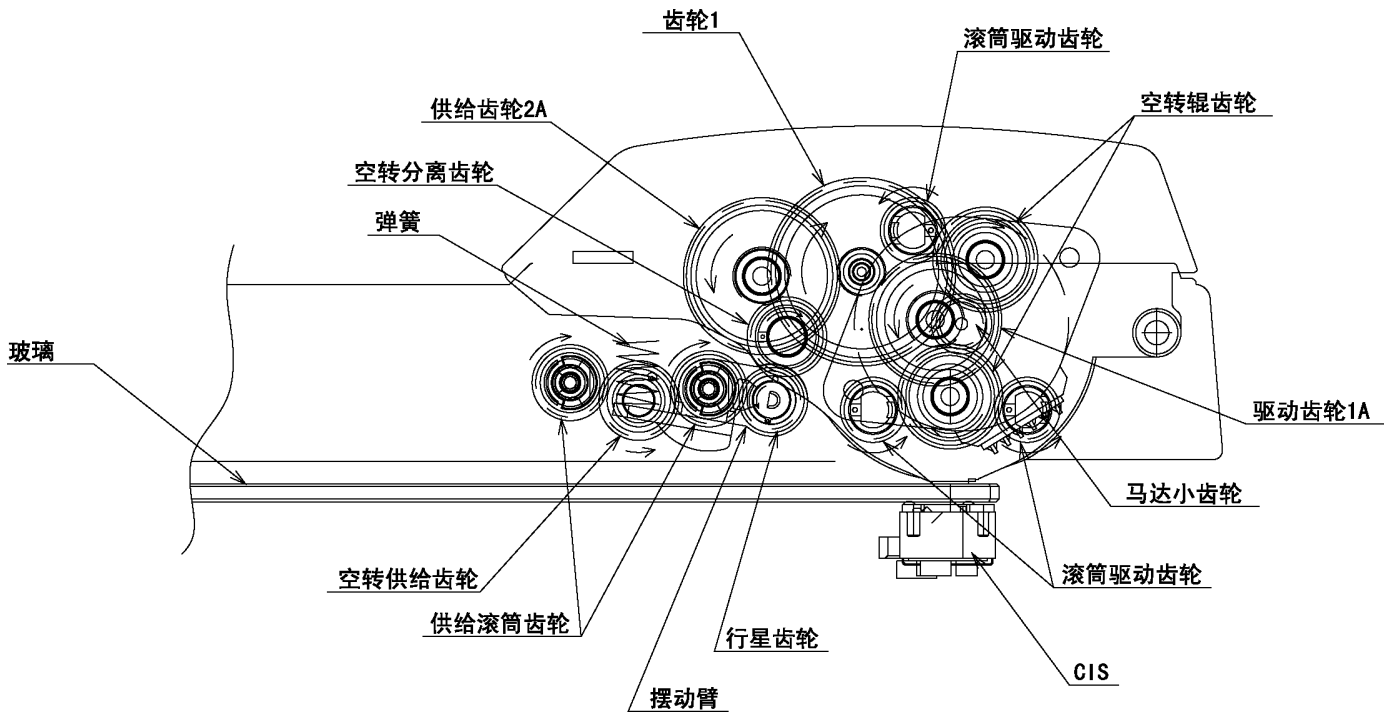
4.3. 纸张拾取与纸张退出方式



摆齿轮 B 啮合齿轮 E，并将其力传递给退出滚筒齿轮。

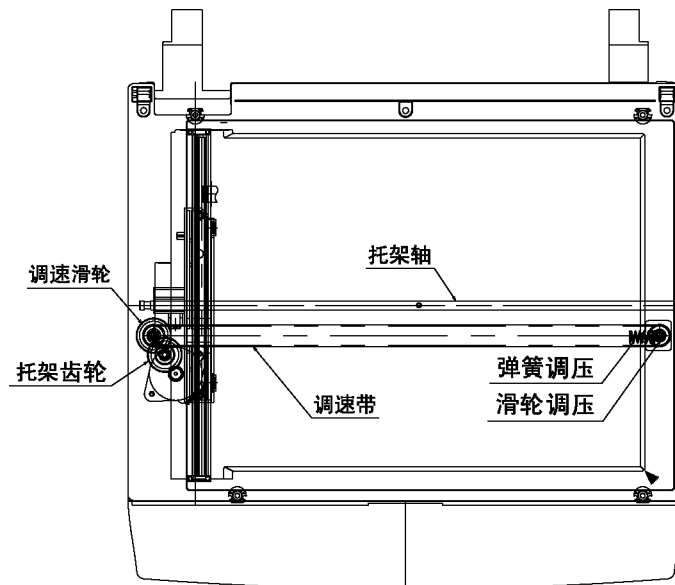
摆齿轮 A 啮合齿轮 F，并将其力传递给拾取滚筒齿轮。

4.4. 扫描仪 (ADF)



• 文稿传送 (ADF)

文稿纸端通过文稿供给滚筒，被传送到分离滚筒和分离垫之间的接触点，然后，文稿分离并被供给到这里。文稿传送滚筒传送文稿，CIS 通过玻璃读出文稿，文稿沿着引导滚筒倒转回来，然后，通过排纸滚筒排出。



• 文稿传送 (扫描仪玻璃)

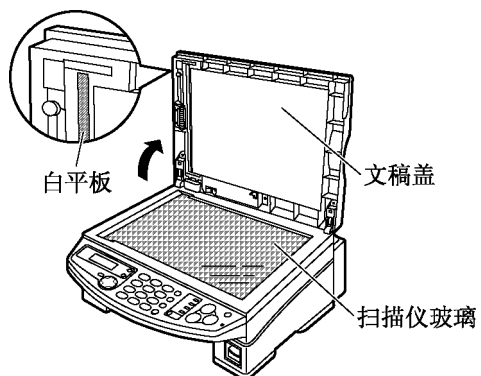
被 CIS 支座支撑的 CIS，由调速同步带沿着轴状的传送滚轮，传送到开始读出的位置，然后透过玻璃读出文稿，再返回到初始位置。

4.5. 维修

4.5.1. 清洁白平板和扫描仪玻璃

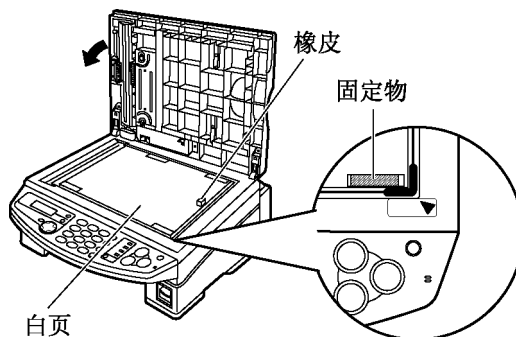
如果在记录纸、原稿或对方收到的传真文稿上出现黑白线或污迹，请清洁白平板和扫描仪玻璃。

- 1 打开文稿盖。用干的软布清洁白平板和扫描仪玻璃。



在文稿盖上放置白页

如果清洁时白页与文稿盖分离，请将白页固定物向上放在扫描仪玻璃上，并使白页上边缘对准本机上的▼标记，然后关上文稿盖。

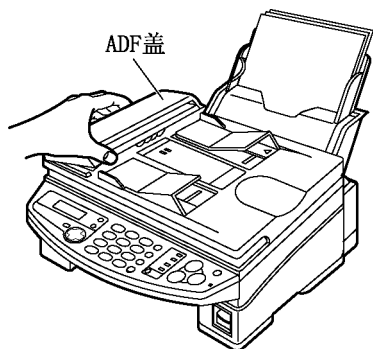


- 2 关上文稿盖。

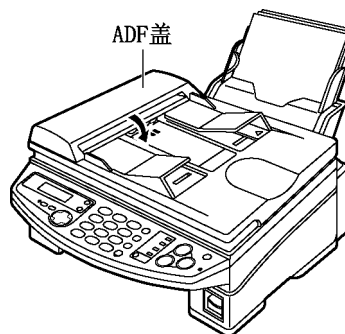
4.5.2. 送纸滚筒

如果频繁发生原稿送入错误，请清洁送纸滚筒。

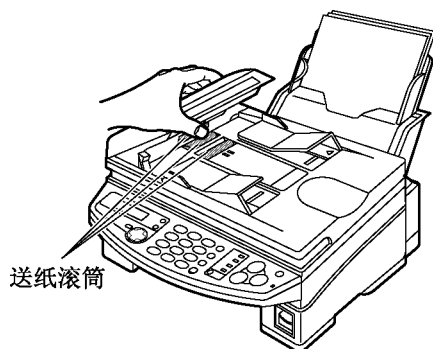
- 1 抬起并一直打开 ADF 盖。



- 3 关上 ADF 盖。



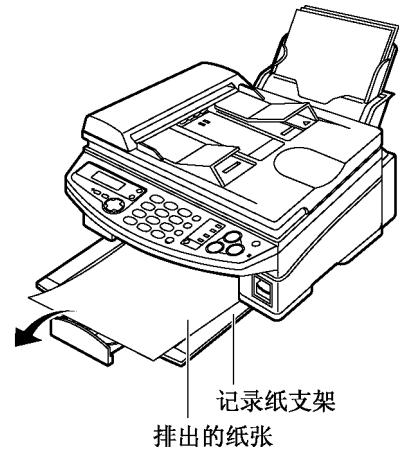
- 2 用干的软布清洁送纸滚筒。



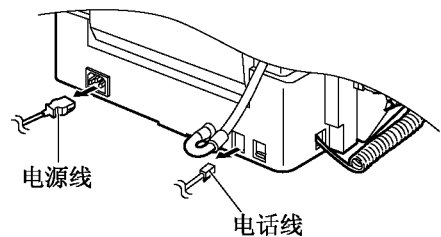
4.5.3. 热敏头和辊轴

如果在复印或接收的文稿上出现污迹或黑白条，应检查热敏头和辊轴上是否有灰尘，然后清除热敏头和辊轴上的灰尘。

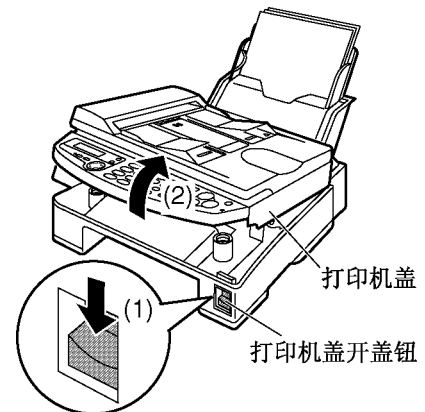
- 1 如果排出的纸张堆叠在记录纸支架上，请取走它。



- 2 断开电源线和电话线。



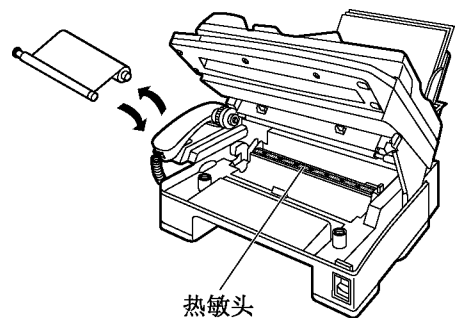
- 3 按下打印机盖开盖钮 (1)。打开打印机盖 (2)。



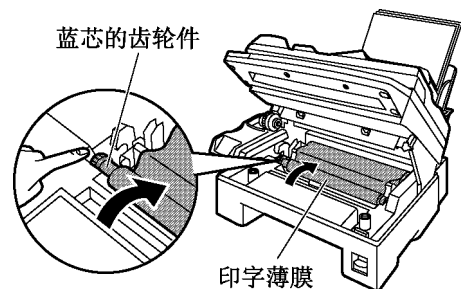
- 4 取出印字薄膜，然后使用蘸有异丙基外用酒精的布清洁热敏头，然后让其完全干燥。更换印字薄膜。

注意：

- 为防止因静电而导致工作不正常，不要使用干布，也不要直接接触热敏头。

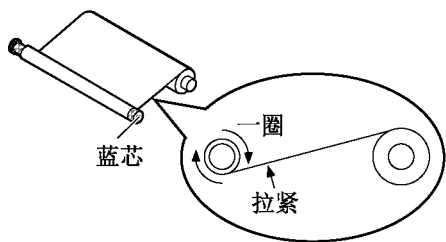


- 5 按箭头所示方向转动蓝芯齿轮件。

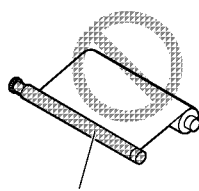


- 确保印字薄膜至少在蓝芯上缠绕一圈。

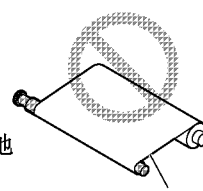
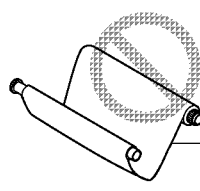
正确



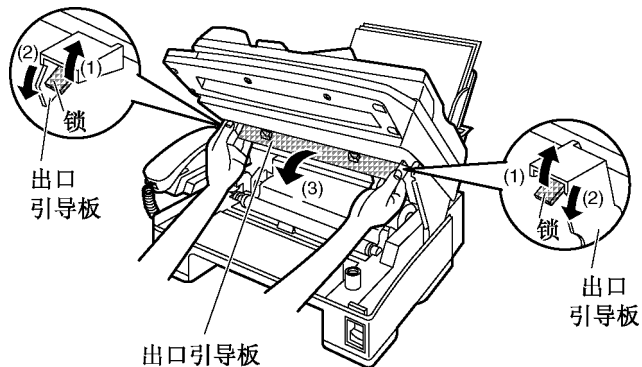
不正确



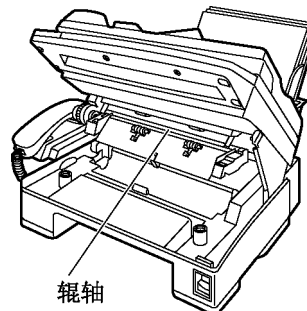
没有将印字薄膜在蓝芯上缠绕一圈。



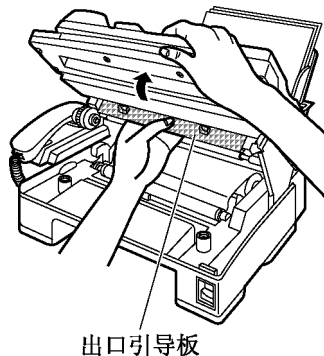
- 6 抬起两个锁扣 (1)，压下出口引导板松开两个锁扣 (2)，然后打开出口引导板 (3)。



- 7 使用蘸有异丙基外用酒精的布清洁辊轴，然后让其完全干燥。



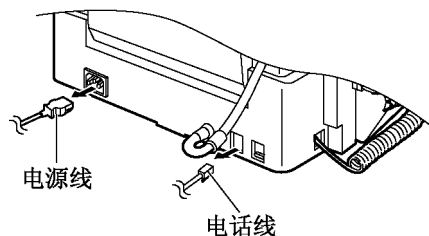
- 8 关闭出口引导板。



- 9 同时按下打印机盖的两端直到完全到位，关好打印机盖。



- 10 连接电源线和电话线。



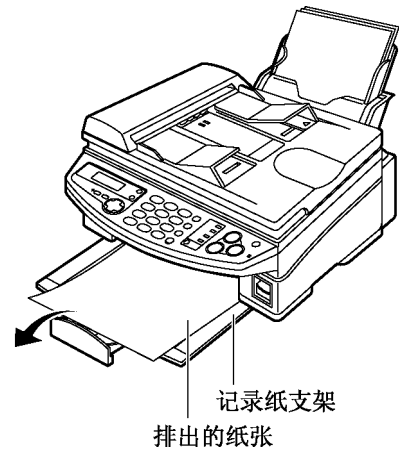
4.6. 记录纸卡纸

当记录纸在本机中卡住时

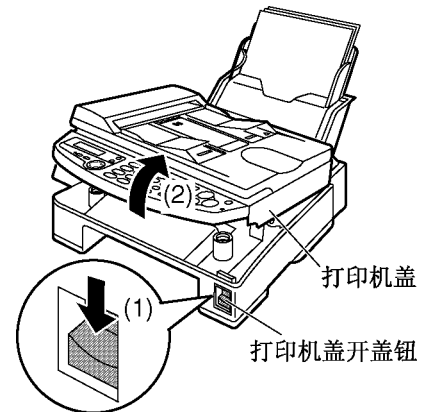
显示屏中将显示下面的信息。

PAPER JAMMED

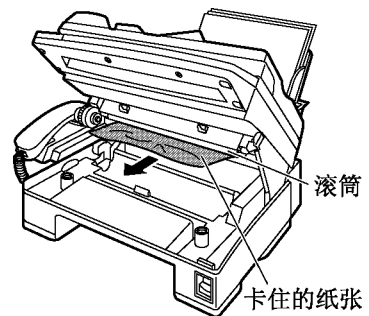
- 1 如果排出的纸张堆叠在记录纸支架上，请取走它。



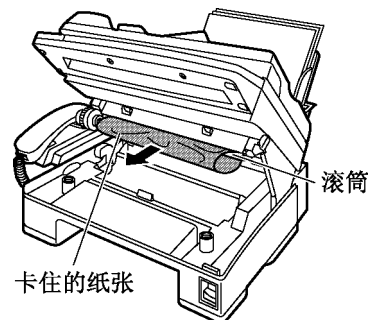
- 2 按下打印机盖开盖钮 (1)。打开打印机盖 (2)。



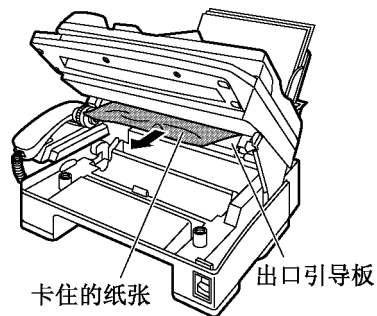
- 3 向您自己的方向拉纸，以取出卡住的纸张。
当记录纸在滚筒下卡住时：



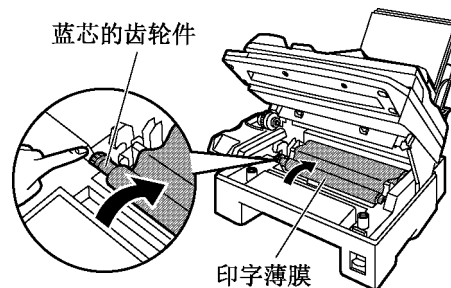
当记录纸卡住并缠绕在滚筒上时：



当记录纸在出口引导板附近卡住时：

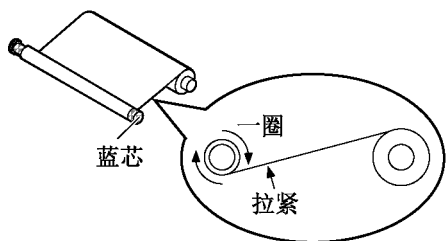


4 按箭头所示方向转动蓝芯齿轮件。

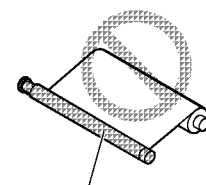


• 确保印字薄膜至少在蓝芯上缠绕一圈。

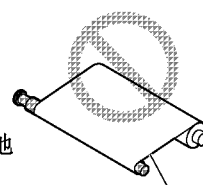
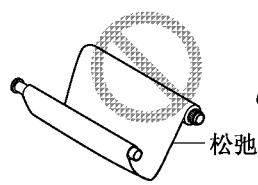
正确



不正确

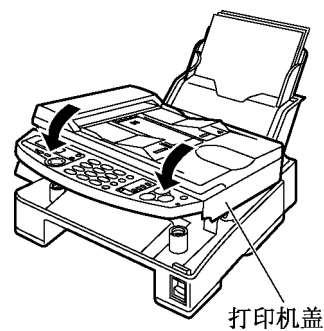


没有将印字薄膜在
蓝芯上缠绕一圈。

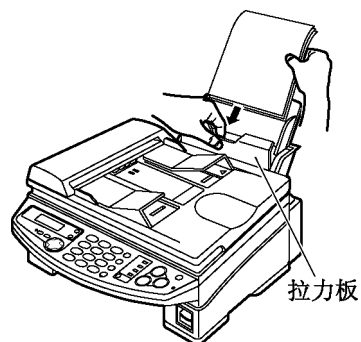


反转

5 同时按下打印机盖的两端直到完全到位，关好打印机盖。



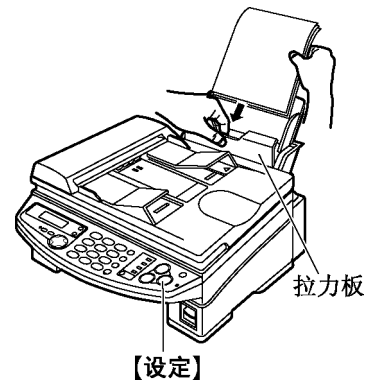
6 取出记录纸并将其拉直。向前推拉力板，并且在装纸时使其一直打开。



当记录纸没有正确送入本机时
显示屏中将显示下面的信息。

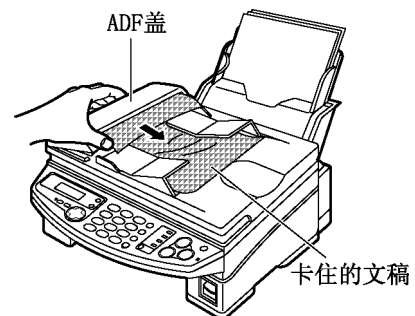
CHECK PAPER

取出记录纸并将其拉直。向前推拉力板，并且在装纸时使其一直打开。请按【设定】清除此信息。

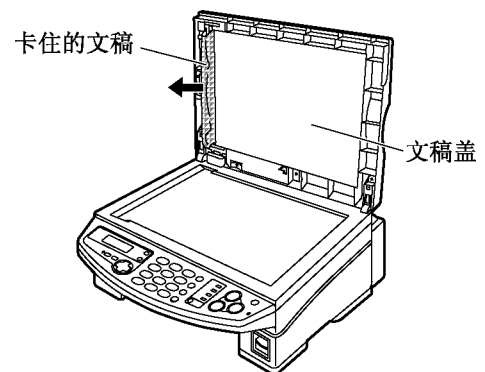


4.7. 文稿卡住 - 发送

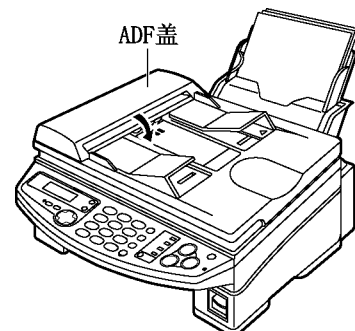
1 抬起并一直打开 ADF 盖。小心地取出卡住的文稿。



- 在抬起 ADF 盖之前，切勿用力拉出卡住的文稿。
- 如果不能取出卡住的文稿，请打开文稿盖并取出文稿，然后关上文稿盖。

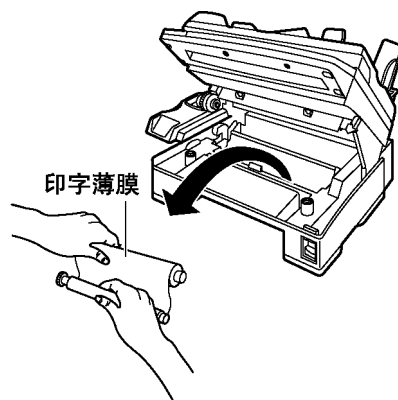


2 关上 ADF 盖。



5 拆卸说明

在拆卸之前，卸下印字薄膜。



5.1. 拆卸流程图

5.1.1. 上部主机壳部分



相互参考：

A-1：5.2.1. 如何卸下载纸盘和文稿盖 (P. 36)

A-2：5.2.2. 如何卸下打印机盖 (P. 37)

A-3：5.2.3. 如何卸下热敏头 (P. 38)

5.1.2. 下部主机壳部分



相互参考：

A-1：5.2.1. 如何卸下载纸盘和文稿盖 (P. 36)

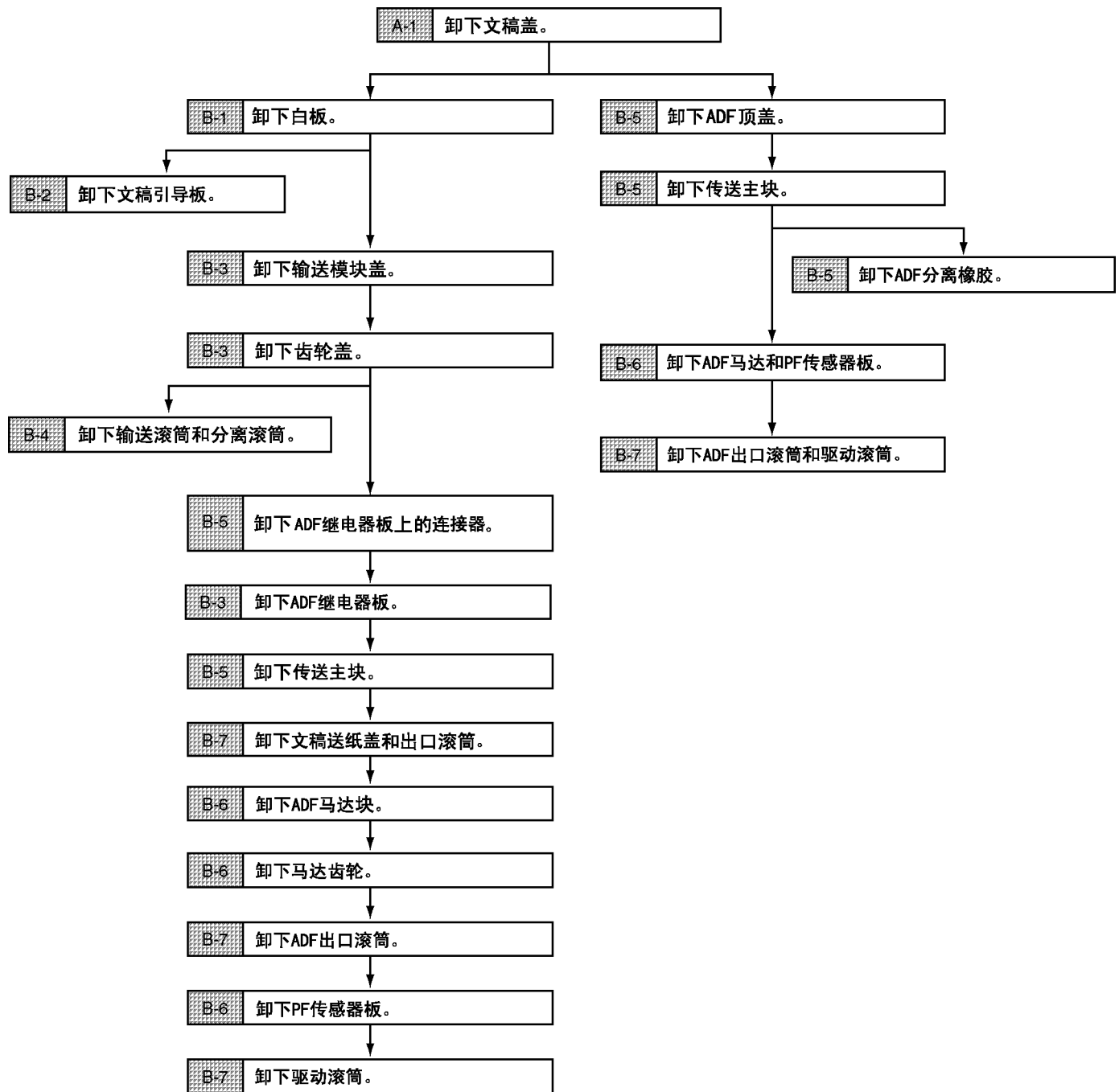
A-2：5.2.2. 如何卸下打印机盖 (P. 37)

A-4：5.2.4. 如何卸下底板和话筒叉簧 (P. 39)

A-5：5.2.5. 如何卸下数字板、模拟板、电源板、芦苇 SW 传感器板及 AC 插座 (P. 40)

A-6：5.2.6. 如何卸下压纸滚筒、锁杆和扬声器 (P. 41)

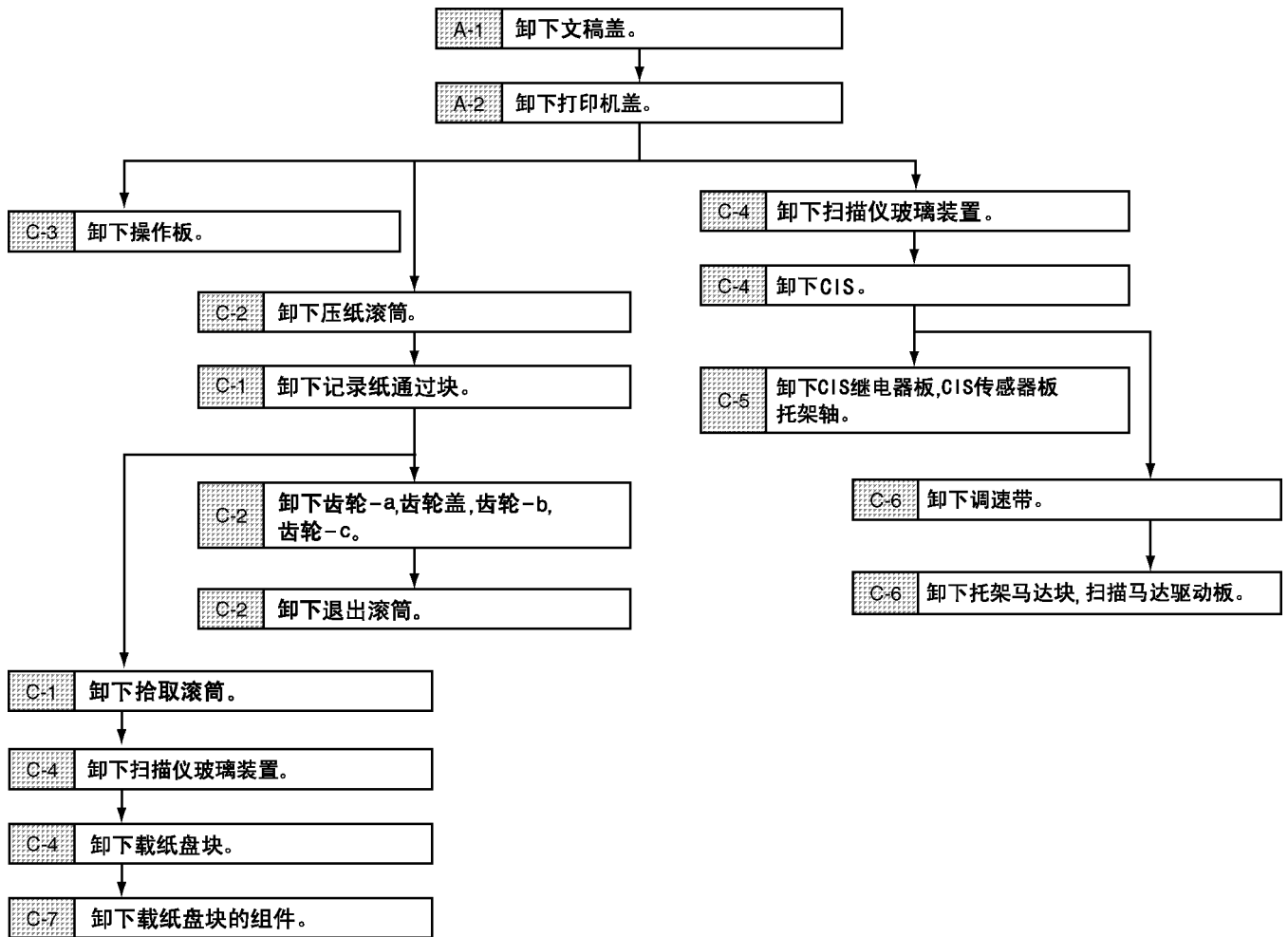
5.1.3. 文稿盖 (ADF) 部分



相互参考：

- A-1 : 5.2.1. 如何卸下载纸盘和文稿盖 (P. 36)
- B-1 : 5.2.7. 如何卸下白板 (P. 42)
- B-2 : 5.2.8. 如何卸下文稿引导板 (P. 42)
- B-3 : 5.2.9. 如何卸下 ADF 继电器板 (P. 43)
- B-4 : 5.2.10. 如何卸下输送滚筒和分离滚筒 (P. 43)
- B-5 : 5.2.11. 如何卸下顶盖和传送块 (P. 44)
- B-6 : 5.2.12. 如何卸下 ADF 马达和 PF 传感器板 (P. 45)
- B-7 : 5.2.13. 如何卸下 ADF 出口滚筒和驱动滚筒 (P. 45)

5.1.4. 打印机盖部分



相互参考：

- A-1 : 5.2.1. 如何卸下载纸盘和文稿盖 (P. 36)
- A-2 : 5.2.2. 如何卸下打印机盖 (P. 37)
- C-1 : 5.2.14. 如何卸下拾取滚筒 (P. 46)
- C-2 : 5.2.15. 如何卸下退出滚筒和压纸滚筒 (P. 47)
- C-3 : 5.2.16. 如何卸下操作板 (P. 48)
- C-4 : 5.2.17. 如何卸下扫描仪玻璃装置, CIS 和载纸盘块 (P. 49)
- C-5 : 5.2.18. 如何卸下 CIS 继电器板和 CIS 传感器板 (P. 50)
- C-6 : 5.2.19. 如何卸下托架马达和扫描马达驱动板 (P. 50)
- C-7 : 5.2.20. 如何卸下载纸盘块的组件 (P. 51)

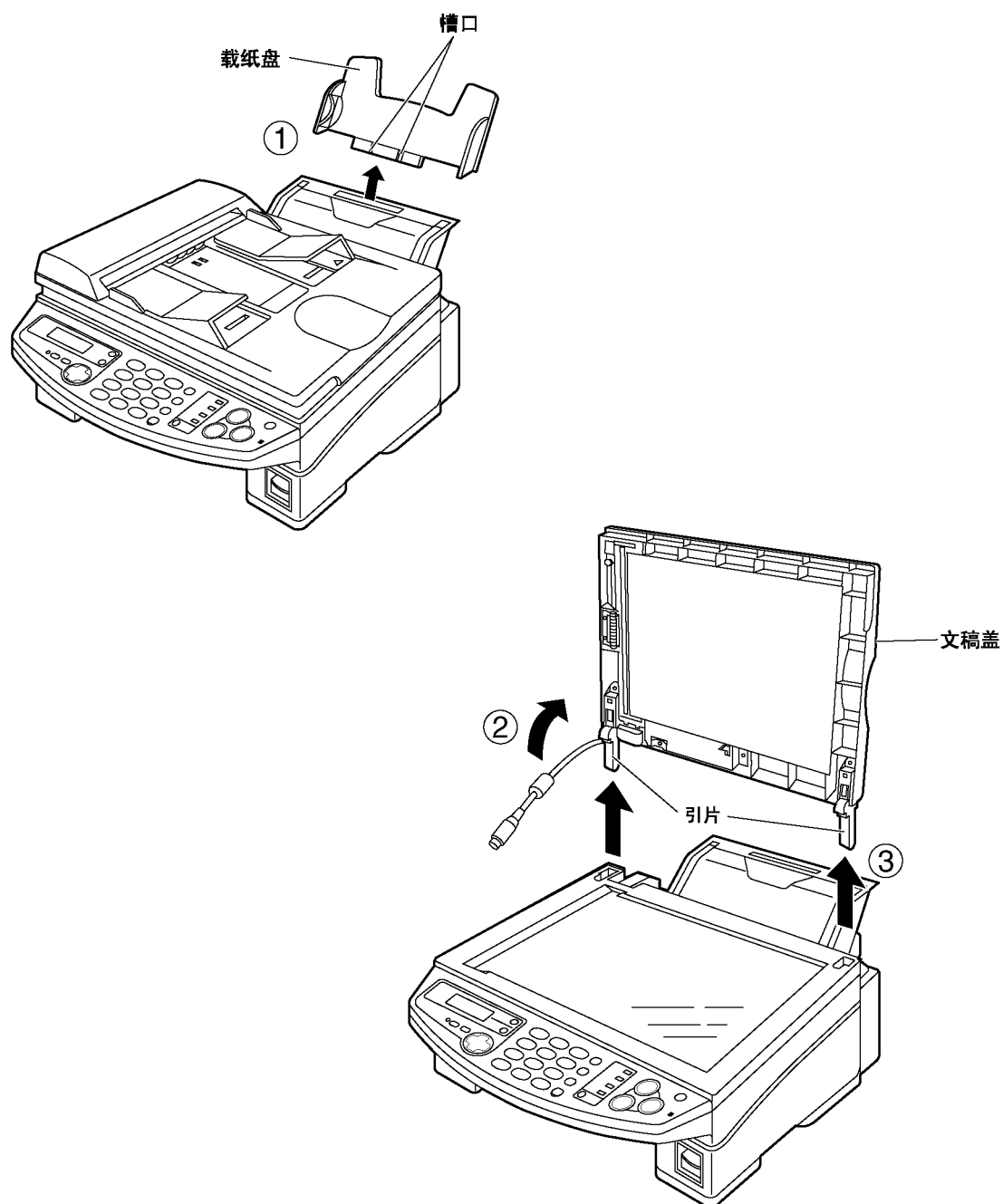
5.2. 拆卸工序

5.2.1. 如何卸下载纸盘和文稿盖

工序：A-1

参考号 A-1

- 1) 从本机后部的槽口拆下载纸盘。
- 2) 打开文稿盖。
- 3) 从本机向上提起文稿盖。

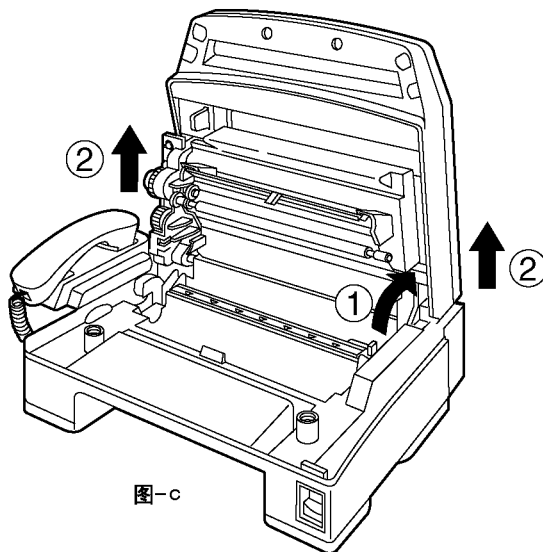
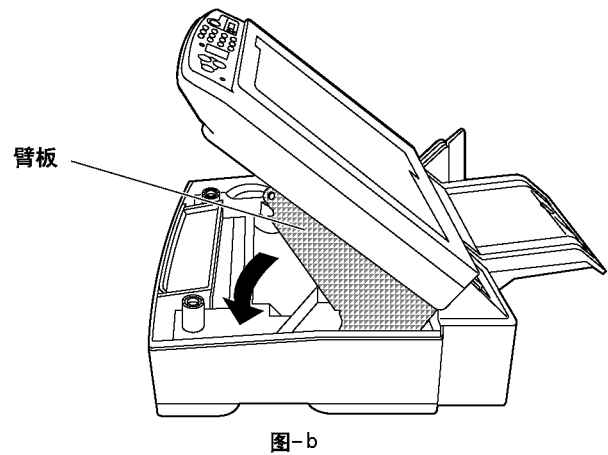
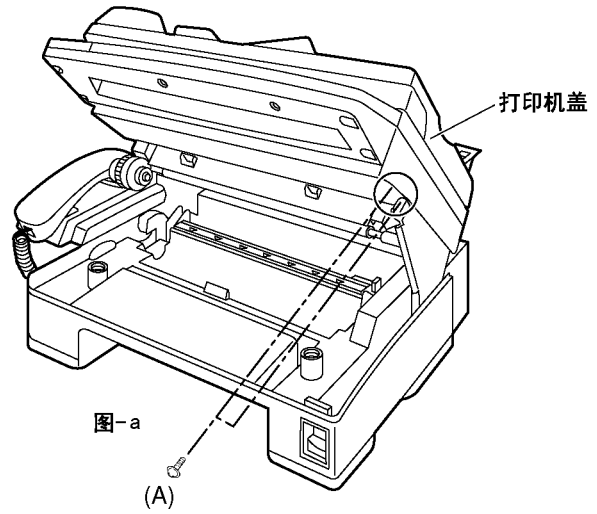


5. 2. 2. 如何卸下打印机盖

工序：A-1 --> A-5--> A-2

参考号 A-2

- 1) 断开数字板上的连接器。(见参考号 A-5)
- 2) 打开打印机盖。
- 3) 卸下两个螺丝(A)。(图-a)
- 4) 按下臂板。(图-b)
- 5) 打开位于顶部的打印机盖，然后将其提起。(图-c)

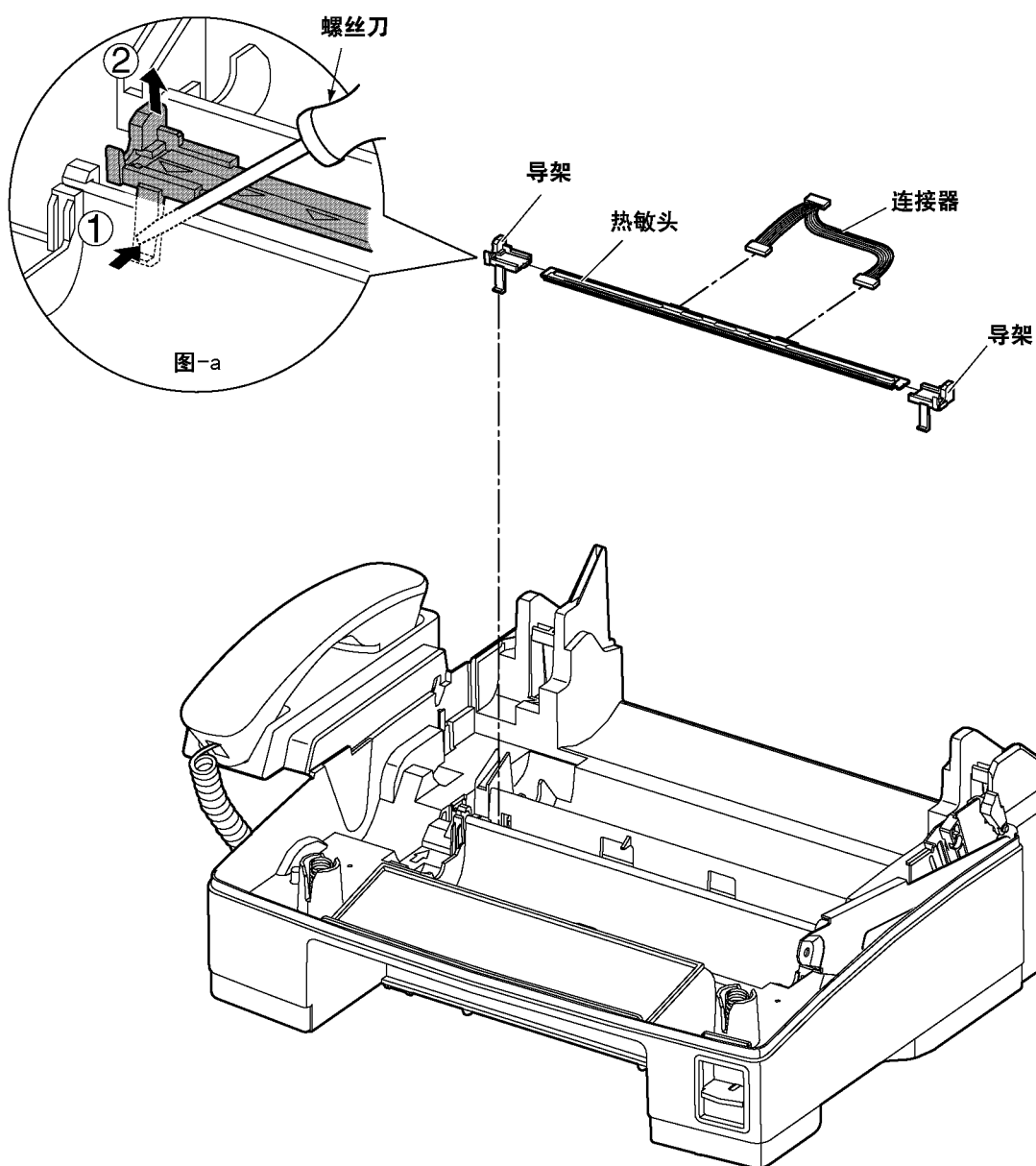


5.2.3. 如何卸下热敏头

工序：A-1 --> A-2 --> A-3

参考号 A-3

- 1) 解开2个导架。(图-a)
- 2) 卸下连接器和2个导架。
- 3) 卸下热敏头。

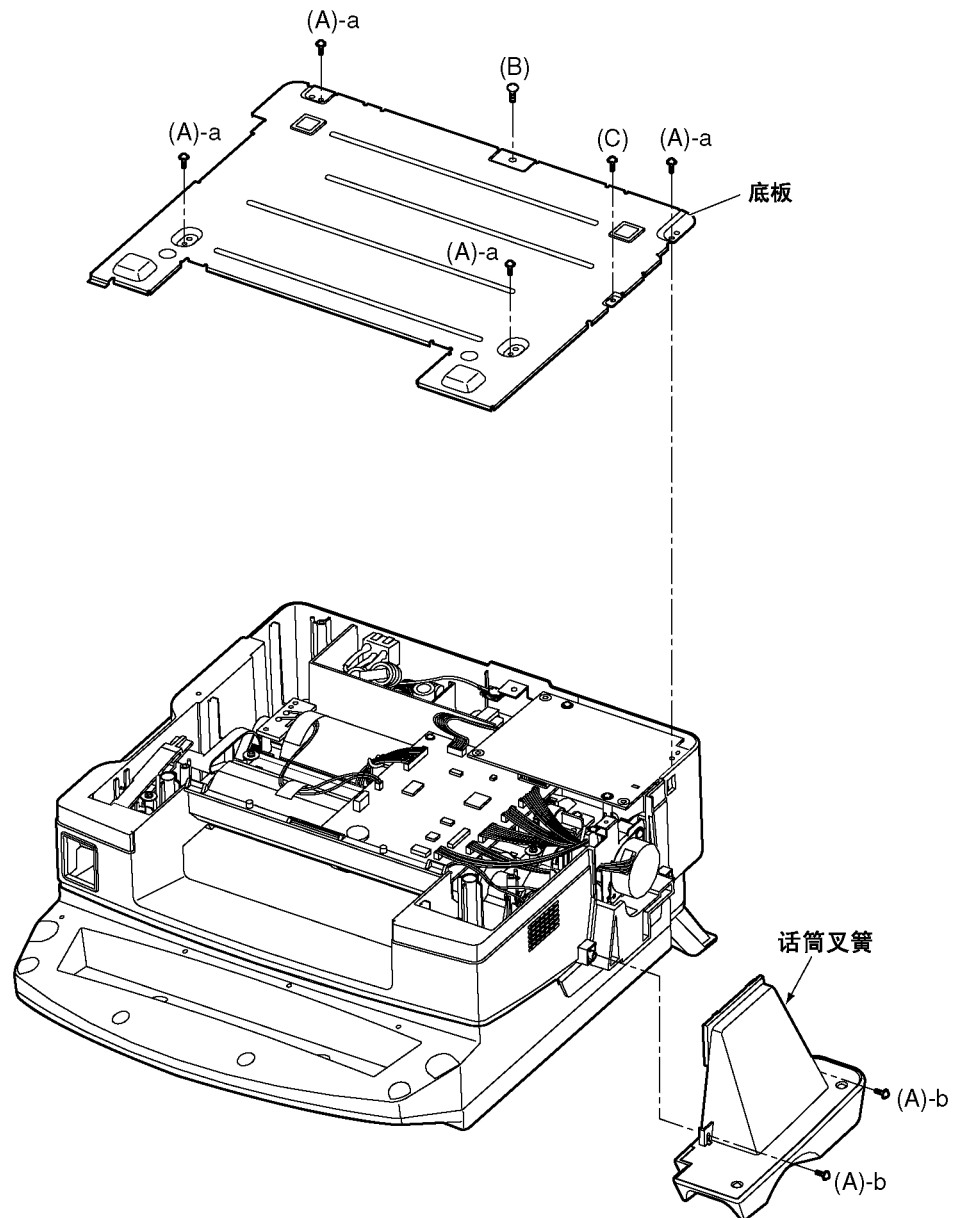


5. 2. 4. 如何卸下底板和话筒叉簧

工序：A-1 --> A2 --> A-4

参考号 A-4

- 1) 卸下4个螺丝 (A)-a, 螺丝(B)和螺丝(C)。
- 2) 卸下底板。
- 3) 卸下2个螺丝 (A)-b。
- 4) 卸下话筒叉簧。

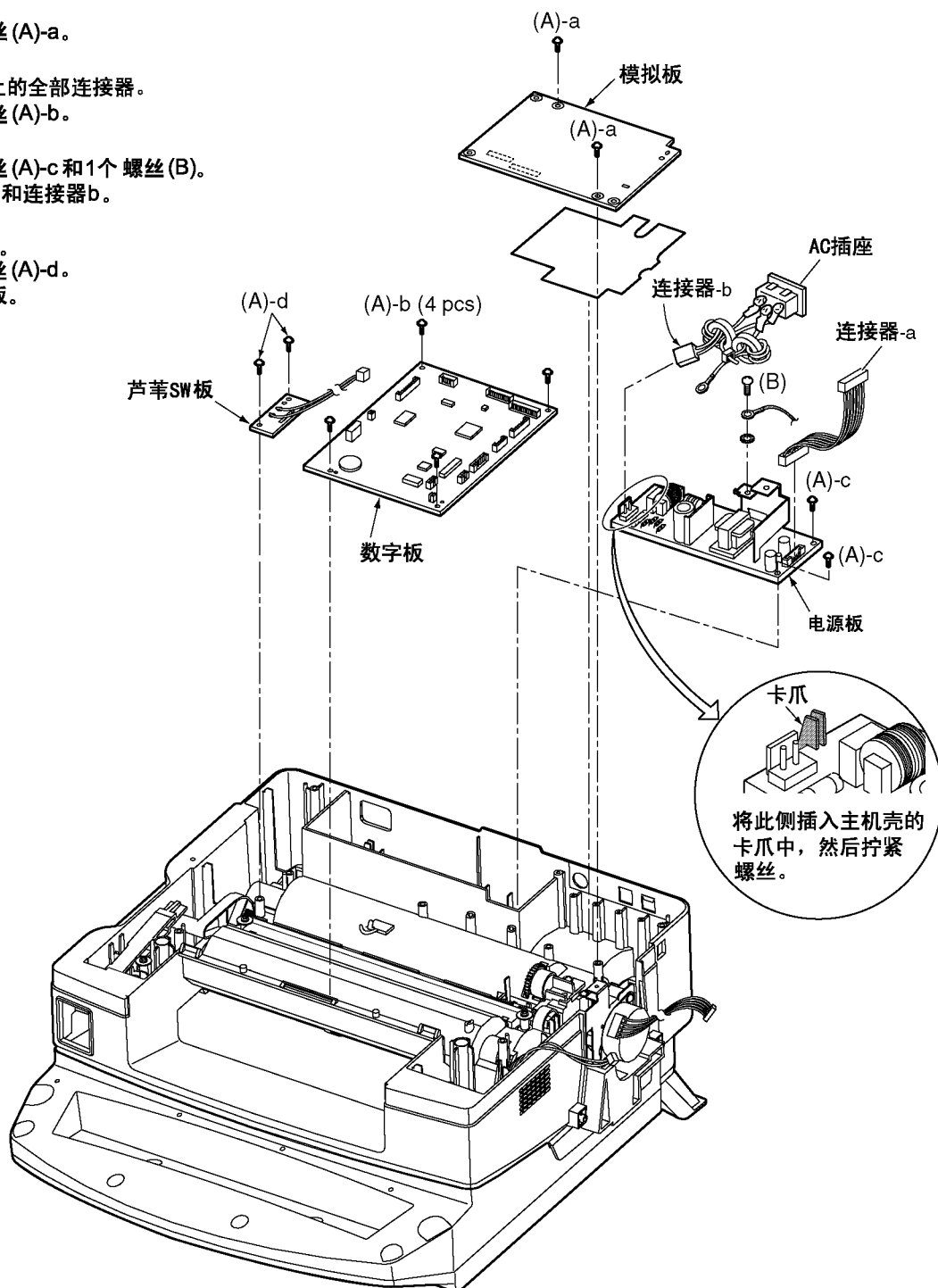


5.2.5. 如何卸下数字板、模拟板、电源板、芦苇 SW 传感器板及 AC 插座

工序 : A-1 --> A-2 --> A-4 --> A5

参考号 A-5

- 1) 卸下 2 个螺丝 (A)-a。
- 2) 卸下模拟板。
- 3) 断开数字板上的全部连接器。
- 4) 卸下 4 个螺丝 (A)-b。
- 5) 卸下数字板。
- 6) 卸下 2 个螺丝 (A)-c 和 1 个螺丝 (B)。
- 7) 断开连接器 a 和连接器 b。
- 8) 卸下电源板。
- 9) 卸下 AC 插座。
- 10) 卸下 2 个螺丝 (A)-d。
- 11) 卸下芦苇 SW 板。



5.2.6. 如何卸下压纸滚筒，锁杆和扬声器

工序：A-1 --> A-2 --> A-4 --> A-5 --> A-6

参考号 A-6

马达块

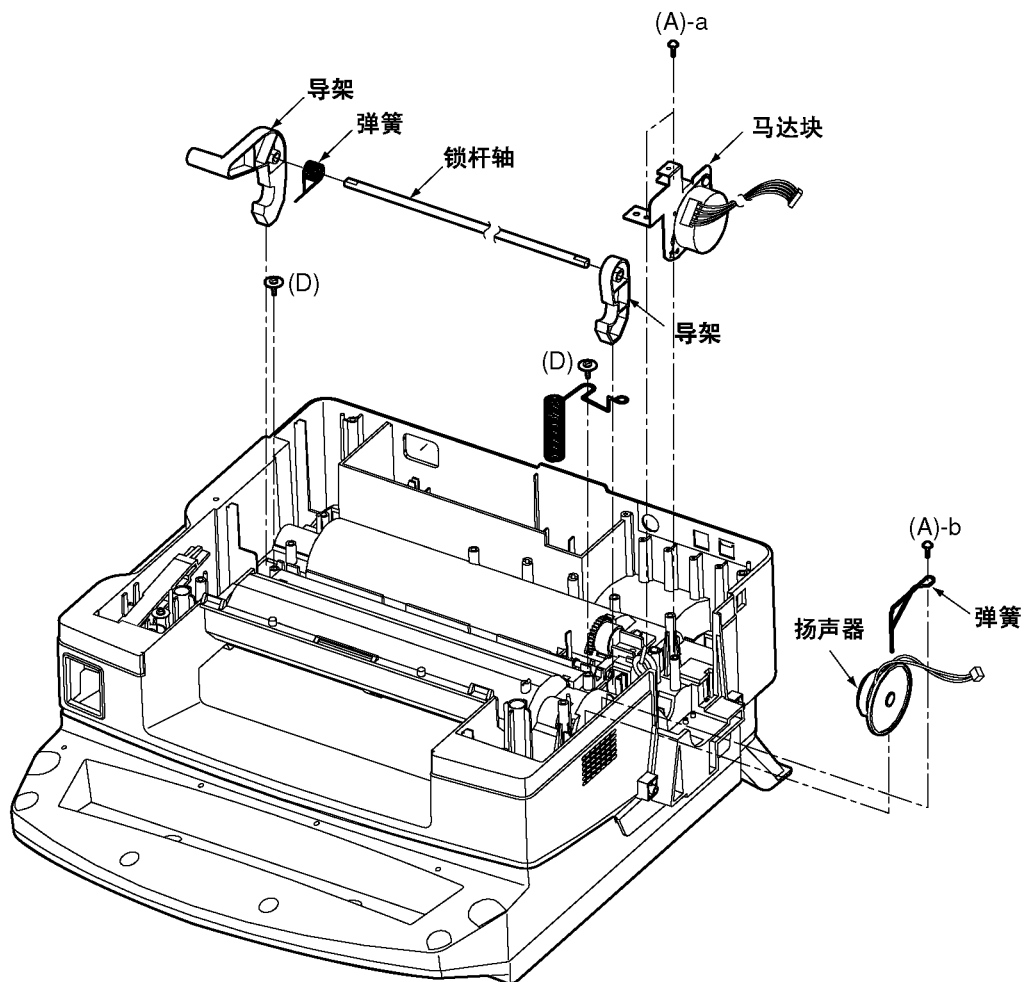
- 1) 卸下2个螺丝(A)-a。
- 2) 卸下马达块。

扬声器

- 1) 卸下螺丝(A)-b。
- 2) 卸下扬声器。

锁杆轴

- 1) 卸下2个螺丝(D)。
- 2) 卸下锁杆块。
- 3) 卸下导架和锁杆轴。

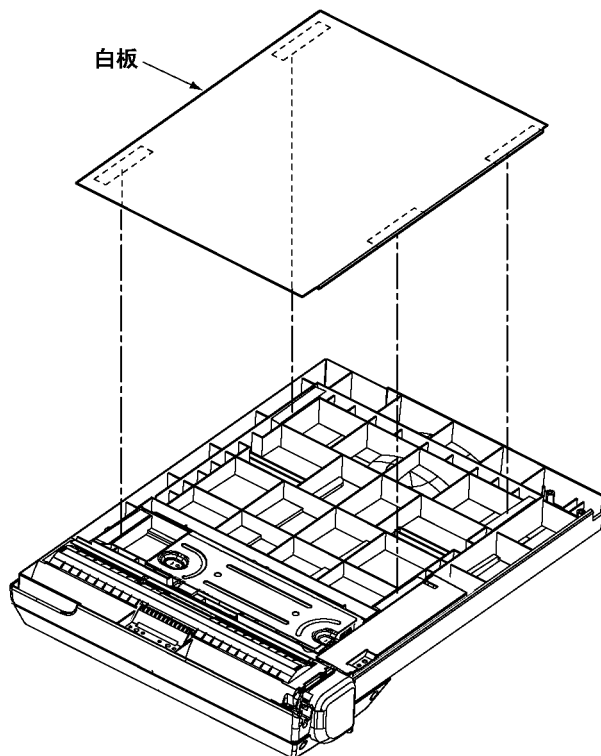


5.2.7. 如何卸下白板

工序：A-1 --> B-1

参考号 B-1

1) 卸下白板。



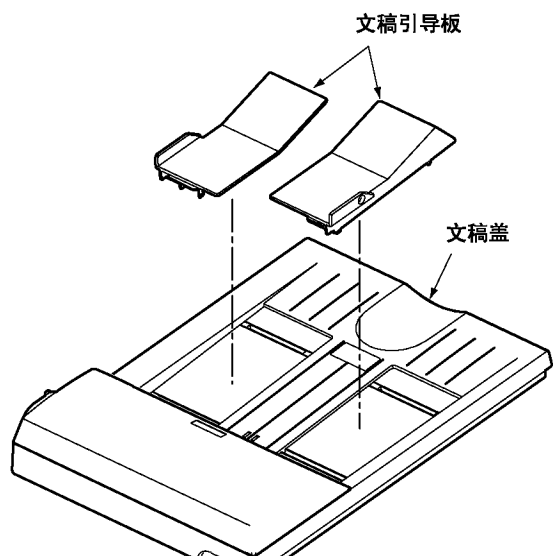
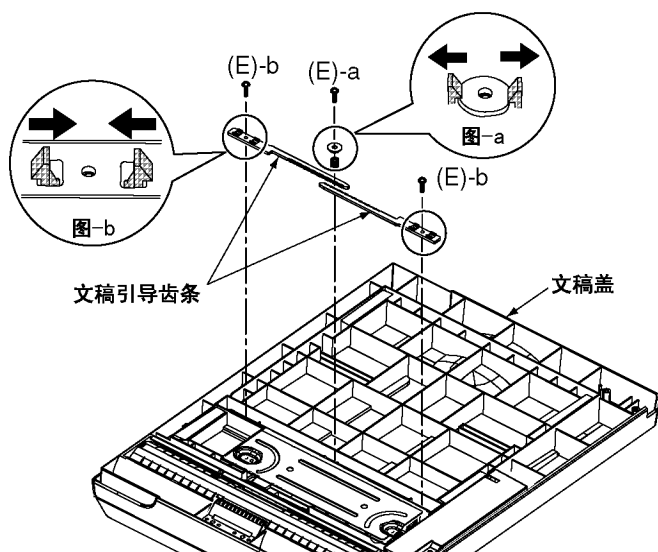
5.2.8. 如何卸下文稿引导板

工序：A-1 --> B-1 --> B-2

参考号 B-2

- 1) 卸下1个螺丝(E)-a。
- 2) 按图-a所示方向按下，
从叉簧卸下垫圈。
- 3) 卸下2个螺丝(E)-b。

- 4) 如图b图所示，松开2个钩。
- 5) 卸下文稿引导板齿条。
- 6) 反转文稿盖。
- 7) 从文稿盖上取下两块文稿引导板。

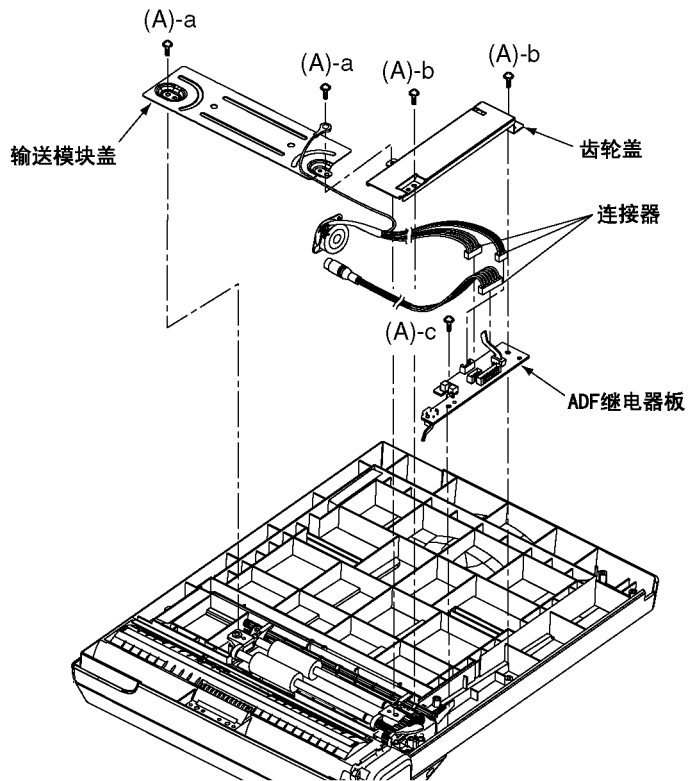


5.2.9. 如何卸下 ADF 继电器板

工序：A-1 --> B-1 --> B-3

参考号 B-3

- 1) 卸下2个螺丝(A)-a。
- 2) 卸下输送模块盖。
- 3) 卸下2个螺丝(A)-b。
- 4) 卸下齿轮盖。
- 5) 卸下连接器。
- 6) 卸下1个螺丝(A)-c。
- 7) 卸下ADF继电器板。

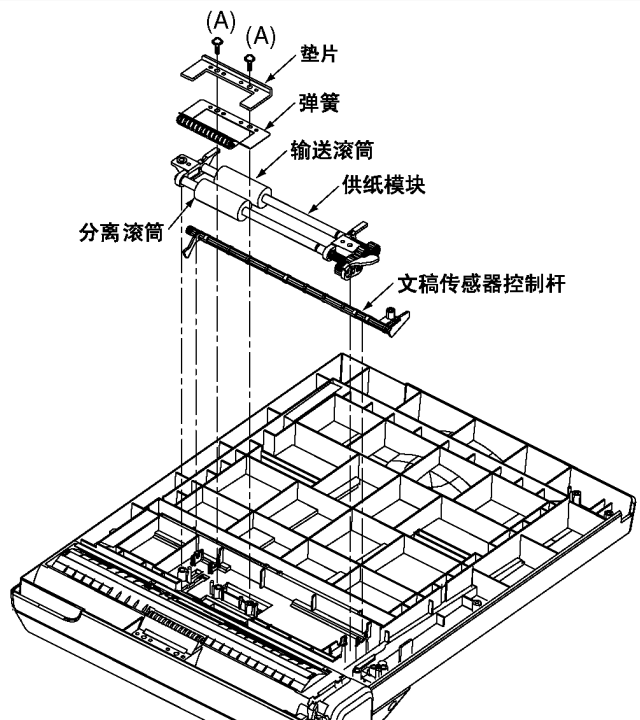


5.2.10. 如何卸下输送滚筒和分离滚筒

工序：A-1 --> B-1 --> B-3 --> B-4

参考号 B-4

- 1) 卸下2个螺丝(A)。
- 2) 卸下垫片和弹簧。
- 3) 提起供纸模块。
- 4) 卸下输送滚筒和分离滚筒。
- 5) 卸下文稿传感器控制杆。



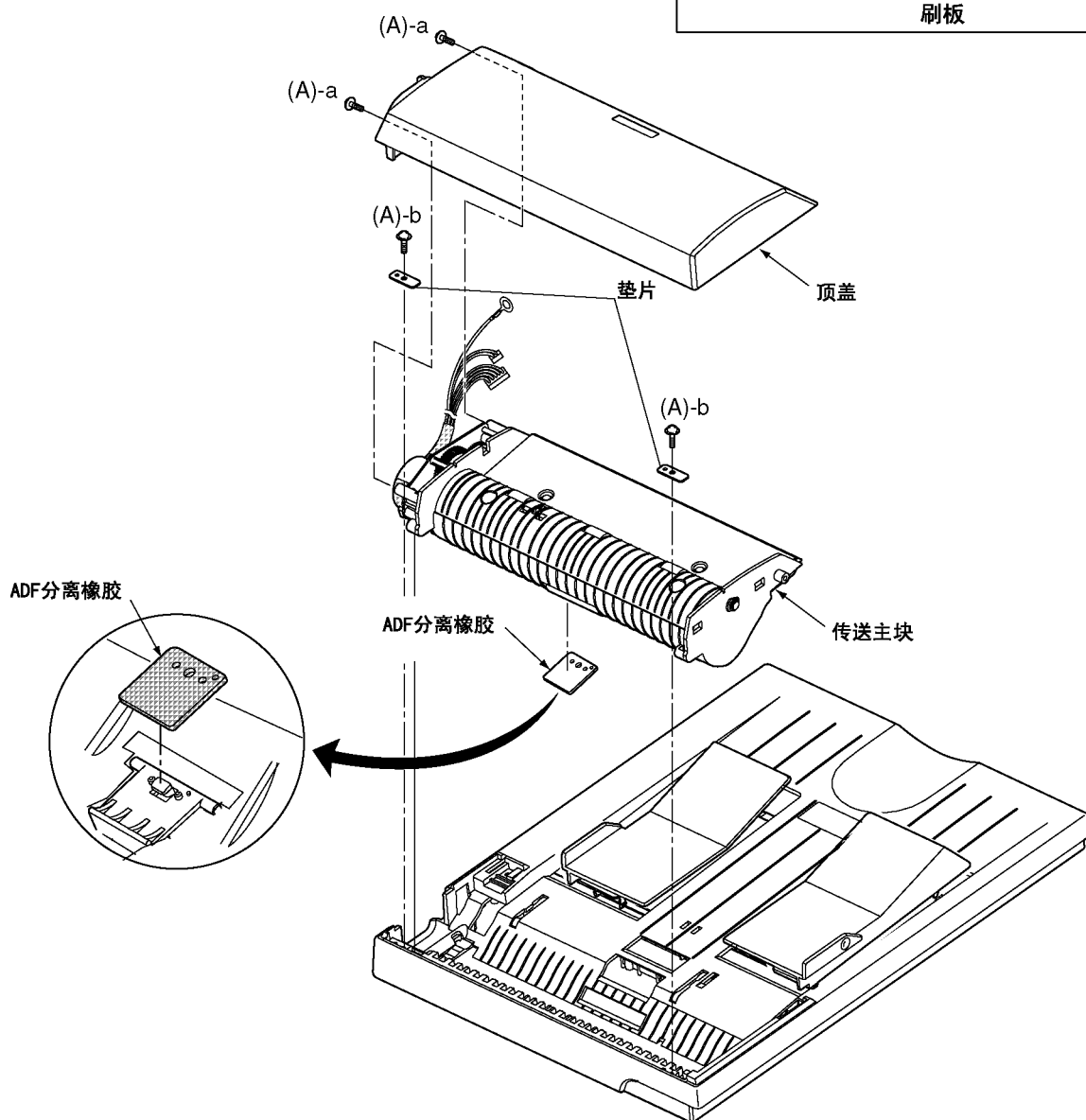
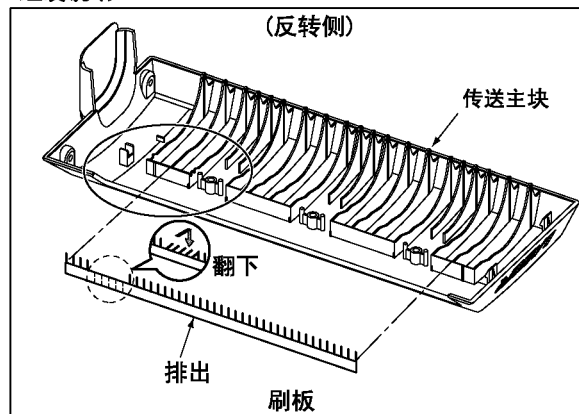
5.2.11. 如何卸下顶盖和传送块

工序：A-1 --> B-1 --> B-3 --> B-5

参考号 B-5

- 1) 卸下2个螺丝 (A)-a。
- 2) 卸下顶盖。
- 3) 卸下2个螺丝 (A)-b 和2块垫片。
- 4) 拔出传送装置。
- 5) 卸下ADF分离橡胶。

组装说明：

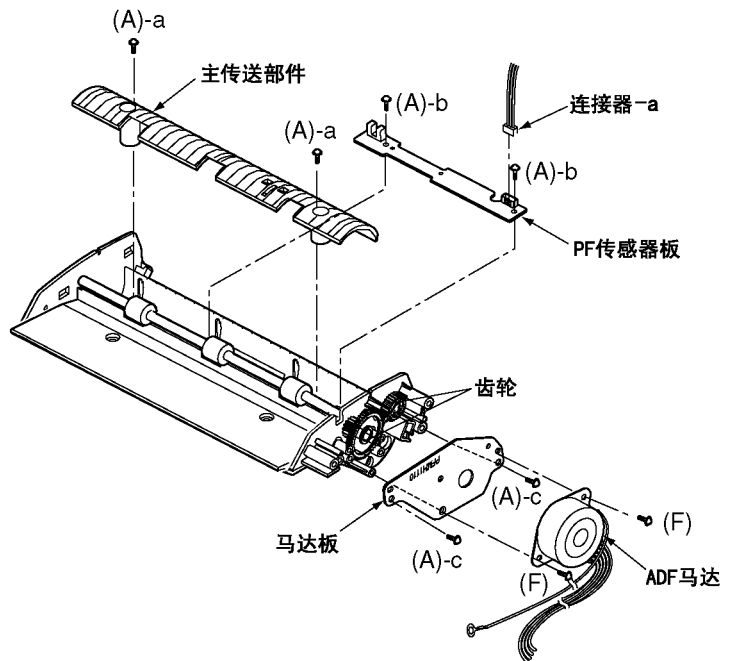


5.2.12. 如何卸下 ADF 马达和 PF 传感器板

工序：A-1 --> B-1 --> B-3 --> B-5 --> B-6

参考号 B-6

- 1) 卸下2个螺丝(A)-a。
- 2) 卸下主传送部件。
- 3) 卸下连接器-a。
- 4) 卸下2个螺丝(A)-b。
- 5) 卸下PF传感器板。
- 6) 卸下2个螺丝(F)。
- 7) 卸下ADF马达。
- 8) 卸下2个螺丝(A)-c。
- 9) 卸下马达板。
- 10) 卸下齿轮。

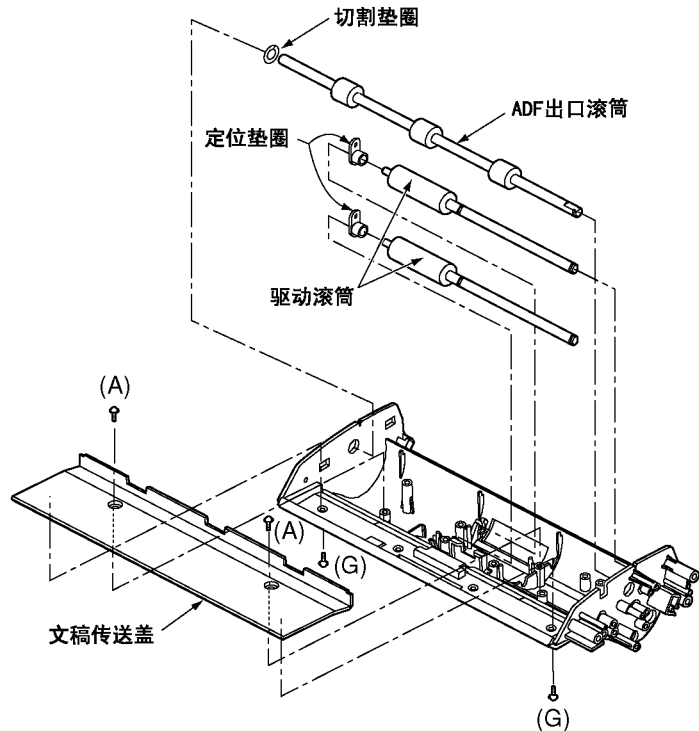


5.2.13. 如何卸下 ADF 出口滚筒和驱动滚筒

工序：A-1 --> B-1 --> B-3 --> B-5 --> B-6 --> B-7

参考号 B-7

- 1) 卸下2个螺丝(A)和2个螺丝(G)。
- 2) 卸下文稿送纸盖。
- 3) 卸下切割垫圈, 然后卸下ADF出口滚筒。
- 4) 卸下2个定位垫圈。
- 5) 卸下2个驱动滚筒。

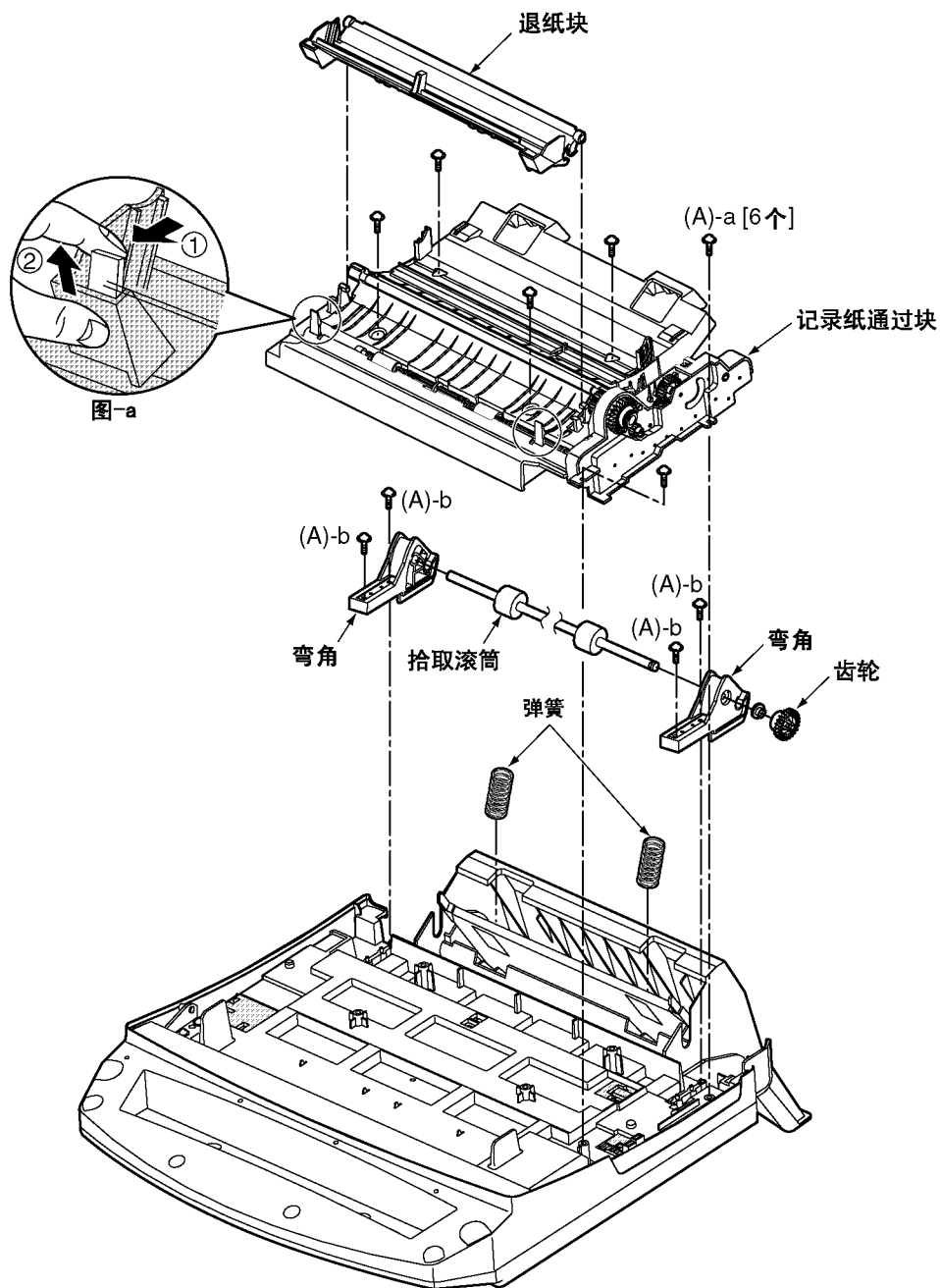


5.2.14. 如何卸下拾取滚筒

工序 : A-1 --> A-2 --> C-1

参考号 C-1

- 1) 首先卸下 2 个弹簧。
- 2) 释放挂钩的两侧，打开退纸块。(图-a)
- 3) 卸下 6 个螺丝 (A)-a。
2 个螺钉位于退纸块的下方。
- 4) 卸下记录纸通过块。
- 5) 拉起退纸块。
- 6) 卸下 4 个螺丝 (A)-b。
- 7) 拔出拾取滚筒块。
- 8) 卸下 4 个弯角和齿轮。
- 9) 卸下拾取滚筒。



5. 2. 15. 如何卸下退出滚筒和压纸滚筒

工序：A-1 --> A-2 --> C-1 --> C-2

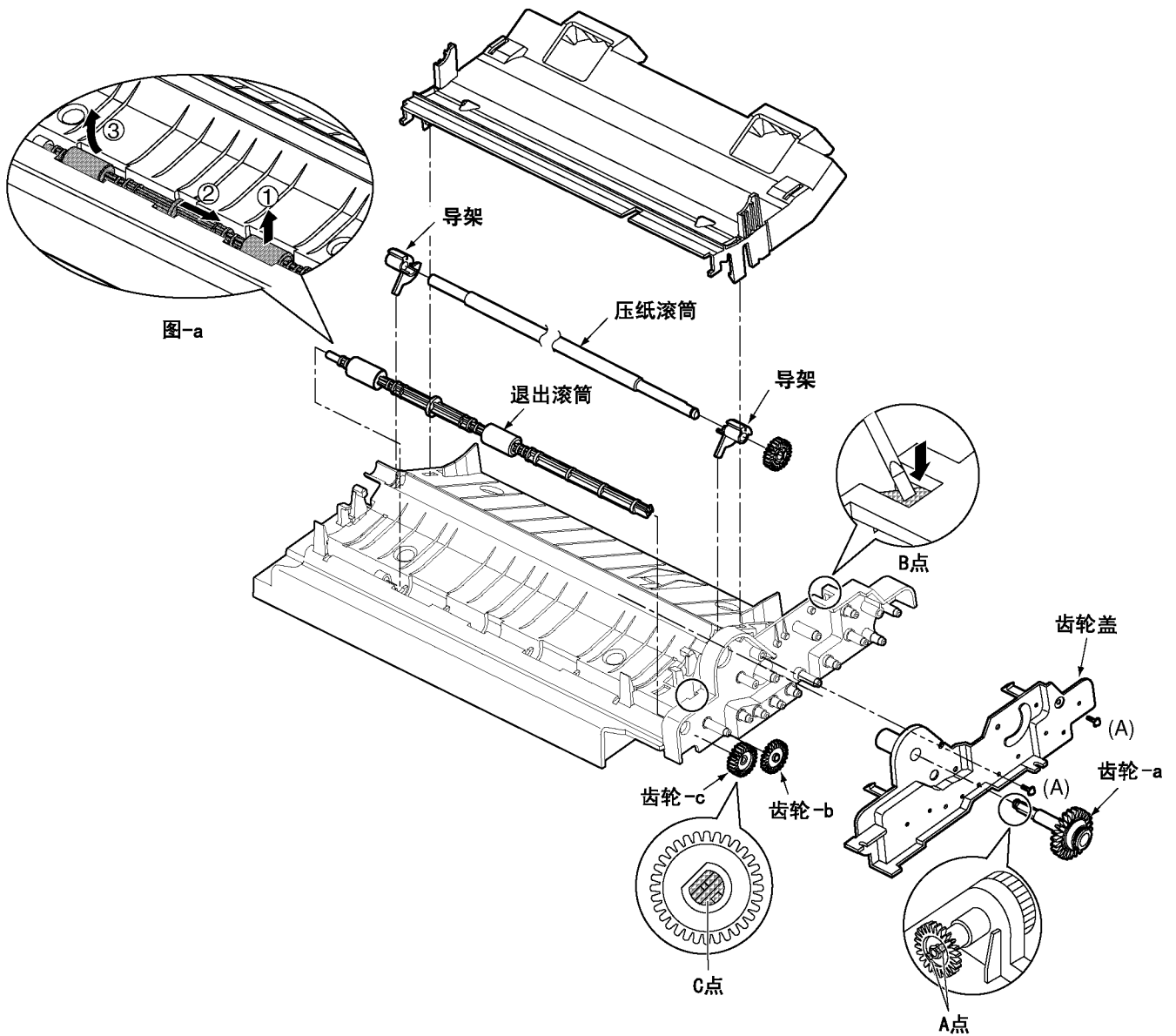
参考号 C-2

退出滚筒

- 1) 卸下 2 个螺丝(A)。
- 2) 释放 A 点的锁。
- 3) 卸下齿轮-a。
- 4) 释放 B 点的锁。
- 5) 卸下齿轮盖。
- 6) 卸下齿轮-b。
- 7) 释放 C 点的锁。
- 8) 卸下齿轮-c。
- 9) 卸下退出滚筒。(图-a)

压纸滚筒

- 1) 卸下两个导架。
- 2) 卸下压纸滚筒。

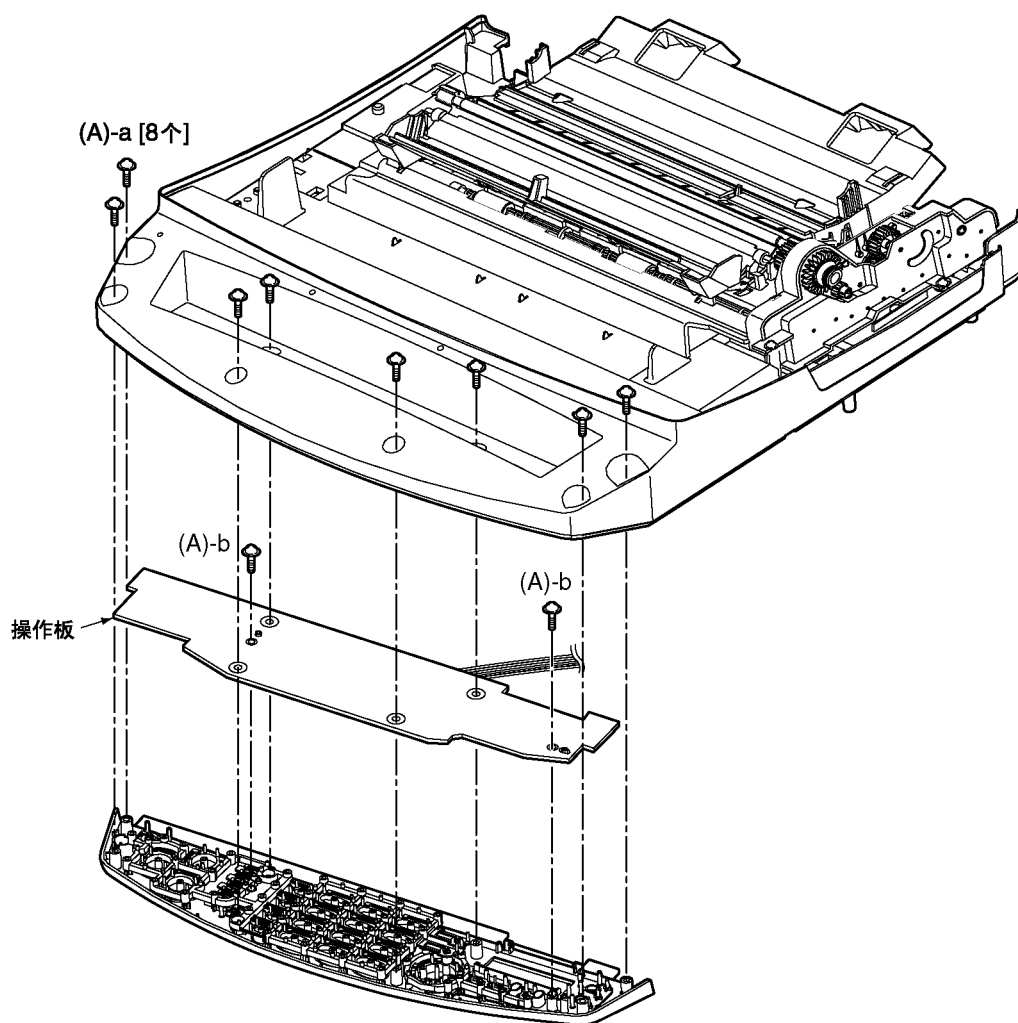


5.2.16. 如何卸下操作板

工序 : A-1 --> A-2 --> C-3

参考号 C-3

- 1) 卸下8个螺丝 (A)-a。
- 2) 卸下2个螺丝 (A)-b。
- 3) 卸下操作板。

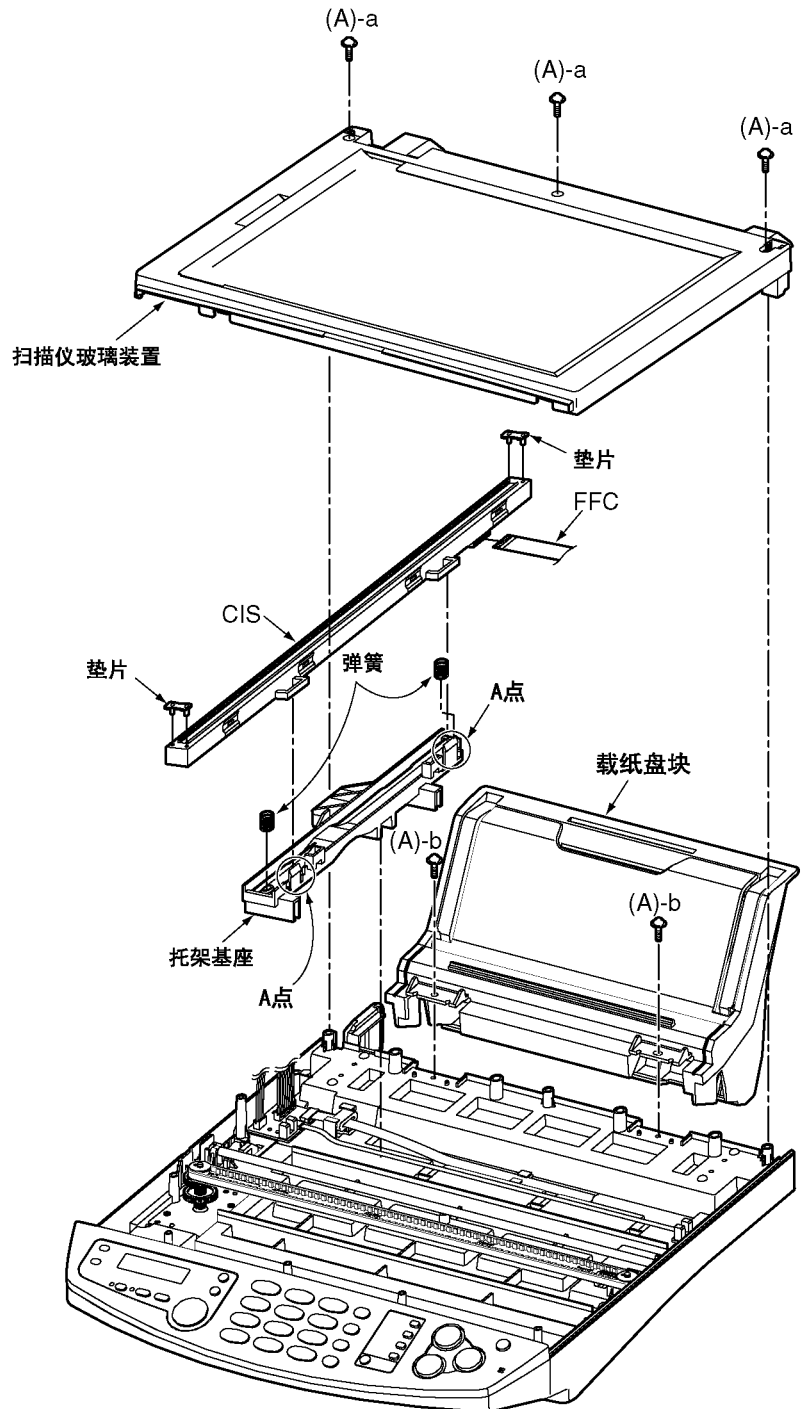


5. 2. 17. 如何卸下扫描仪玻璃装置, CIS 和载纸盘块

工序 : A-1 --> A2 --> C-1 --> C4

参考号 C-4

- 1) 卸下3个螺丝 (A)-a。
- 2) 提起扫描仪玻璃装置。
- 3) 卸下2个螺丝 (A)-b。
- 4) 在卸下拾取滚筒后,
卸下载纸盘块。(见参考号 C-1)
- 5) 卸下2个垫片。
*注意请勿丢失垫片。
- 6) 卸下FFC。
- 7) 解开-A点, 然后从支撑座提起CIS。
*注意请勿触摸CIS的顶部。
- 8) 卸下弹簧。
- 9) 卸下托架基座。

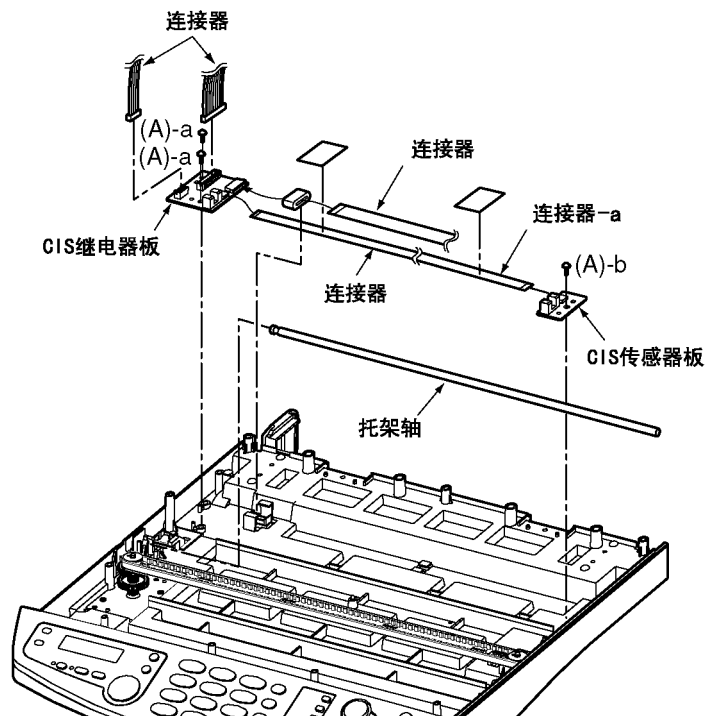


5.2.18. 如何卸下 CIS 继电器板和 CIS 传感器板

工序：A-1 --> A-2 --> C-4 --> C-5

参考号 C-5

- 1) 卸下CIS继电器板上的所有连接器。
- 2) 卸下2个螺丝(A)-a。
- 3) 卸下CIS继电器板。
- 4) 从CIS传感器板断开连接器-a。
- 5) 卸下螺丝(A)-b。
- 6) 卸下CIS传感器板。
- 7) 卸下托架轴。

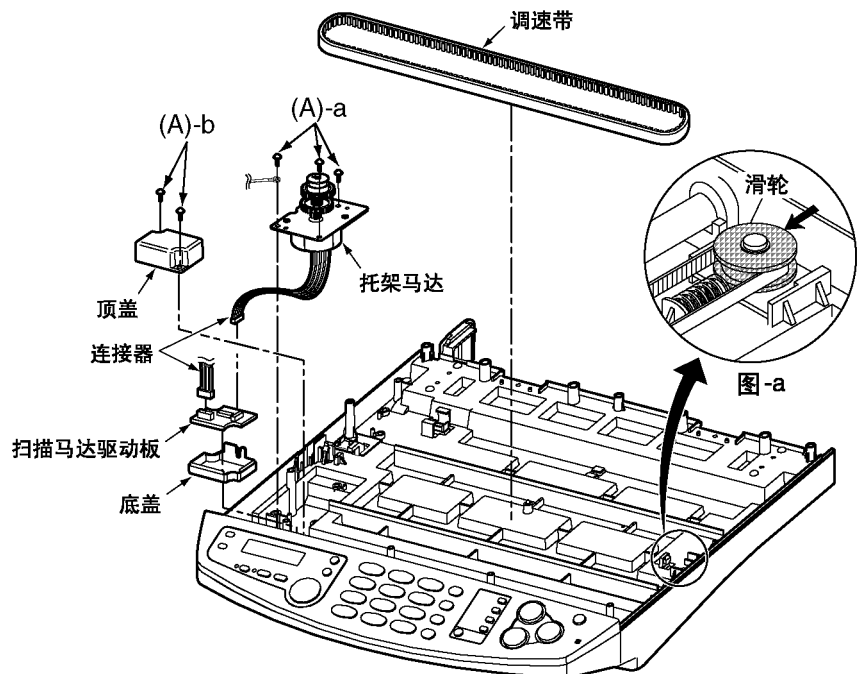


5.2.19. 如何卸下托架马达和扫描马达驱动板

工序：A-1 --> A-2 --> C-4 --> C-6

参考号 C-6

- 1) 按图-a所示箭头方向按滑轮, 卸下调速带。
- 2) 卸下3个螺丝(A)-a。
- 3) 卸下托架马达。
- 4) 卸下2个螺丝(A)-b。
- 5) 卸下顶盖。
- 6) 卸下2个连接器。
- 7) 卸下扫描马达驱动板。
- 8) 卸下底盖。

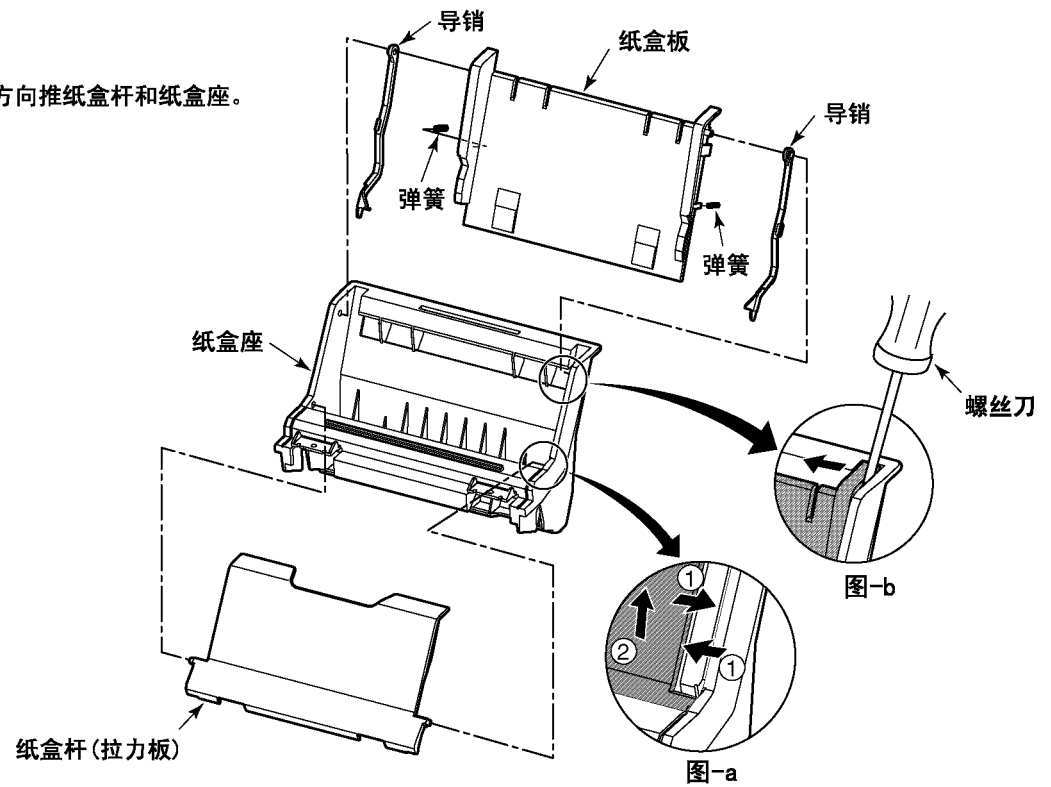


5. 2. 20. 如何卸下载纸盘块的组件

工序：A-1 --> A-2 --> C-1 --> C-4 --> C-7

参考号 C-7

- 1) 如图-a 所示，按箭头方向推纸盒杆和纸盒座。
- 2) 卸下纸盒杆。
- 3) 卸下纸盒座。(图-b)
- 4) 卸下导销和弹簧。
- 5) 卸下纸盒板(拉力板)。

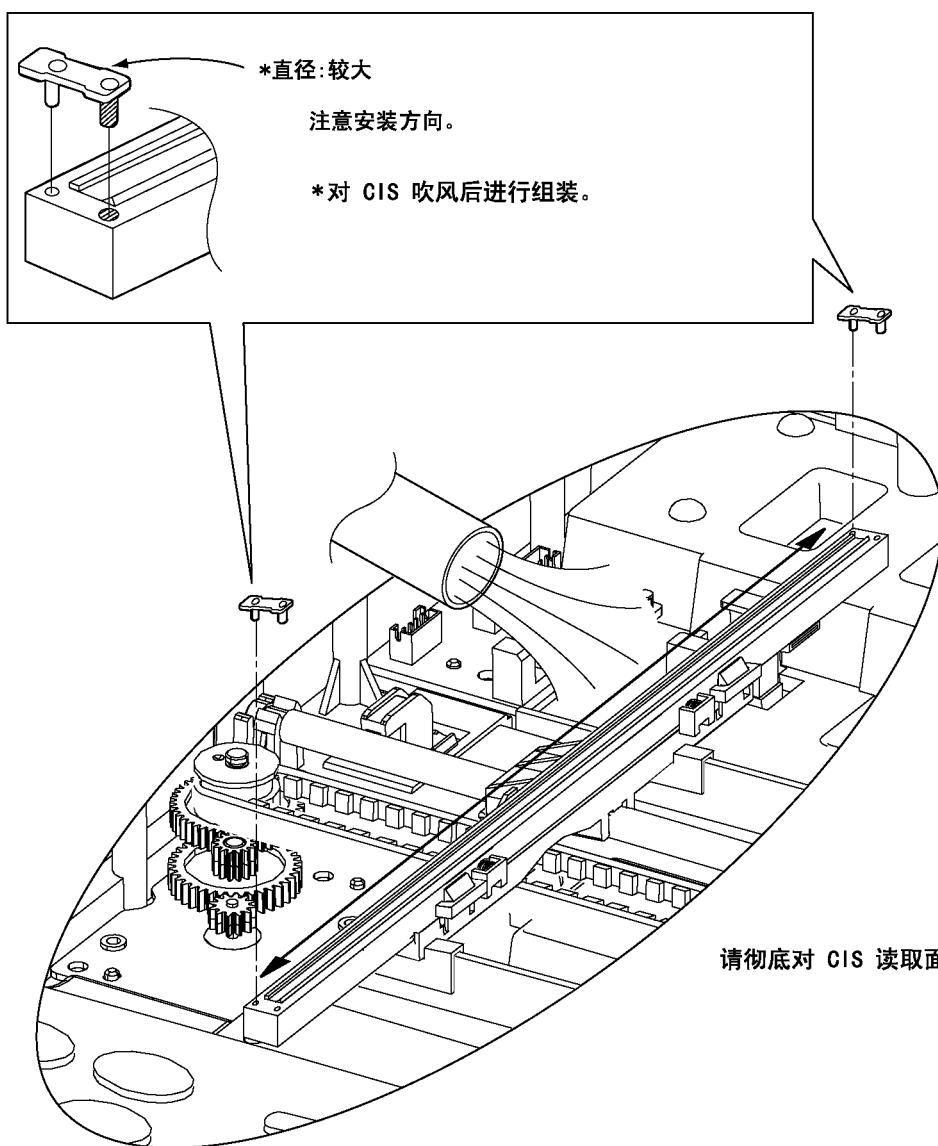


5.3. 装配注意事项

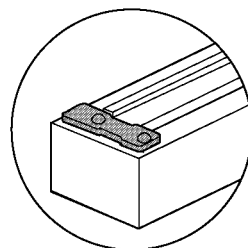
吹风后进行组装。

扫描仪玻璃装置

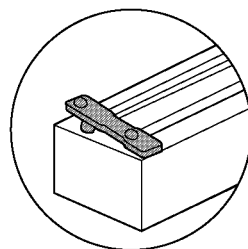
玻璃背面不能粘附有残屑、
粉尘、指纹污垢等。(装置内部。)



OK

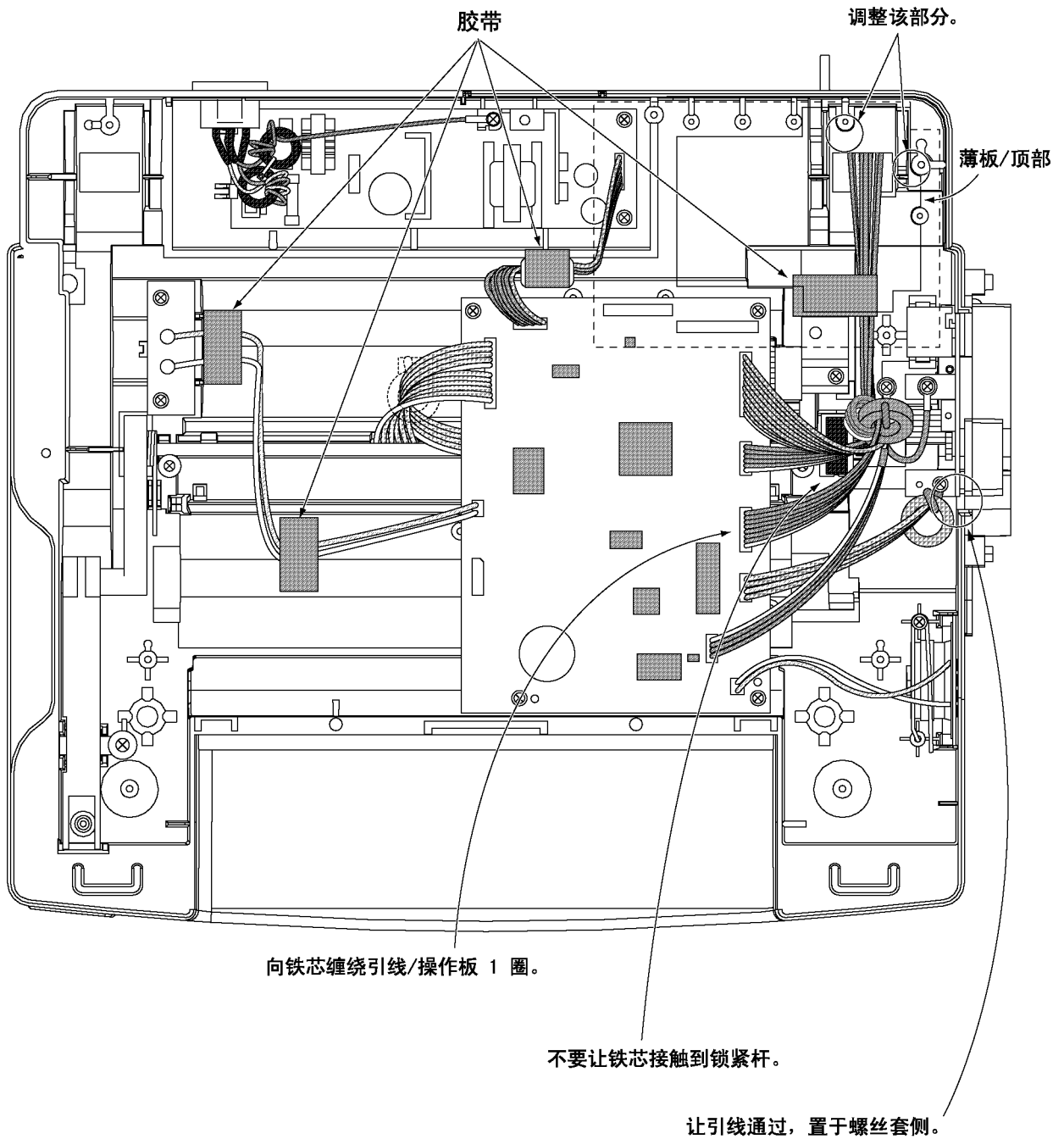


NG

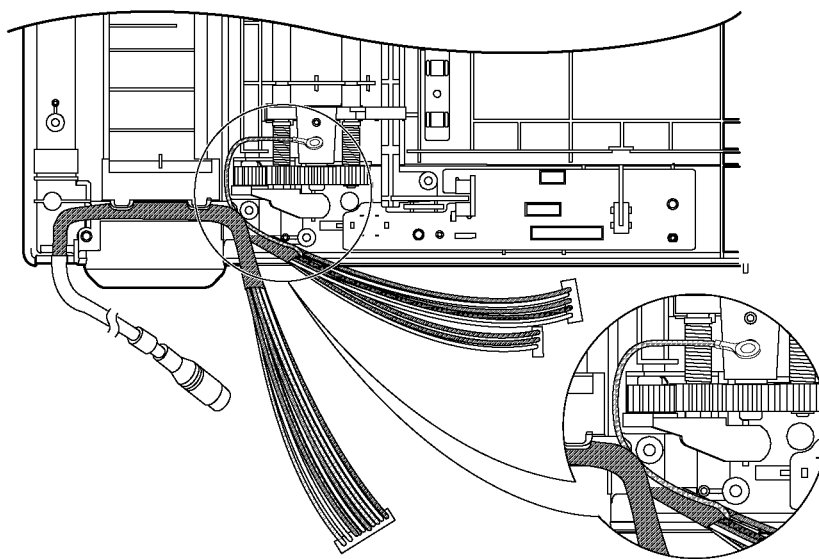


请彻底对 CIS 读取面和 FB 底座面进行吹风。

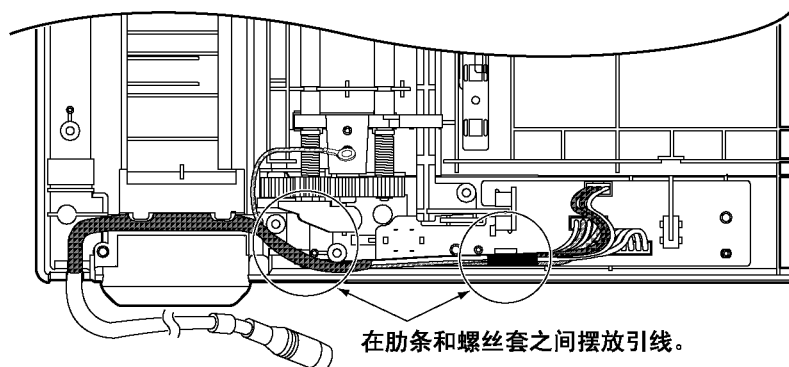
5.4. 引线的安装位置



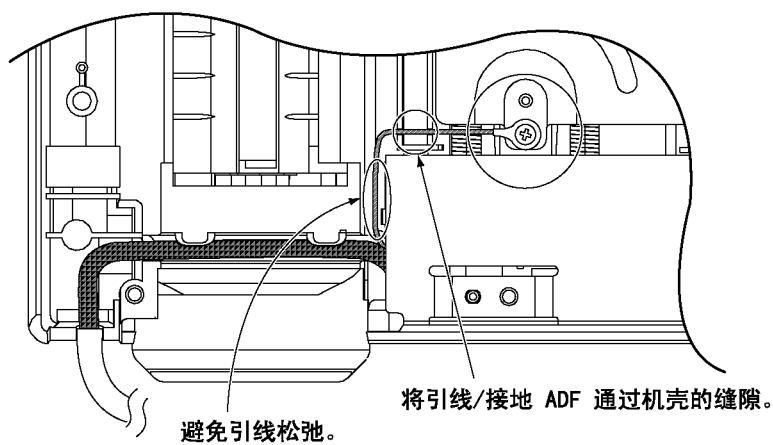
● 引线/接地 ADF 的摆放方法

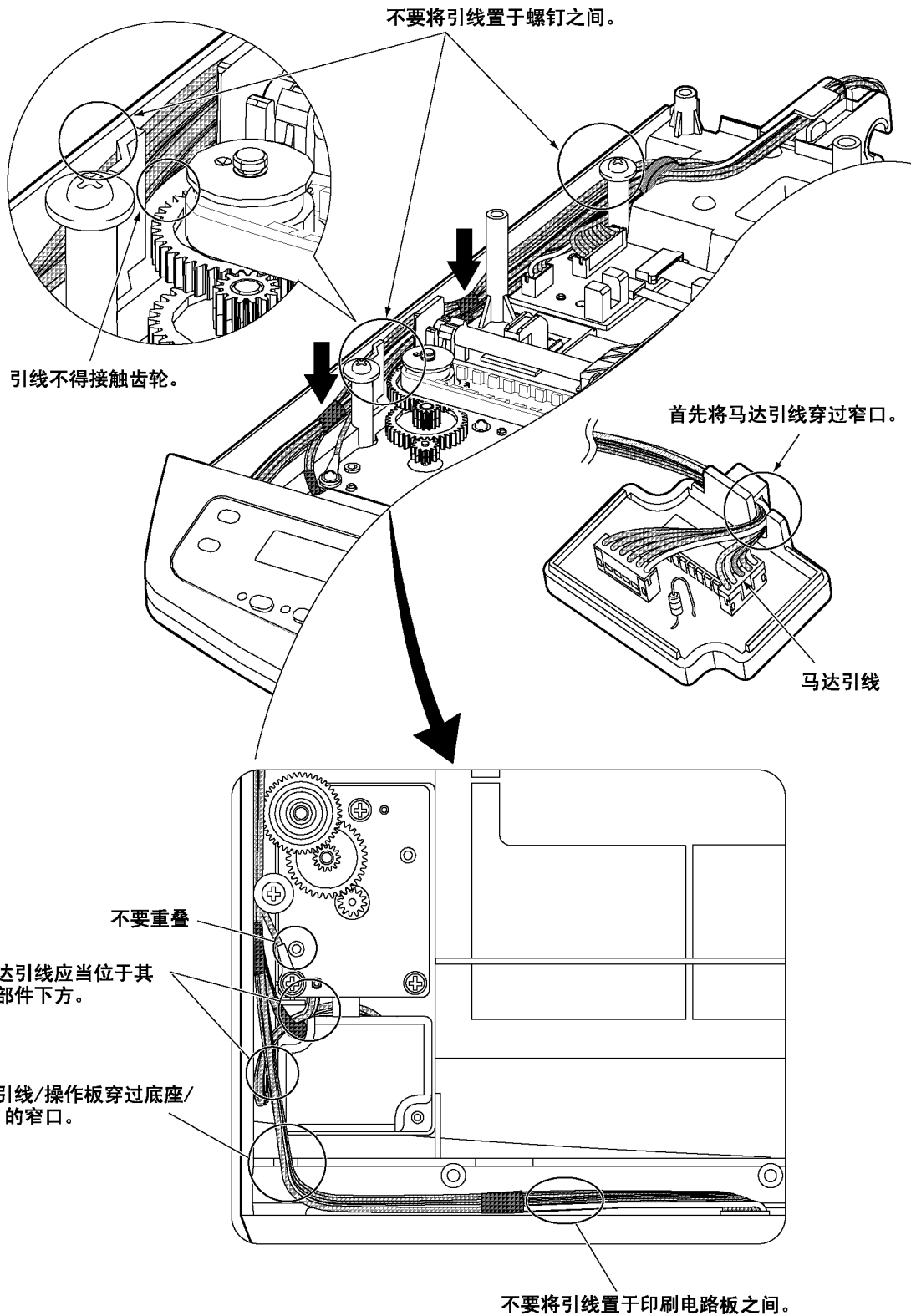


● 引线的摆放方法



● 引线/接地 ADF 的摆放方法





6 故障检修指南

6.1. 用户可修复的故障

如果本机检测到故障，显示屏中将显示下列一条或多条信息。

[] 中的解释仅适用于维修人员。

CALL SERVICE

- 本机发生了故障。

CARRIAGE ERROR



RELEASE
SHIPPING LOCK

- 运输锁被锁上了。打开运输锁。如果显示的信息在打开锁后仍然存在，则说明托架传感器有故障。请与维修人员联系。

CHECK ADF CABLE

- ADF 缆线连接不正确。请检查连接。

CHECK DOCUMENT

- 文稿没有正确送入本机。重新插入文稿。如果频繁发生送纸错误，请清洁送纸滚筒，然后再试一次。（参考 4.5.2. 送纸滚筒 (P. 26)。）
- 试图传送长于 600 mm 的文稿。请按[停止]取下文稿。将文稿分成两页或多页，然后再试一次

CHECK MEMORY

- 存储器内容（电话号码、参数等）被消除了。重新编程。
- [数字板顶部的备用锂电池电量可能不足或已用尽，请检查。]

CHECK PAPER

- 没有安装记录纸或者本机的记录纸已用完。安装纸张，然后按[设定]以清除该信息。
- 记录纸没有正确送入本机。重新安装纸张，然后按[设定]以清除该信息。（参考 3.3.3. 记录纸 (P. 16)。）
- 记录纸卡在记录纸入口附近。清除卡住的纸张，然后按[设定]以清除该信息。不要安装折叠或严重卷曲的纸张。（参考 4.6. 记录纸卡纸 (P. 29)。）

CLOSE ADF COVER

- ADF 盖被打开了。请关好盖。

COVER OPEN

- 打印机盖被打开了。请关好盖

DIRECTORY FULL

- 在导航电话簿中已经没有空间可以存储新项目。消除不需要的项。

FAX IN MEMORY

- 本机的存储器中存有文稿。参阅其它显示信息说明以将文稿打印出来。

FAX MEMORY FULL

- 由于记录纸不够或记录纸卡住等原因，存储器中已存满了收到的文稿。安装纸张或清除卡住的纸。（参考 4.6. 记录纸卡纸 (P. 29)。）
- 当进行存储器传送时，正在存储的文稿超过了本机的存储器容量。请手动传送整个文稿。

FILM EMPTY

- 薄膜用完了。用新薄膜更换旧薄膜。（参考 3.3.7. 印字薄膜-安装 / 更换 (P. 20)。）
- 印字薄膜松弛。拉紧它然后再安装。（参考 4.6. 记录纸卡纸 (P. 29)。）

FILM NEAR EMPTY

- 剩余的薄膜不多了。准备一份新薄膜。（参考 3.3.7. 印字薄膜-安装 / 更换 (P. 20)。）

MEMORY FULL

- 当进行复印时，正在存储的文稿超过了本机的存储器容量。请按[停止]清除此信息。将文稿分成几个部分。

MODEM ERROR

- 调制解调器电路发生了故障。

NO FAX REPLY

- 对方的传真机占线或记录纸用完。请再试一次。

OPEN CABINET
CHECK FILM SLACK



OPEN CABINET
CHECK FILM TYPE

- 印字薄膜用完了。用新薄膜更换旧印字薄膜。（参考 3.3.7. 印字薄膜 - 安装 / 更换 (P. 20)。）
- 没有安装印字薄膜。安装印字薄膜。（参考 3.3.7. 印字薄膜 - 安装 / 更换 (P. 20)。）
- 印字薄膜松弛。拉紧印字薄膜。（参考 3.3.7. 印字薄膜 - 安装 / 更换 (P. 20)。）
- 传真机放在会产生强磁场的家电（如电视机或扬声器）旁边。

PAPER JAMMED

- 记录纸被卡住。清除被卡住的纸。
- [如果印出件卡塞，请参考 4.6. 记录纸卡纸 (P. 29)。]

PLEASE WAIT

- 本机正在检查印字薄膜是否松弛。请等待检查完毕。

POLLING ERROR

- 对方的传真机不提供查询功能。检查对方的情况。

REDIAL TIME OUT

- 对方的传真机占线或记录纸用完。请再试一次。

REMOVE DOCUMENT

- 文稿被卡住。清除卡住的文稿。（参考 4.7. 文稿卡住 - 发送 (P. 31)。）
- [另一方法是切断维修代码#559，以便装送比600mm长的文件。
] （参考 6.2.3. 维修功能表 (P. 59)。）

TRANSMIT ERROR

- 发生了传送错误。请再试一次。

UNIT OVERHEATED

- 本机太热。让机器冷却下来。

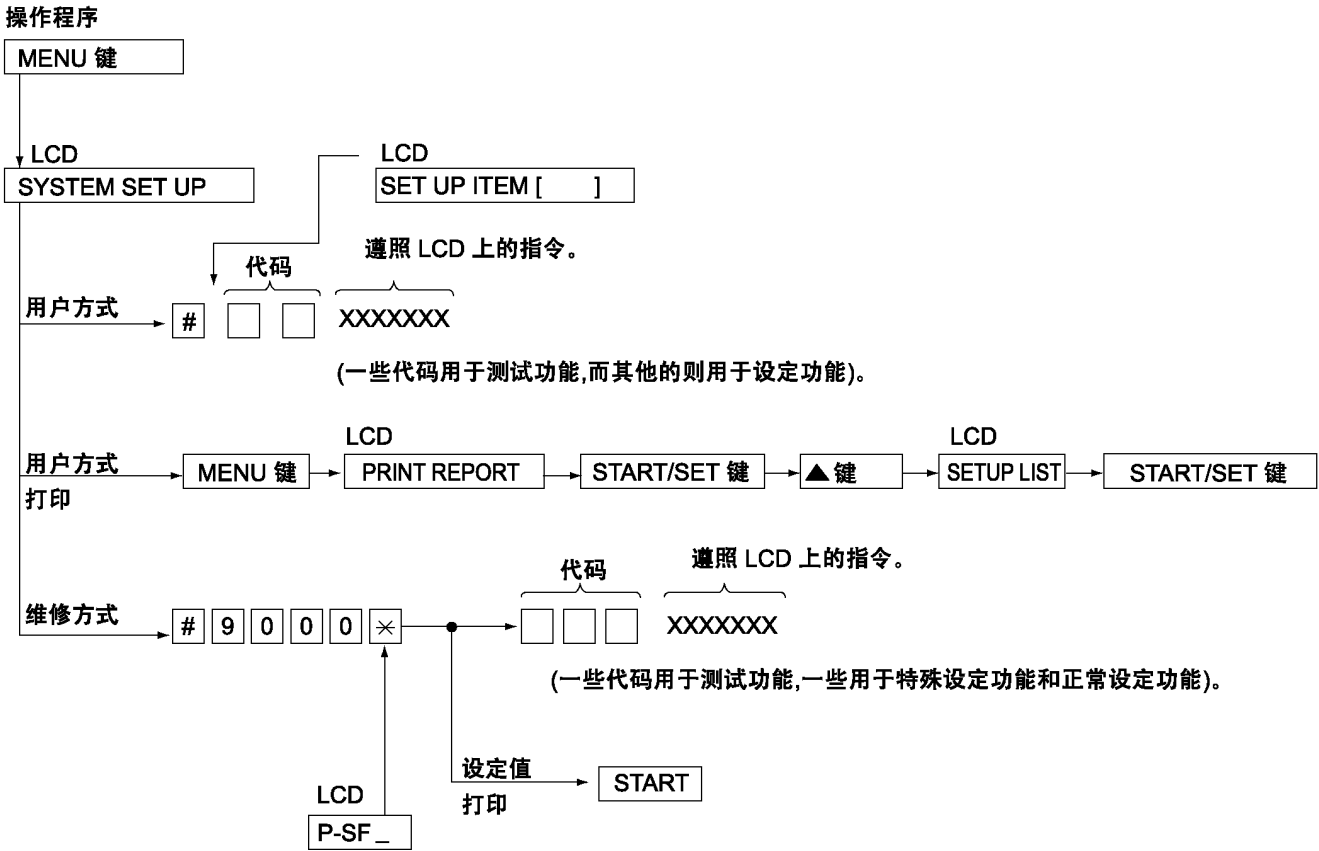
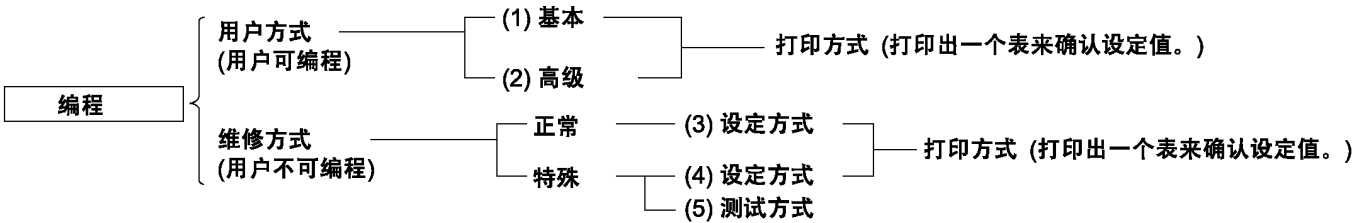
6. 2. 编程和图表

编程功能用于为本机的各种特性和功能编程并测试本机。
在给本机编程时，这便于用户和维修人员之间的通信更为方便。

6. 2. 1. 操作

编程功能有两个基本种类，即用户方式和维修方式。维修方式进一步细分为正常程序和特殊程序。正常程序是在操作说明中所列出的用户能够使用的程序。特殊程序是只在此列出但不对用户显示的程序。在用户与维修两种方式中，有设定功能的测试功能。设定功能用来给各种特性和功能编制程序，而测试功能用于测试各种功能。设定功能通过输入其代码，改变适当值，然后按 **SET** 键进行存取。测试功能通过输入其代码并按菜单上所列的键进行存取。当编制程序时，要取消任何输入，请按 **STOP** 键。

6. 2. 2. 操作流程



6.2.3. 维修功能表

代码	功能	设定值	有效范围	缺省值	备注
501	设定暂停时间	X 100 msec	001 ~ 600	60	-----
502	挂断时间	X 10 ms	01 ~ 99	70	-----
503	拨号速度选择	1:10 pps 2:20 pps	1, 2	1	-----
514	响铃信号检测时间	X 100 msec	1 ~ 9	6	-----
520	CED 频率选择	1:2100 Hz 2:1100 Hz	1, 2	1	-----
521	国际方式选择	1:ON 2:OFF	1, 2	1	-----
522	自动待机选择	1:ON 2:OFF	1, 2	1	传送完成后, 清晰度恢复到缺省值。
523	接收均衡器选择	1:0 km 2:1.8 km 3:3.6 km 4:7.2 km	1 ~ 4	2	当本机远离用户话机或不能进行正常接收时, 应进行相应的调整。
524	传送均衡器选择	1:0 km 2:1.8 km 3:3.6 km 4:7.2 km	1 ~ 4	1	当本机远离用户话机或不能进行正常传送时, 应进行相应的调整。
550	记忆清除				见 6.3. 测试功能 (P. 61)。
551	ROM 检查				见 6.3. 测试功能 (P. 61)。
552	DTMF 单音测试	1:ON 2:OFF	1, 2	2	见 6.3. 测试功能 (P. 61)。
553	传真通信监听选择	1:OFF 2:PHASE B 3:ALL	1 ~ 3	1	在传真通信过程中, 设定是否用本机的扬声器监听线路信号。
554	调制解调器测试				见 6.3. 测试功能 (P. 61)。
555	扫描器检查				见 6.3. 测试功能 (P. 61)。
556	马达测试			0	见 6.3. 测试功能 (P. 61)。
557	LED 测试				见 6.3. 测试功能 (P. 61)。
558	LCD 测试				见 6.3. 测试功能 (P. 61)。
559	文件卡塞检测选择	1:ON 2:OFF	1, 2	1	见 4.7. 文稿卡住 - 发送 (P. 31)。
561	键测试				见 6.3. 测试功能 (P. 61)。
570	中断 % 选择	1:61% 2:67%	1, 2	1	根据 PBX 设定脉冲拨号的中断 %。
571	ITS 自动重拨次数设定	X 次	00 ~ 14	03	选择 ITS 重拨次数 (不包括首次拨号)。
572	ITS 自动重拨线路断接时间设定	X 秒	001 ~ 999	065	设定 ITS 重拨间隔。
573	遥控接通振铃数设定	X 振铃数	01 ~ 99	10	在 TEL 方式时开始接收文件前设定本机的振铃次数。
590	FAX 自动重拨时间设定	X 次	00 ~ 14	03	选择在 FAX 通信过程中, 本机重拨的次数 (不含首次拨号)。
591	FAX 自动重拨时间断接时间设定	X 秒	001 ~ 999	065	设定在 FAX 通信过程中, FAX 重拨的间隔。
592	CNG 传送选择	1:OFF 2:ALL 3:AUTO	1 ~ 3	2	让您选择 FAX 传送过程中的 CNG 输出。 ALL: CNG 在相位 A 输出。 AUTO: CNG 只在进行自动拨号时输出。 OFF: CNG 不在相位 A 输出。 参考 6.5.6.1.2. 有时出现传送故障 (P. 90)。
593	CED 和 300bps 之间的时间	1:75 msec 2:500 msec 3:1 sec	1 ~ 3	1	-----
594	海外 DIS 检测选择	1:第一次时检测 2:第二次时检测	1, 2	1	-----
595	接收故障限值设定	X 次	001 ~ 999	100	当 FAX 重建接收数据时, 设定可接受的故障线数。 参考 6.5.6.1.3. 接收故障 (P. 91)。
596	传送电平设定	X dBm	-15 ~ 00	-09	选择 FAX 传送电平。参考 6.5.6.1.2. 有时出现传送故障 (P. 90) 和 6.5.6.1.3. 接收故障 (P. 91)。
598	接收灵敏度	40= -40 dBm	20 ~ 48	40	在有故障时使用。
599	ECM 帧尺寸	1:256 字节 2:64 字节	1, 2	1	-----
710	存储器中的数据可以清除, 存档数据除外				将值重置为缺省值, 存档数据除外。请在清除存储器后重新通电。
717	接收速度选择	1:14400BPS 2:12000BPS 3:9600BPS 4:7200BPS 5:4800BPS 6:2400BPS	1 ~ 6	1	调节在 FAX 传送过程中开始训练的速度。参考 6.5.6.1.2. 有时出现传送故障 (P. 90)。
718	接收速度选择	1:14400BPS 2:12000BPS 3:9600BPS 4:7200BPS 5:4800BPS 6:2400BPS	1 ~ 6	1	调节在 FAX 传送过程中开始训练的速度。参考 6.5.6.1.3. 接收故障 (P. 91)。

代码	功能	设定值	有效范围	缺省值	备注
722	重拨音检测。	1:ON 2:OFF	1, 2	1	设定重拨后音频检测方式。
745	接通薄膜输送电源	1:ON 2:OFF	1, 2	1	当接通电源时, 薄膜的松弛部分被卷紧。
763	顺利接收 CNG 检测时间	1:10 sec 2:20 sec 3:30 sec	1 ~ 3	3	选择顺利接收的 CNG 检测音频。
771	T1 定时器	1:35 sec 2:60 sec	1, 2	1	在 FAX 传送过程中, 当对方应答需要更多时间时, 设定较高值。
774	T4 定时器	X 100 msec	00 ~ 99	00	在线路上出现延迟和通信 (如移动通信) 不畅时, 使用此功能。
815	传感器和语音检查				见 6.3. 测试功能 (P. 61)。
845	设定扫描密度		00 ~ 20	08	-----
852	打印测试图				见 6.3. 测试功能 (P. 61)。
853	顶边		1 ~ 9	5	-----
874	DTMFontime	060 ~ 200ms	060 ~ 200	090	-----
875	DTMFOfftime	060 ~ 200ms	060 ~ 200	085	-----
880	存档表				见 6.4.5. 存档 (打印表举例) (P. 69)。
881	日志表 2				见 6.5.7.3. 打印举例 (P. 96)。
882	日志表 3				见 6.5.7.3. 打印举例 (P. 96)。

6.3. 测试功能

以下列出的代码用于对本机某些功能进行简单的检测。当接到顾客投诉时，他们就提供识别故障位置和原因的有效工具。

测试方式	方式类型	代码	功能
		代码输入后的操作	
MOTOR TEST	维修方式	"5" "5" "6"	转动传送和接收马达，检查马达的工作情况。
		START	13: 传真传送 / 读出存储 14: 文件输送 23: 记录纸输送 33: 图表 / 传真接收打印，拉回记录纸 43: 复印 05: 记录纸输送 (通过从 23 移至 33 来测试记录纸输送操作。) • 按 STOP 键退出。
MODEM TEST	维修方式	"5" "5" "4"	自动连接电话线路，在电路上输出以下信号：
		START	1) OFF 2) 14400bps 3) 12000bps 4) 96V17 5) 72V17 6) 9600bps 7) 7200bps 8) 4800bps 9) 2400bps 10) 300bps 11) 2100Hz 12) 1100Hz
ROM CHECK	维修方式	"5" "5" "1"	显示版本并检查 ROM 的总和。
		START	
SCAN CHECK	维修方式	"5" "5" "5"	接通 CIS 的 LED 并操作读出系统。
		START	
LED CHECK	维修方式	"5" "5" "7"	操作板上方的所有 LED 点亮。
		START	
LCD CHECK	维修方式	"5" "5" "8"	检查 LCD 指示。
		START	点亮所有点，检查它们是否正常。
DTMF SINGLE TEST	维修方式	"5" "5" "2"	输出 DTMF 单音频。
		1...ON 2...OFF	用于检查各 DTMF 音的频率。 参考 6.3.1. DTMF 单音频传送选择 (P. 62)。
KEY CHECK	维修方式	"5" "6" "1"	检查键操作情况。
		START (任何键)	按下键时，LCD 上显示键的代码。 参考 6.3.2. 键代码表 (P. 62)。
FACTORY SET	维修方式	"5" "5" "0"	清除用户能存储数据的存储器。
		START	
PRINT TEST PATTERN	维修方式	"8" "5" "2"	打印测试图。
		START	主要在工厂用于测试打印质量。 您可选择 1 — 4。(参见 6.3.3. 打印测试图 (P. 63)。)
SENSOR CHECK & VOX CHECK	维修方式	"8" "1" "5"	如果您进入此方式并用手操作传感器杆，有关传感器 (或开关的) LCD 显示器就接通 / 断开。而且，在复印文件时，有关传感器也接通 / 断开。 关于各传感器的操作，请参阅 7.6. 传感器和开关 (P. 145)。
		START	LCD 显示 Do Sn Co Pt-Vx Fb As Cr Cl Do: 文件设置开关 : 插入纸张，当插入文件时接通。 Sn: 文件顶部开关 : 在读出位置，当打开前盖并直接按传感器杆时接通。 Co: 机盖开关 : 打开文件当前盖被打开和关闭时接通和断开。 Pt: 纸顶部传感器 : 传感器接通。在打开前盖并直接按传感器杆时接通。 Vx: 语音信号 : 线路上音频的信号检测。当线路上有音频信号时接通。 Fb: 平板复印 : 文件盖打开或关闭。 As: ADF 盖开关 : ADF 盖打开或关闭。 Cr: ADF 内部传感器开关 : 传感器接通 / 断开。 Cl: FB 内部传感器开关 : 传感器接通 / 断开。

注：

"X" "X" "X" 的号码表示各种测试方式下要输入的键。

6.3.1. DTMF 单音频传送选择

当设定为 ON(=1) 时, 12 个键和传送频率显示如下。

键	高频 (Hz)	键	低频 (Hz)
“1”	697	“5”	1209
“2”	770	“6”	1336
“3”	852	“7”	1477
“4”	941	“8”	1633

当设定为 OFF(=2) 时, 12 个键和传送频率显示如下。

高 (Hz)	1209	1336	1477
低 (Hz)	“1”	“2”	“3”
697	“4”	“5”	“6”
770	“7”	“8”	“9”
852	“*”	“0”	“#”
941			

注：

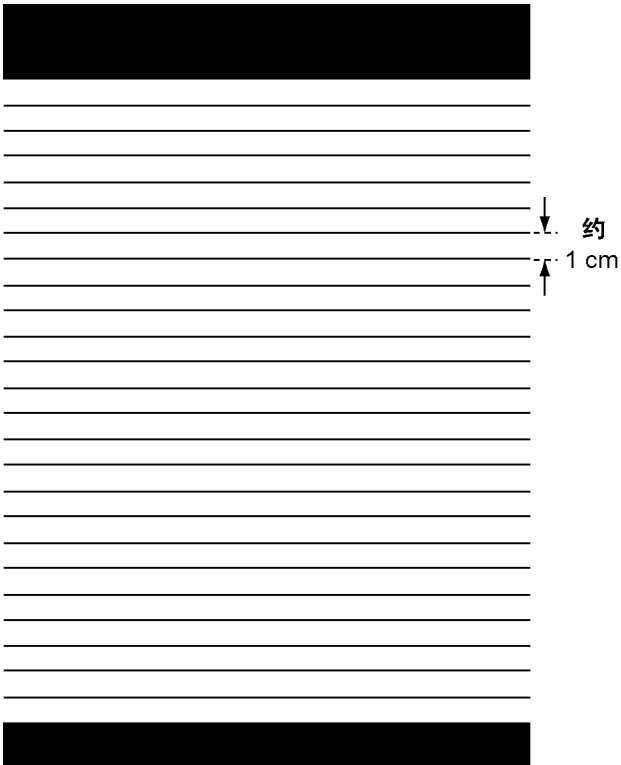
进行此检查后, 请勿忘记断开设定。
否则以 DTMF 信号拨号将不奏效。

6.3.2. 键代码表

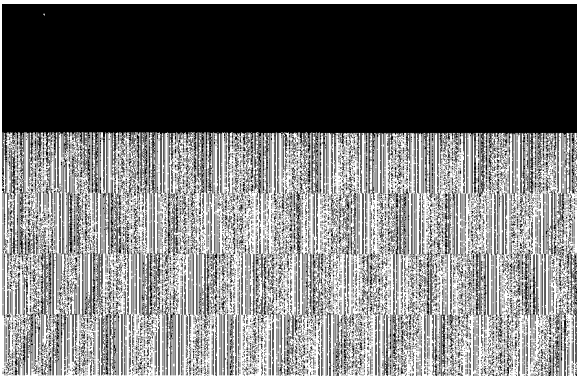
代码	键名	代码	键名	代码	键名	代码	键名
02	RESOLUTION	31	1	3B	✳	64	STATION 1
04	FAX/START/SET	32	2	3C	#	65	STATION 2
05	LOWER	33	3	3D	REDIAL PAUSE	66	STATION 3
06	COPY	34	4	3E	FLASH		
08	MONITOR	35	5	47	PRINT REPORT		
0A	MUTE	36	6	4E	-		
0C	RECEIVE MODE	37	7	1E	▶ NEXT		
20	MENU	38	8	1F	◀ PREV		
22	HELP	39	9				
25	[+] VOLUME	3A	0	00	NO INPUT		
26	[-] VOLUME			01	STOP		

6.3.3. 打印测试图

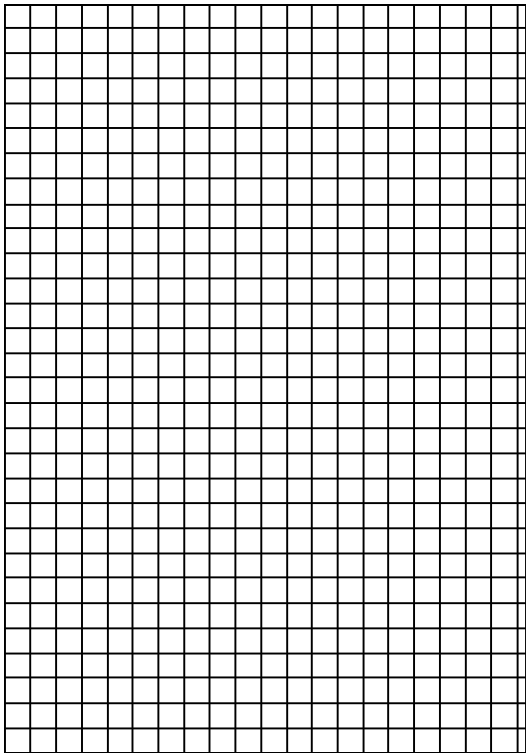
1. 压纸滚筒



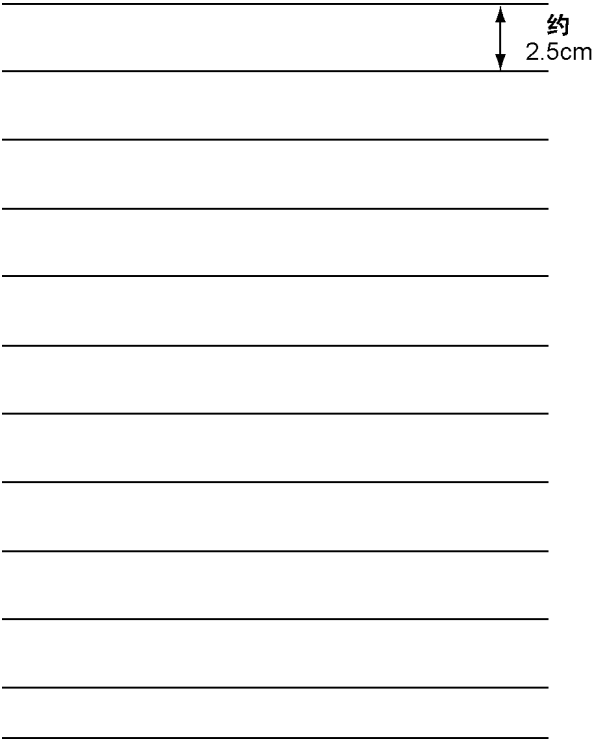
3. 热敏头 1 小点



2. 左边 / 顶边



4. 使用此测试图以确认印字薄膜和压纸滚筒定时的转矩限制器。



6. 4. 遥控编程

如果在电话接通后，客户描述该情况，据测定，该问题可由改变参数来解决，此功能能使它从另一台传真机（用 DTMF 音频）改变参数，例如用户代码和维修代码。因此不必出差到客户处，但是，不能用遥控改变所有的参数（6. 4. 2. 编程方式表（P. 65））。用于完成此项工作的功能就是遥控编程。

首先，为了检查维修编码参数的现状，可从客户的传真机上打印出设置表（代码 991）和维修表（代码 999）。

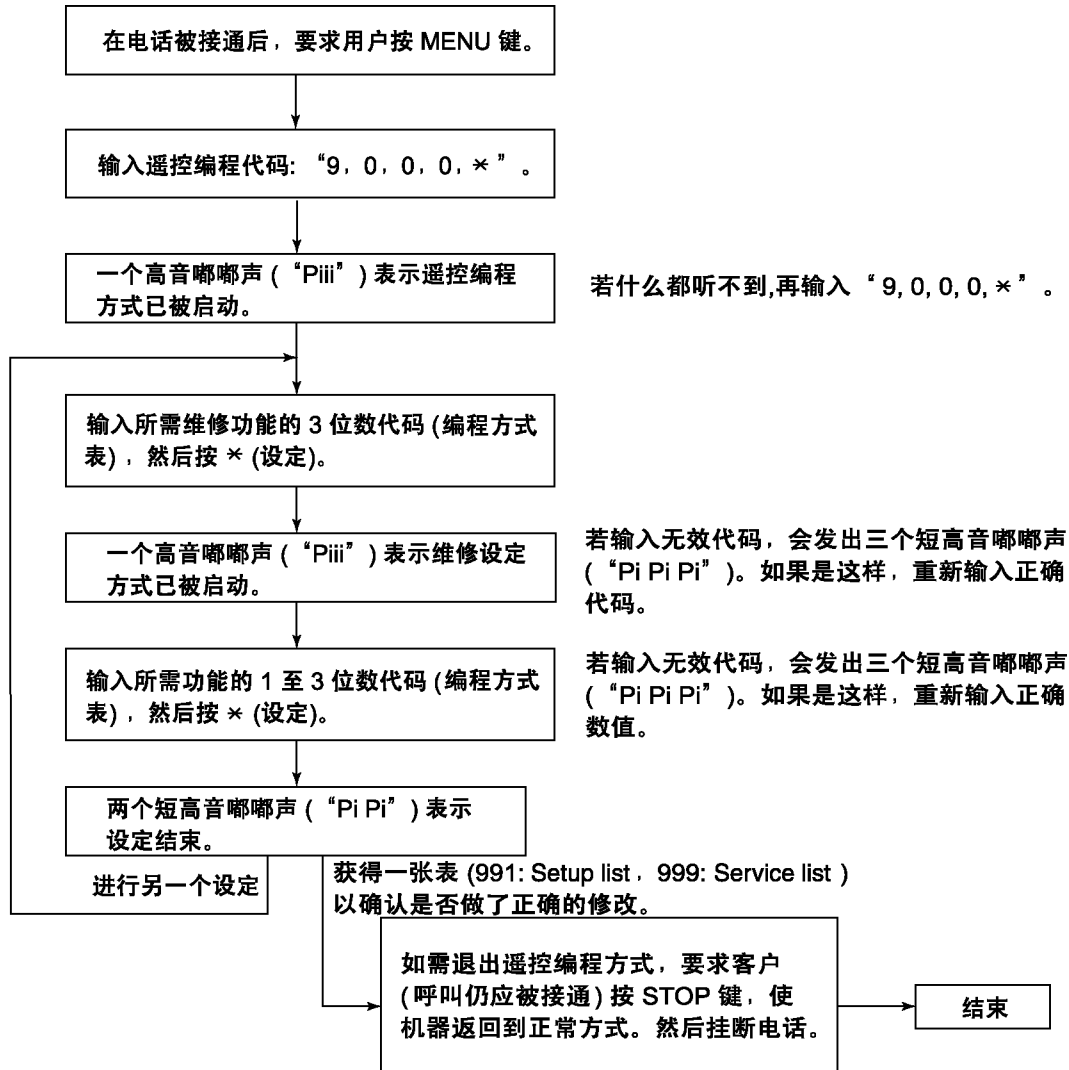
在此基础上，可以改变所需代码的参数。

在 6. 4. 1. 进入遥控编程方式并改变维修代码（P. 64）上介绍了修改和列出参数的工序。另外，在退出编程方式前，最好获得一张新表以确认是否正确地进行了各项修改。

提示：

在遥控编程方式期间，因为连接的电话在使用，最好要求客户把电话切换为扬声器电话。这样在进行参数设定时，就不必要求客户守在传真机旁。在完成设定时，通知客户。还要注意在噪声大而听不到 D T M F 音频的地方，遥控编程不起作用。

6. 4. 1. 进入遥控编程方式并改变维修代码



相互参考：

6. 4. 2. 编程方式表（P. 65）

6.4.2. 编程方式表

代码	功能	设定值	缺省值	遥控设定
001	Set date and time	mm/dd/yy hh:mm	Jan/01/2002	NG
002	Your logo	-----	None	NG
003	Your fax number	-----	None	NG
004	Transmission report mode	1:ERROR / 2:ON / 3:OFF	ERROR	OK
006	FAX ring count	1 to 5 rings (for ext. tam)	1	OK
012	Remote TAM activation	1:ON / 2:OFF	OFF / ID=11	OK
013	Dialing mode	1:PULSE / 2:TONE	TONE	OK
017	Ringer Pattern	1:A / 2:B / 3:C	A	OK
019	Clock display	1:24H / 2:12H	24H	OK
022	Auto journal print	1:ON / 2:OFF	ON	OK
023	Overseas mode	1:NEXT FAX / 2:ERROR / 3:OFF	OFF	OK
025	Delayed transmission	1:ON / 2:OFF	OFF	NG
034	Quick scan	1:ON / 2:OFF	OFF	OK
036	Rx reduction	1:72% / 2:86% / 3:92% / 4:100%	92%	OK
039	LCD contrast	1:Normal / 2:Darker	Normal	OK
041	Remote FAX activation code	1:ON / 2:OFF	ON ID=*9	OK
044	Receive alert	1:ON / 2:OFF	ON	OK
046	Friendly receive	1:ON / 2:OFF	ON	OK
058	Original setting	1:NORMAL/ 2:LIGHT/ 3:DARKER	NORMAL	OK
068	ECM section	1:ON / 2:OFF	ON	OK
076	FAX tone	1:ON / 2:OFF	ON	OK
080	Set default	1:YES / 2:NO	NO	NG
501	Pause time set	001 ~ 600 x 100msec	060msec	OK
502	Flash time	01 ~ 99 x 10ms	70ms	OK
503	Dial speed	1:10pps / 2:20 pps	10pps	OK
514	Bell signal detect time	1 ~ 9 x 100msec	6	OK
520	CED frequency select	1:2100Hz / 2:1100Hz	2100Hz	OK
521	International mode select	1:ON / 2:OFF	ON	OK
522	Auto standby select	1:ON / 2:OFF	ON	OK
523	Receive equalizer select	1:0km / 2:1.8km / 3:3.6km / 4:7.2km	1.8km	OK
524	Transmission equalizer select	1:0km / 2:1.8km / 3:3.6km / 4:7.2km	0km	OK
550	Memory clear	-----	-----	NG
551	ROM check	-----	-----	NG
552	DTMF signal tone test	1:ON / 2:OFF	OFF	OK
553	Monitor on FAX communication	1:OFF / 2:Phase B / 3:ALL	OFF	OK
554	Modem test	-----	-----	NG
555	Scanner test	-----	-----	NG
556	Motor test	-----	-----	NG
558	LCD test	-----	-----	NG
559	Document jam detection	1:ON / 2:OFF	ON	OK
561	Key test	-----	-----	NG
570	Break % select	1:61% / 2:67%	61%	OK
571	ITS auto redial time set	00 ~ 14	03	OK
572	ITS auto redial line disconnection time set	001 ~ 999sec	065sec	OK
573	Remote turn-on ring number	01 ~ 99	10	OK
590	FAX auto redial time set	00 ~ 14	03	OK
591	FAX auto redial line disconnection time set	001 ~ 999sec	065sec	OK
592	CNG transmit select	1:OFF / 2:ALL / 3:AUTO	ALL	OK
593	Time between CED and 300 bps	1:75ms / 2:500ms / 3:1sec	75ms	OK
594	Overseas DIS detection	1:1st / 2:2nd	1st	OK
595	Receive error limit value	001 ~ 999	100	OK
596	Transmit level set	-15 ~ 00dBm	-09dBm	OK
598	Receiving Sensitivity	20 ~ 48	40	OK
599	ECM Frame size	1:256 / 2:64	256byte	OK
710	Memory clear except History data	-----	-----	NG
717	Transmit speed select	1:14400/2:12000/ 3:9600/ 4:7200/ 5:4800/ 6:2400	14400bps	OK
718	Receive speed select	1:14400/2:12000/ 3:9600/ 4:7200/ 5:4800/ 6:2400	14400bps	OK
722	Redial tone detect	1:ON / 2:OFF	ON	OK
745	Power on film feed	1:ON / 2:OFF	ON	OK
763	CNG detect time for friendly reception	1:10s / 2:20s / 3:30s	30s	OK
771	T1 timer	1:35s / 2:60s	35s	OK
774	T4 timer	00 ~ 99 x 100ms	00ms	OK
815	Sensor & VOX test	-----	-----	NG
845	Setting scanning density	00 ~ 20	08	OK

代码	功能	设定值	缺省值	遥控设定
852	Print test pattern	-----	-----	NG
853	Top margin	1 ~ 9	5	OK
874	DTMF ON time	060 ~ 200msec	90	OK
875	DTMF OFF time	060 ~ 200msec	85	OK
880	History list	1:Start	-----	NG
881	Journal 2	-----	-----	NG
882	Journal 3	-----	-----	NG
991	Setup list	1:Start	-----	OK
994	Journal list	1:Start	-----	OK
995	Journal 2 list	1:Start	-----	OK
996	Journal 3 list	1:Start	-----	OK
998	History list	1:Start	-----	OK
999	Service list	1:Start	-----	OK

OK 意指“可设定”。

NG 意指“不可设定”。

注：

关于各个代码的说明，请参考 **6.2.3. 维修功能表** (P.59)。

例：

如果您想在“004 Transmission report mode”中设定数值，可按相应于您想选择的设定值的拨号键 1, 2 或 3 (1: ERROR/2: ON/3: OFF)

6.4.3. 用户方式（下表是本机打印的系统调配表的例子）

SETUP LIST

【 BASIC FEATURE LIST 】

NO.	FEATURE	CURRENT SETTING	
#01	SET DATE & TIME	Jan. 01 2003 00:00	
#02	YOUR LOGO		
#03	YOUR FAX NUMBER		
代码	#04	PRINT SENDING REPORT	ERROR [ERROR, ON, OFF]
	#06	FAX RING COUNT	1 [1...5] *5 FOR EXTERNAL TAM
	#12	REMOTE TAM ACTIVATION	OFF [ON, OFF]
		ID = 11	
	#13	DIALLING MODE	-tone [TONE, PULSE]
	#17	RINGER PATTERN	A [A, B, C]
	#19	CLOCK DISPLAY MODE	24H [12H, 24H]

【 ADVANCED FEATURE LIST 】

NO.	FEATURE	CURRENT SETTING	
代码	#22	JOURNAL AUTO PRINT	ON [ON, OFF]
	#23	OVERSEAS MODE	OFF [ON, OFF]
	#25	DELAYED TRANSMISSION	OFF [ON, OFF]
		DESTINATION =	
		START TIME = 00:00	
	#34	QUICK SCAN	OFF [ON, OFF]
	#36	RCV REDUCTION	92% [72, 86, 92, 100]
	#39	LCD CONTRAST	NORMAL [NORMAL, DARKER]
	#41	FAX ACTIVATION CODE	ON [ON, OFF]
		CODE = *9	
	#44	MEMORY RECEIVE ALERT	ON [ON, OFF]
	#46	FRIENDLY RECEPTION	ON [ON, OFF]
	#58	ORIGINAL SETTING	NORMAL [NORMAL, LIGHT, DARKER]
	#68	ECM SELECTION	ON [ON, OFF]
	NOTE : You cannot change the setting of this feature, if there are stored documents in memory.		
	#76	CONNECTING TONE	ON [ON, OFF]
	#80	SET DEFAULT (EXCEPT #68)	

注：
以上值是缺省值。

6.4.4. 维修方式设定（打印表举例）

【 SERVICE DATA LIST 】

代码	501 PAUSE TIME	=	060*100ms	[001...600]*100ms
	502 FLASH TIME	=	70*10ms	[01...99]*10ms
	503 DIAL SPEED	=	10pps	[1=10 2=20]pps
	520 CED FREQ.	=	2100Hz	[1=2100 2=1100]Hz
	521 INTL. MODE	=	ON	[1=ON 2=OFF]
	522 AUTO STANDBY	=	ON	[1=ON 2=OFF]
	523 RX EQL.	=	1.8Km	[1=0.0 2=1.8 3=3.6 4=7.2]Km
	524 TX EQL.	=	0.0Km	[1=0.0 2=1.8 3=3.6 4=7.2]Km
	853 TOP MARGIN	=	5	[1...9]

【 SPECIAL SERVICE SETTINGS 】

代码	514	552	553	559	570	571	572	573	590	591	592	593	594
	6	2	1	1	1	03	065	10	03	065	2	1	1
	595	596	598	599	717	718	722	745	763	771	774	845	874
	100	09	40	1	1	1	1	1	3	1	00	08	090
	875												
	085												

USAGE TIME = 00000 HOURS

Version = E971TN 9D92

注：以上值均为缺省值。

6.4.5. 存档（打印表举例）

【 HISTORY 】

[illegible]

NAME _____ DATE _____ DEALER _____ FILM _____

CUSTOMER COMPLAINT

SURVEY RESULT : OKOK (UNKNOWN/DESIGN/EDUC) DEFECT (PART/WORKER/DESIGN)
ABUSE (CUST/DEALER/SHIP) NEW (OPEN/NOT)
PHONE SURVEY RESULT.

注：

见此报告的以下说明，项目号 (1)-(46) 相应于 **6.4.5.1. 存档报告说明** (P. 70) 中所列的项目。

6.4.5.1. 存档报告说明

(1) ROM 版本

FLASH ROM 版本

(2) SUM

FLASH ROM 内部数据计算。

(3) 您的抬头

本机记录了用户的抬头。如果未录，就会显示 NONE。

(4) 您的电话号码

本机记录了用户的电话号码。如果未录，就会显示 NONE。

(5) 传真寻呼号码

如果您将寻呼号码编入本机，这里将显示寻呼号码。

(6) 工厂—顾客

表示从工厂生产到用户使用本机的天数。

(7) 月

表示用户购买本机后，最初设定的年、月、日和时间。

(8) 日

表示用户购买本机后，最初设定的年、月、日和时间。

(9) 年

表示用户购买本机后，最初设定的年、月、日和时间。

(10) 时间

表示用户购买本机后，最初设定的年、月、日和时间。

(11) 使用时间

本机接通电源开始使用的时间总和。

(12) 工厂—现在

表示从工厂生产到用户打印出存档表的天数。

(13) 电话方式

使用传真方式设定的时间总和。

(14) 传真方式

使用传真方式设定的时间总和。

(15) 电话 / 传真方式

使用电话 / 传真方式设定的时间总和。

(16) 应答 / 传真方式

使用应答 / 传真方式设定的时间总和。

(17) 最终接收方式

用户最终设定的接收方式。

(18) 音频 / 脉冲选择

最近使用的设定，音频或脉冲。

(19) 接收缩减

接收时的压缩率。

(20) 设定电话簿的号码。

记录的分机电话簿（单触式拨号）

(21) 复印数量

复印的页数

(22) 接收数量

接收的页数

(23) 发送数量

发送的页数

(24)~(29) 未使用

(30) 打印报警表数量

打印到现在的报警表数量。

(31) 打印帮助数量

打印到现在的帮助表数量

(32) 传真接收中分开打印数量

自购机以来，被分成多张的传真接收数量。

(33)~(35) 未使用

(36) 传真方式

指本机以传真方式接收传真信息。

(37) 人工接收

指本机通过人工操作接收传真信息。

(38) 顺利接收

指本机通过顺利信号检测接收传真信息。

(39) VOX

指本机检测静音或无语音

(40) RMT DTMF

指本机检测遥控输入的 DTMF（遥控传真启动代码）。

(41) PAL DTMF

指本机检测由并联电话输入的 DTMF（遥控传真启动代码）。

(42) 接通

指本机在振铃 10 响后开始接收（遥控接通：维修代码 #573）

(43) 时间终止

指在 EXT-TAM 或 TEL/FAX 方式中，本机在振铃时间终止后开始接收。

(44) IDENT

指本机进行振铃检测

(45) CNG OGM

指本机在 TEL/FAX 方式中，正发送假回铃音时；或者在 EXT-TAM 方式中，接电话时检测 CNG。或指本机在 ANS/FAX 方式中发送 OGM 时检测 CNG。

(46) CNG ICM

指本机以 ANS/FAX 方式录制 ICM 时检测 CNG。

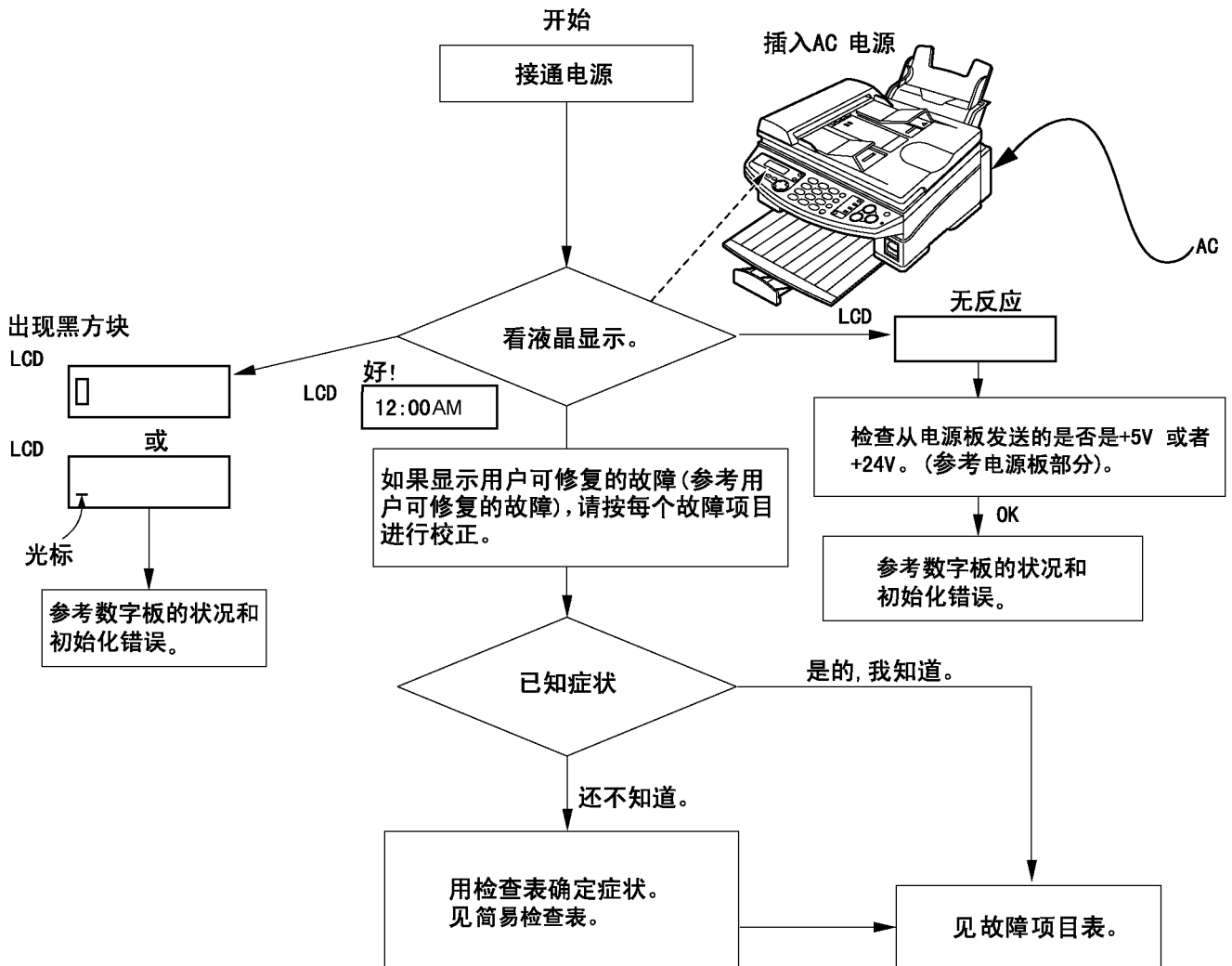
6.5. 故障检修细节

6.5.1. 概要

故障检修是通过确定损坏的元件并根据需要更换、调整或清洁元件以恢复质量和可靠性。首先确定故障，然后决定故障检修方法。如果难以找到损坏的零件，则确定是哪块板损坏了。（例如：数字 PCB，模拟 PCB 等）。来自客户或经销商的申诉可能对同样的问题使用不同的说法，因为他们既不是技师又不是工程师。运用您的经验，根据客户的申诉测试故障区，而且来自顾客或经销商的反馈经常有一个申诉单。为此，需要确定故障，用 6.5.3.1. 简单检查表 (P. 72) 来测试本机。疑难问题可能难以确定，因此要反复测试。

6.5.2. 开始故障检修

确定症状和故障检修方法。



相互参考：

- 6.1. 用户可修复的故障 (P. 56)
- 6.5.3. 故障项目表 (P. 72)
- 6.5.3.1. 简单检查表 (P. 72)
- 6.5.7.5. 检查数字板的状况 (P. 107)
- 6.5.8. 初始化错误 (P. 108)
- 6.5.15. 电源板部分 (P. 121)

6.5.3. 故障项目表

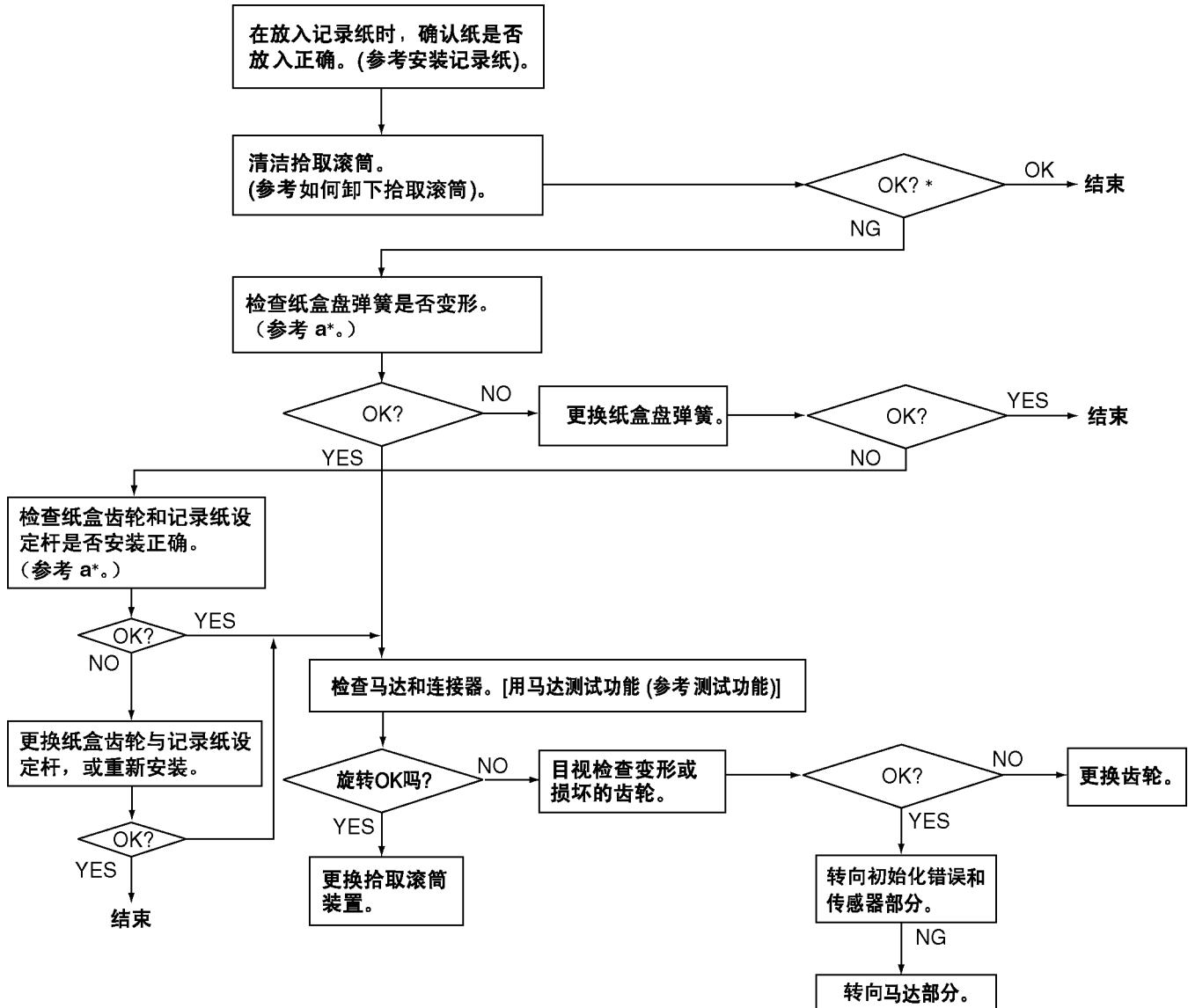
项目	症状	参考
记录纸输送	记录纸不输送。	见 6.5.4.1. 记录纸不输送 (P. 73)
	纸张卡塞	见 6.5.4.2. 纸张卡塞 (P. 74)
	多张输送和歪斜	见 6.5.4.3. 多张输送和歪斜 (P. 75)
	传送的传真资料歪斜。	见 6.5.4.4. 发送的传真资料歪斜 (P. 75)
	接收的传真资料歪斜。	见 6.5.4.5. 接收的传真资料歪斜 (P. 75)
	接收或复印的资料被扩大。	见 6.5.4.6. 接收或复印的资料被扩大 (P. 76)
	复印出一页空白纸。	见 6.5.4.7. 复印出一页空白纸 (P. 77)
	接收一页空白纸。	见 6.5.4.8. 接收到一页空白纸 (P. 79)
	黑或白色垂直线。	见 6.5.4.9. 黑或白垂直线 (P. 79)
	出现打印黑或白横线。	见 6.5.4.10. 黑或白横线 (P. 80)
	打印出一个异常图文。	见 6.5.4.11. 打印出一个异常图文 (P. 81)
ADF (文件自动输送器)	文件不输送。	见 6.5.5.1. 不输送文件, 文稿卡纸和文稿多张输送 (P. 82)
	文件卡塞。	
	多张输送。	
	歪斜 (ADF/ 扫描仪玻璃)。	见 6.5.5.2. 歪斜 (P. 84)
	传送的传真歪斜。	见 6.5.5.3. 发送的传真资料歪斜 (P. 85)
	接收的传真资料歪斜。	见 6.5.5.4. 接收的传真资料歪斜 (P. 85)
	记录或复印的资料被扩大。	见 6.5.5.5. 接收或复印的资料被扩大 (P. 86)
	出现复印黑或白垂直线。	见 6.5.5.6. 复印出现黑或白色垂直线 (P. 86)
通信 FAX, TEL (模拟板)	复印出一个异常图文。	见 6.5.5.7. 复制出异常图像 (P. 87)
	不能用传真通信。	见 6.5.6. 通信部分 (P. 88)
	显示故障代码。	见 6.5.9. 模拟板部分 (P. 110)
	不能谈话。 DTMF 音频不工作。 话筒 / 监听器不工作等。	
操作板	键不被接收。	见 6.5.10. 操作板部分 (P. 112)
传感器	如果是电路的原因, 将显示与传感器对应的故障信息。	见 6.5.11. 传感器部分 (P. 113)

6.5.3.1. 简单检查表

序列号		日期	
功能		判断	参考
传真操作	传送	OK / NG	
	接收	OK / NG	
复印操作	ADF 复印	OK / NG	
	平板复印	OK / NG	
电话操作	话筒收发器 / 接收器	OK / NG	
	扬声器电话声音	OK / NG	
	振铃声音	OK / NG	
	拨号操作	OK / NG	
	音量操作	OK / NG	
	语音检测	OK / NG	维修代码 #815 (参考 6.3. 测试功能 (P. 61))
操作板	键检查	OK / NG	维修代码 #561 (参考 6.3. 测试功能 (P. 61))
	LED 检查	OK / NG	维修代码 #557 (参考 6.3. 测试功能 (P. 61))
	LCD 检查	OK / NG	维修代码 #558 (参考 6.3. 测试功能 (P. 61))
传感器	传感器检查	OK / NG	维修代码 #815 (参考 6.3. 测试功能 (P. 61))
时钟	显示变化	OK / NG	时间保持准确吗? 与其他时钟一起检查。
外接 TAM	话筒收发器 / 接收器	OK / NG	
	遥控	OK / NG	

6.5.4. 记录纸输送

6.5.4.1. 记录纸不输送

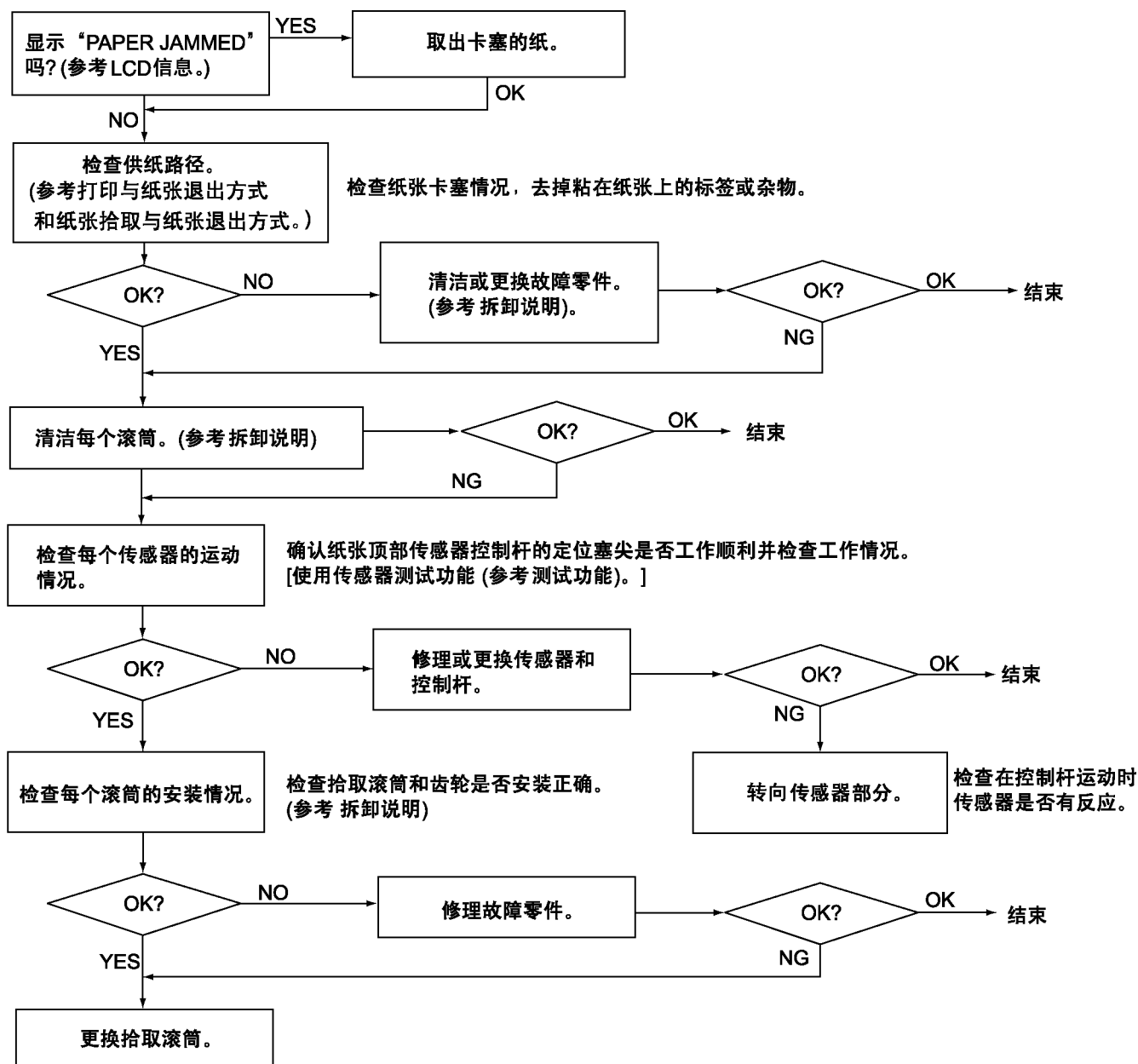


* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

- a*: 10.5. 上部打印机盖和载纸盘部分 (P. 181)
- 3.3.3. 记录纸 (P. 16)
- 5.2.14. 如何卸下拾取滚筒 (P. 46)
- 6.3. 测试功能 (P. 61)
- 6.5.7.5. 检查数字板的状况 (P. 107)
- 6.5.8. 初始化错误 (P. 108)
- 6.5.11. 传感器部分 (P. 113)
- 6.5.12. 马达部分 (P. 116)

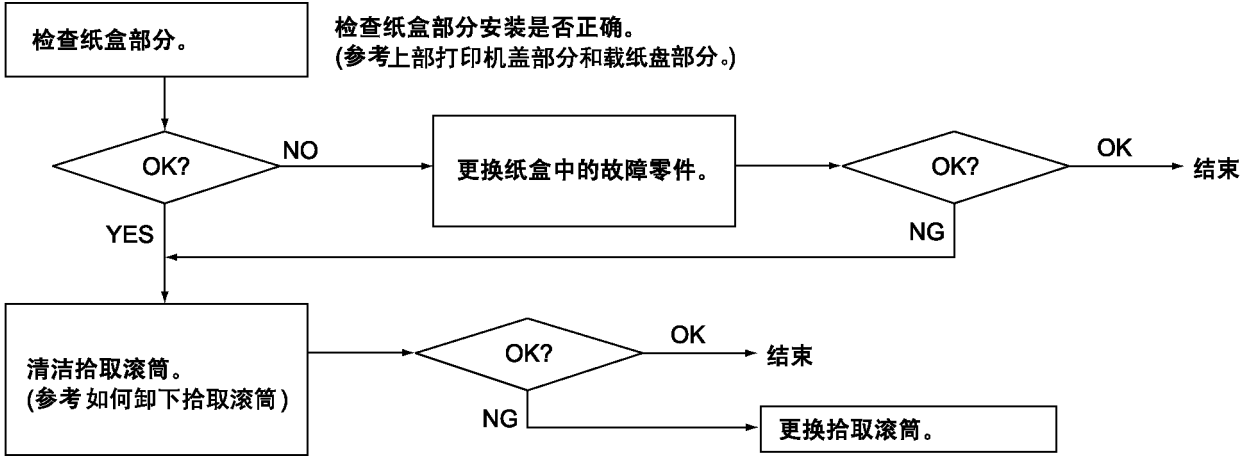
6.5.4.2. 纸张卡塞



相互参考：

- 4.2. 打印与纸张退出方式 (P. 24)
- 4.3. 纸张拾取与纸张退出方式 (P. 24)
- 5 拆卸说明 (P. 32)
- 6.3. 测试功能 (P. 61)
- 6.5.11. 传感器部分 (P. 113)
- 7.6. 传感器和开关 (P. 145)

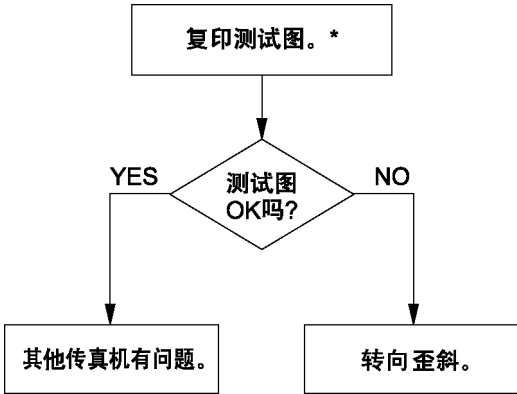
6.5.4.3. 多张输送和歪斜



相互参考：

- 5.2.14. 如何卸下拾取滚筒 (P. 46)
- 10.5. 上部打印机盖和载纸盘部分 (P. 181)

6.5.4.4. 发送的传真资料歪斜

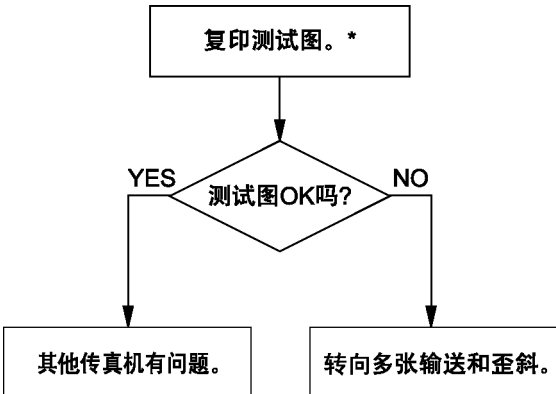


* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

- 6.5.5.2. 歪斜 (P. 84)

6.5.4.5. 接收的传真资料歪斜

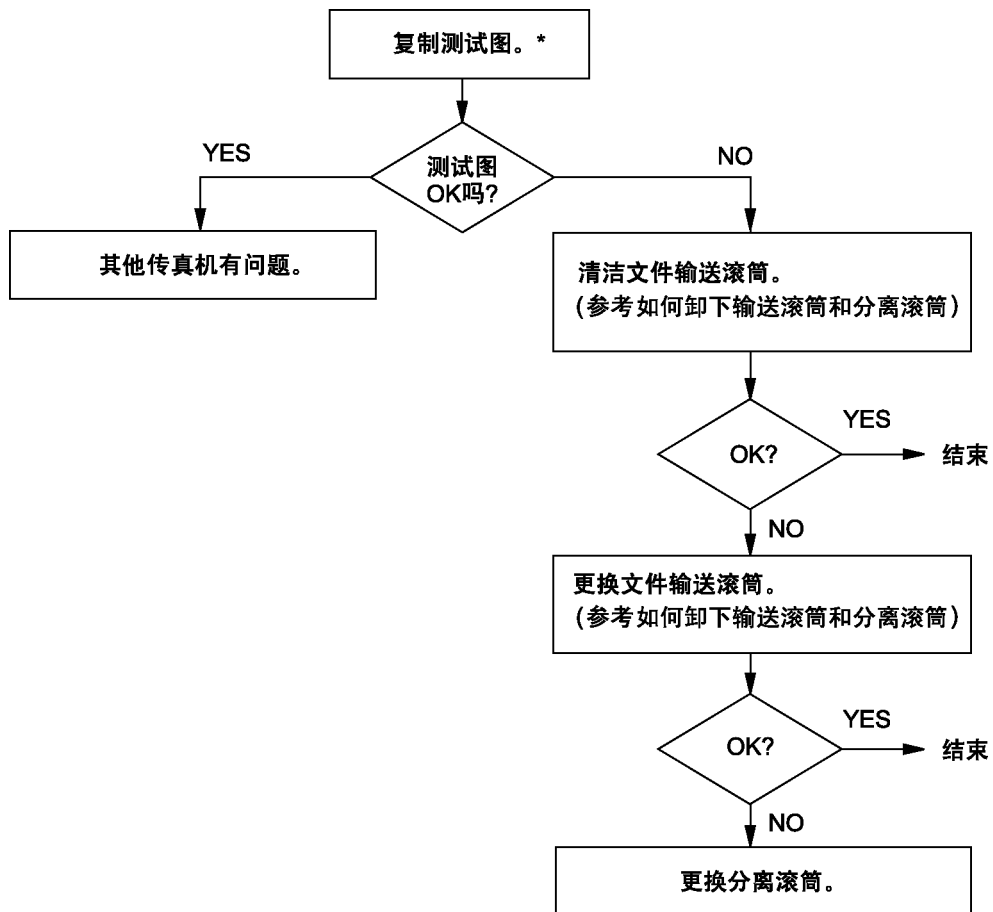


* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

- 6.5.4.3. 多张输送和歪斜 (P. 75)

6.5.4.6. 接收或复印的资料被扩大

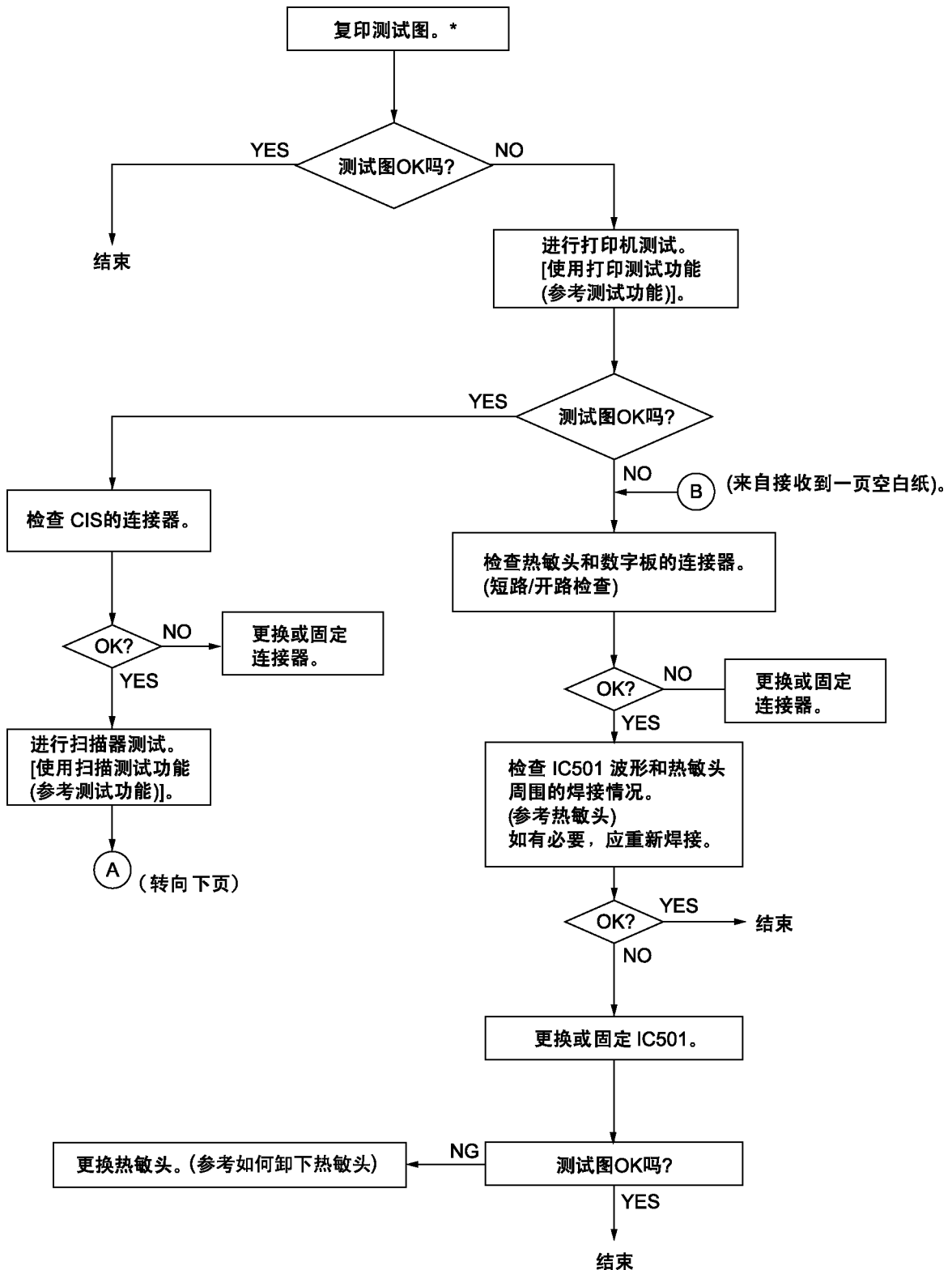


* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

5.2.10. 如何卸下输送滚筒和分离滚筒 (P. 43)

6.5.4.7. 复印出一页空白纸



* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

- 5.2.3. 如何卸下热敏头 (P. 38)
- 6.3. 测试功能 (P. 61)
- 6.5.4.8. 接收到一页空白纸 (P. 79)
- 6.5.14. 热敏头部分 (P. 120)

(接上页)

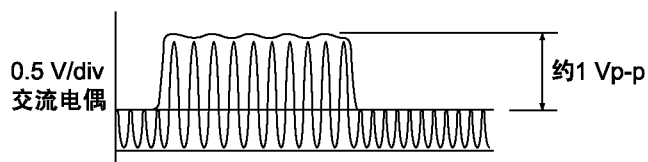
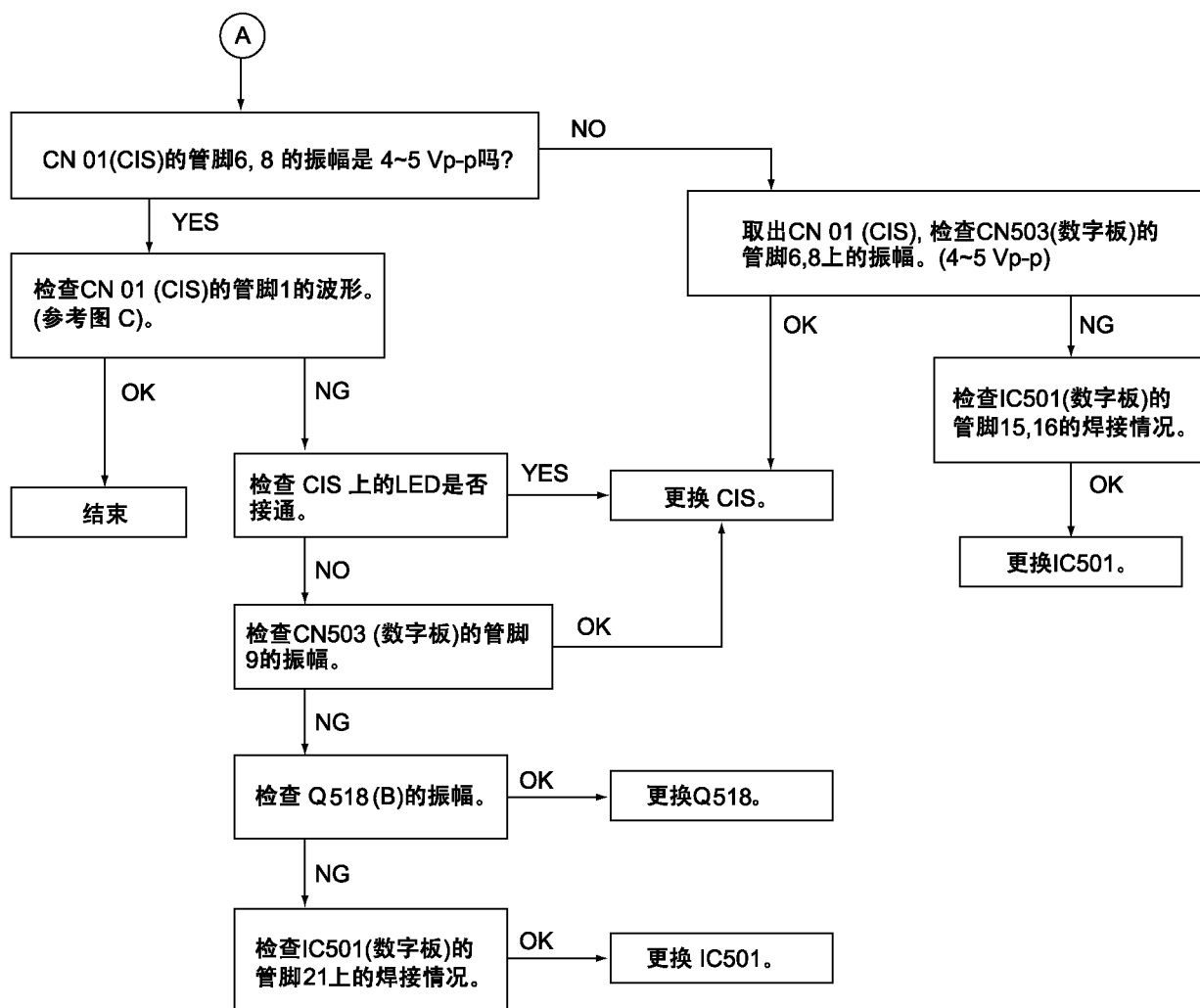
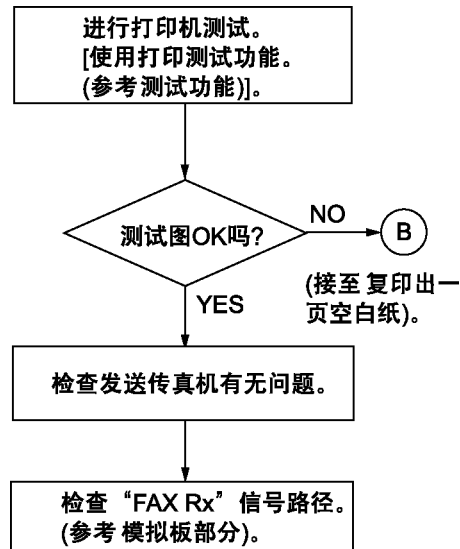


图 C

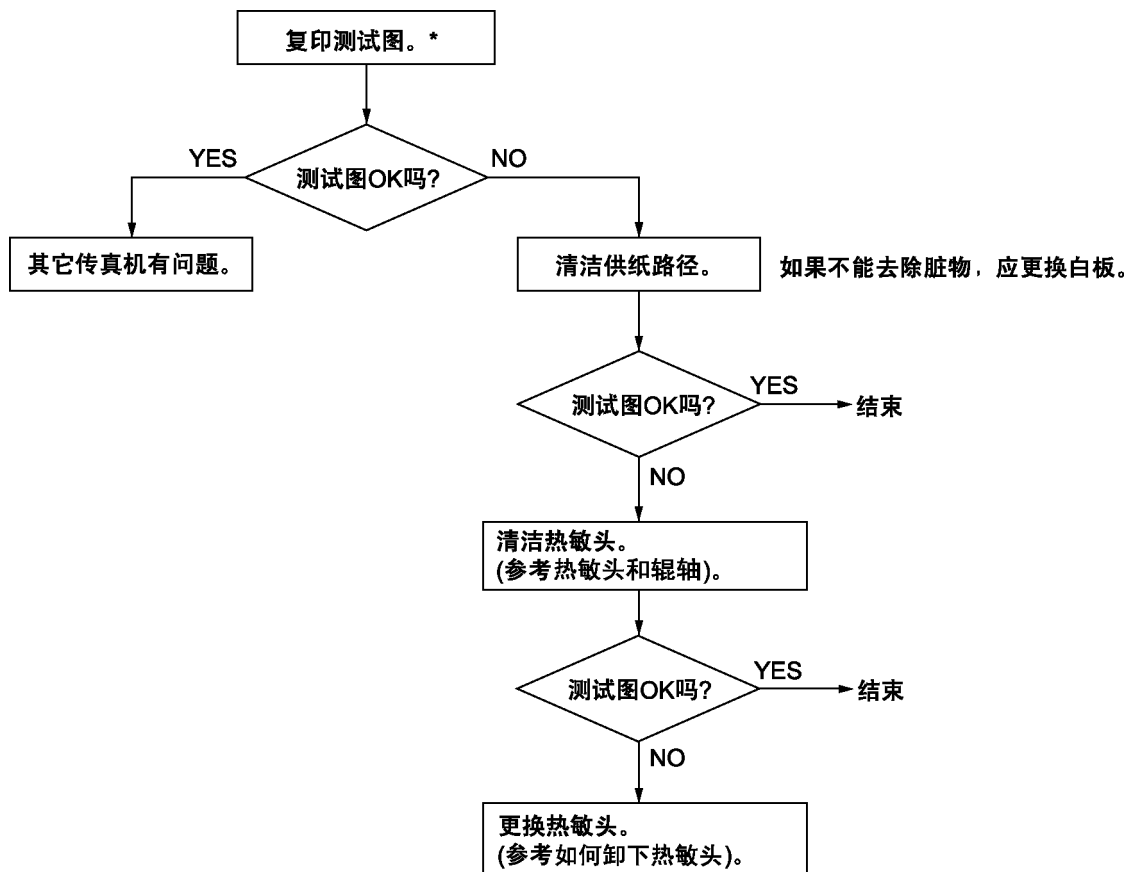
6.5.4.8. 接收到一页空白纸



相互参考：

- 6.3. 测试功能 (P. 61)
- 6.5.4.7. 复印出一页空白纸 (P. 77)
- 6.5.9. 模拟板部分 (P. 110)

6.5.4.9. 黑或白垂直线

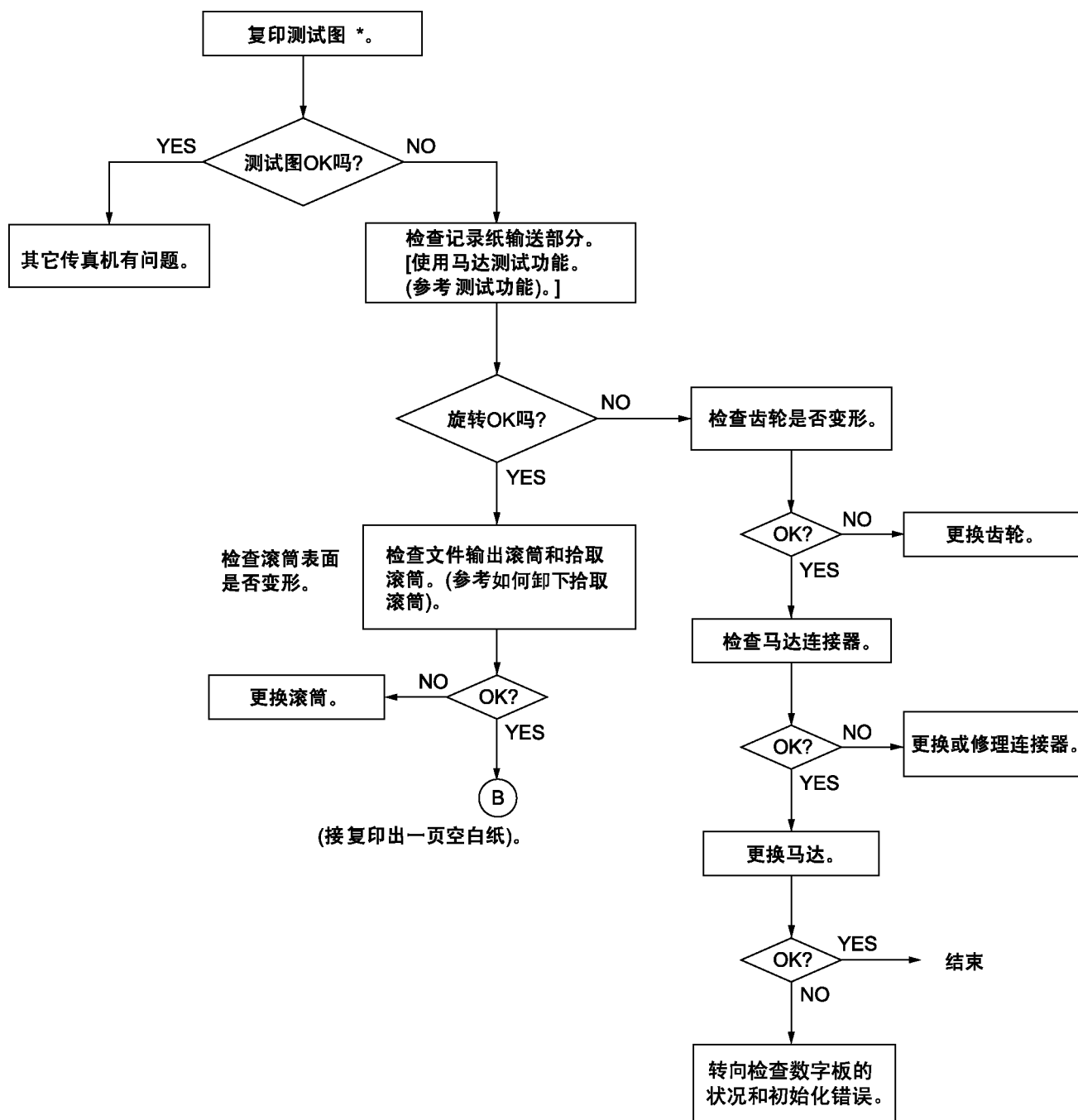


* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中图 b 文件并使用它。

相互参考：

- 4.5.3. 热敏头和辊轴 (P. 27)
- 5.2.3. 如何卸下热敏头 (P. 38)

6.5.4.10. 黑或白横线

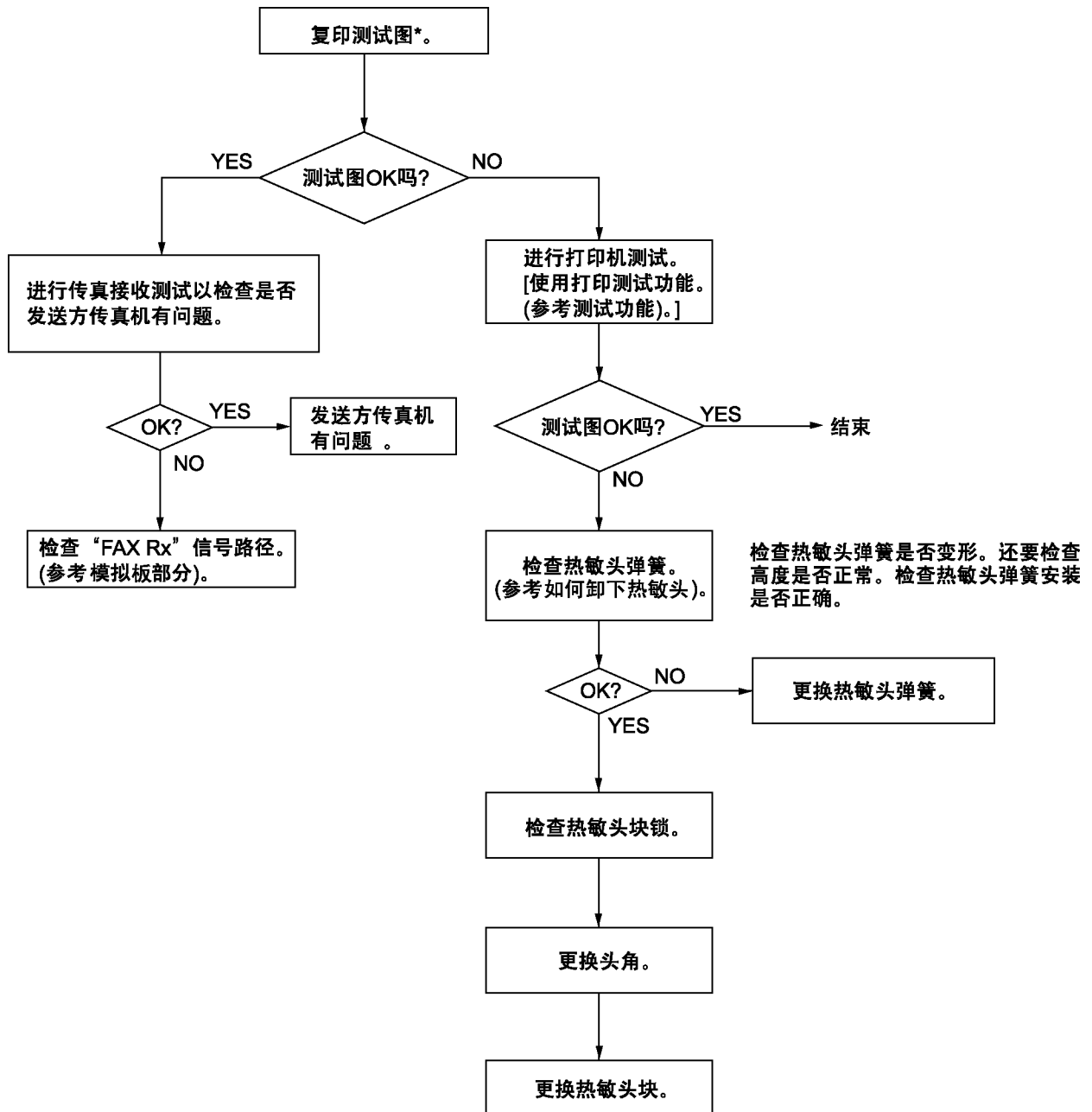


* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

- 5.2.14. 如何卸下拾取滚筒 (P. 46)
- 6.3. 测试功能 (P. 61)
- 6.5.4.7. 复印出一页空白纸 (P. 77)
- 6.5.7.5. 检查数字板的状况 (P. 107)
- 6.5.8. 初始化错误 (P. 108)

6.5.4.11. 打印出一个异常图文



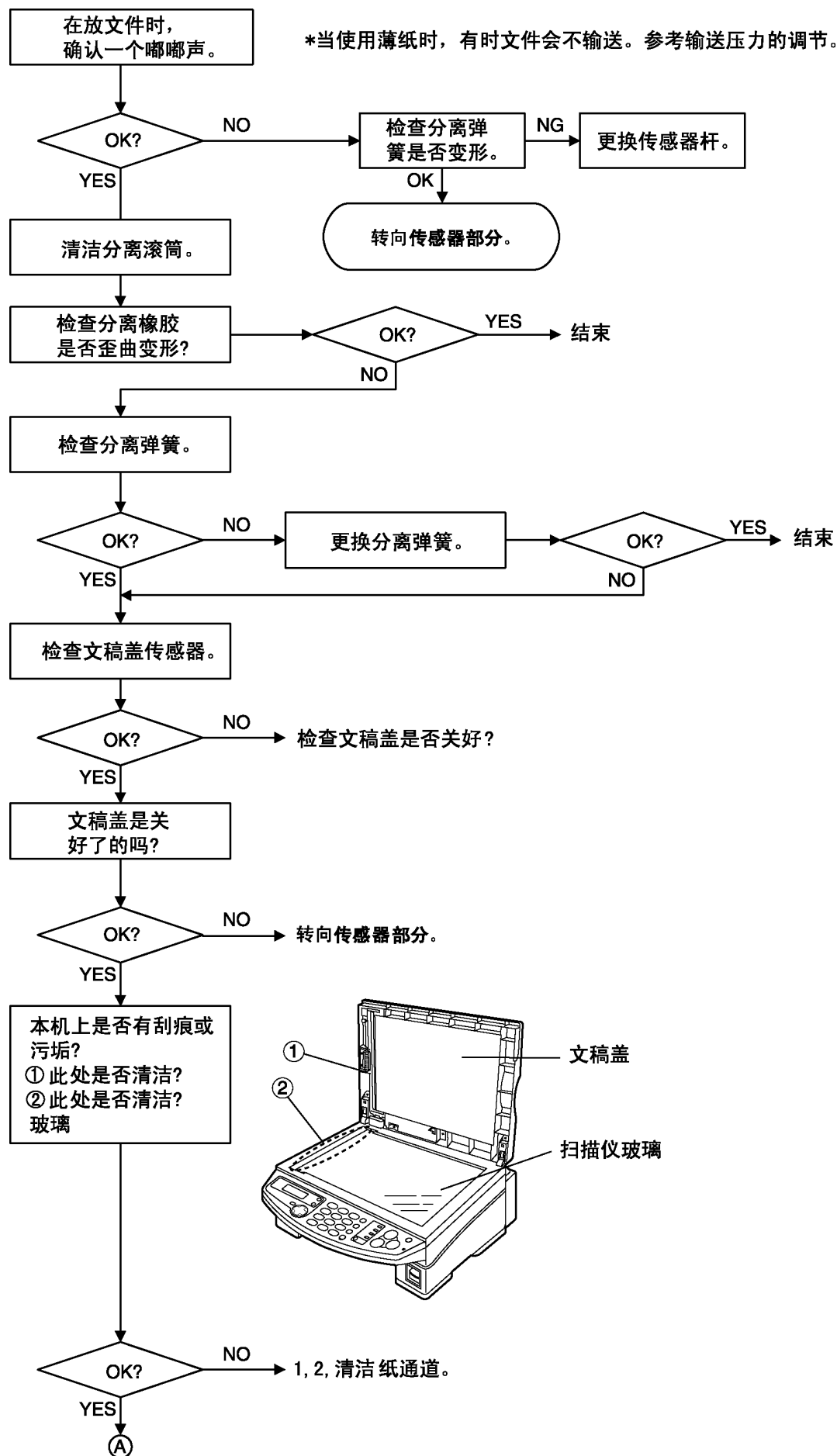
* 我们建议复印 6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送 (P. 82) 中的图 b 文件并使用它。

相互参考：

- 5.2.3. 如何卸下热敏头 (P. 38)
- 6.3. 测试功能 (P. 61)
- 6.5.9. 模拟板部分 (P. 110)

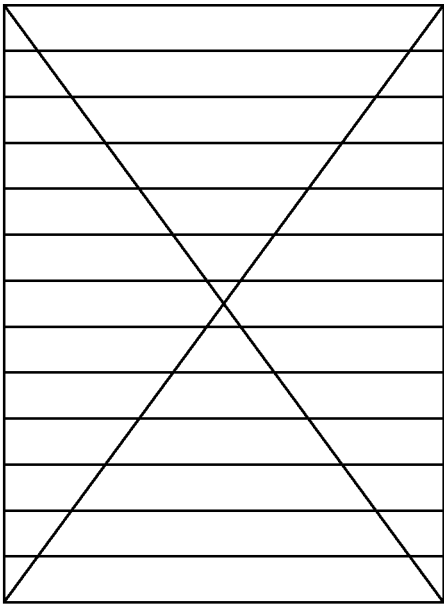
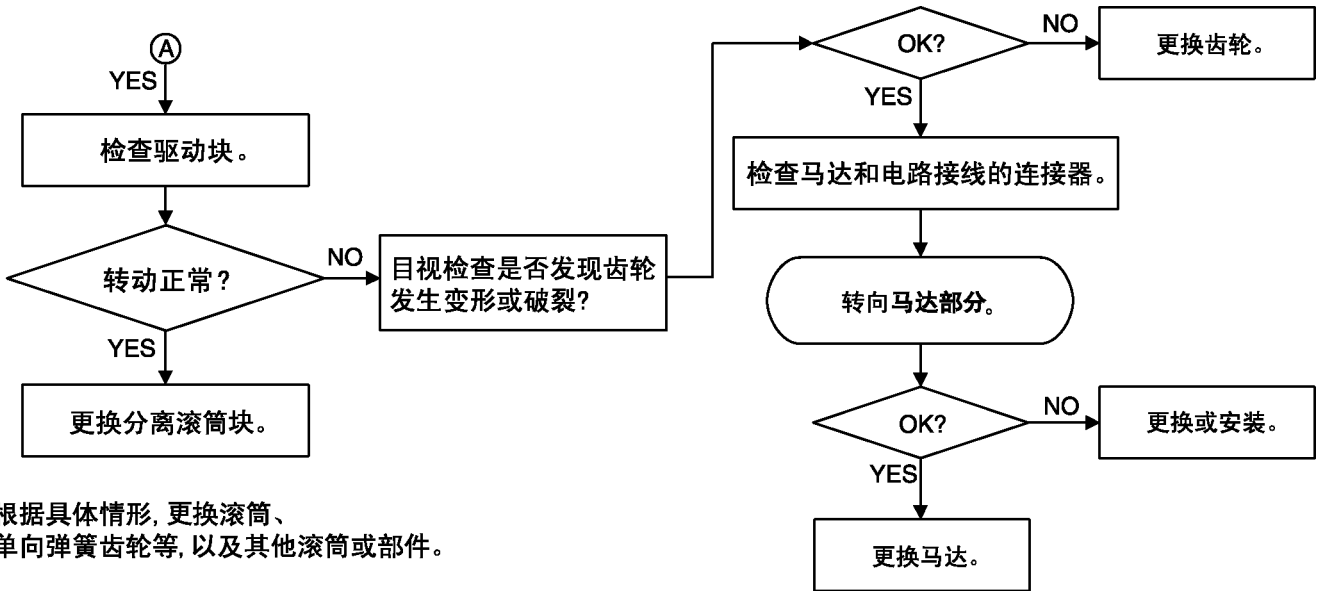
6.5.5. ADF（文件自动输送）部分

6.5.5.1. 不输送文件，文稿卡纸和文稿多张输送



相互参考：

6.5.11. 传感器部分 (P.113)



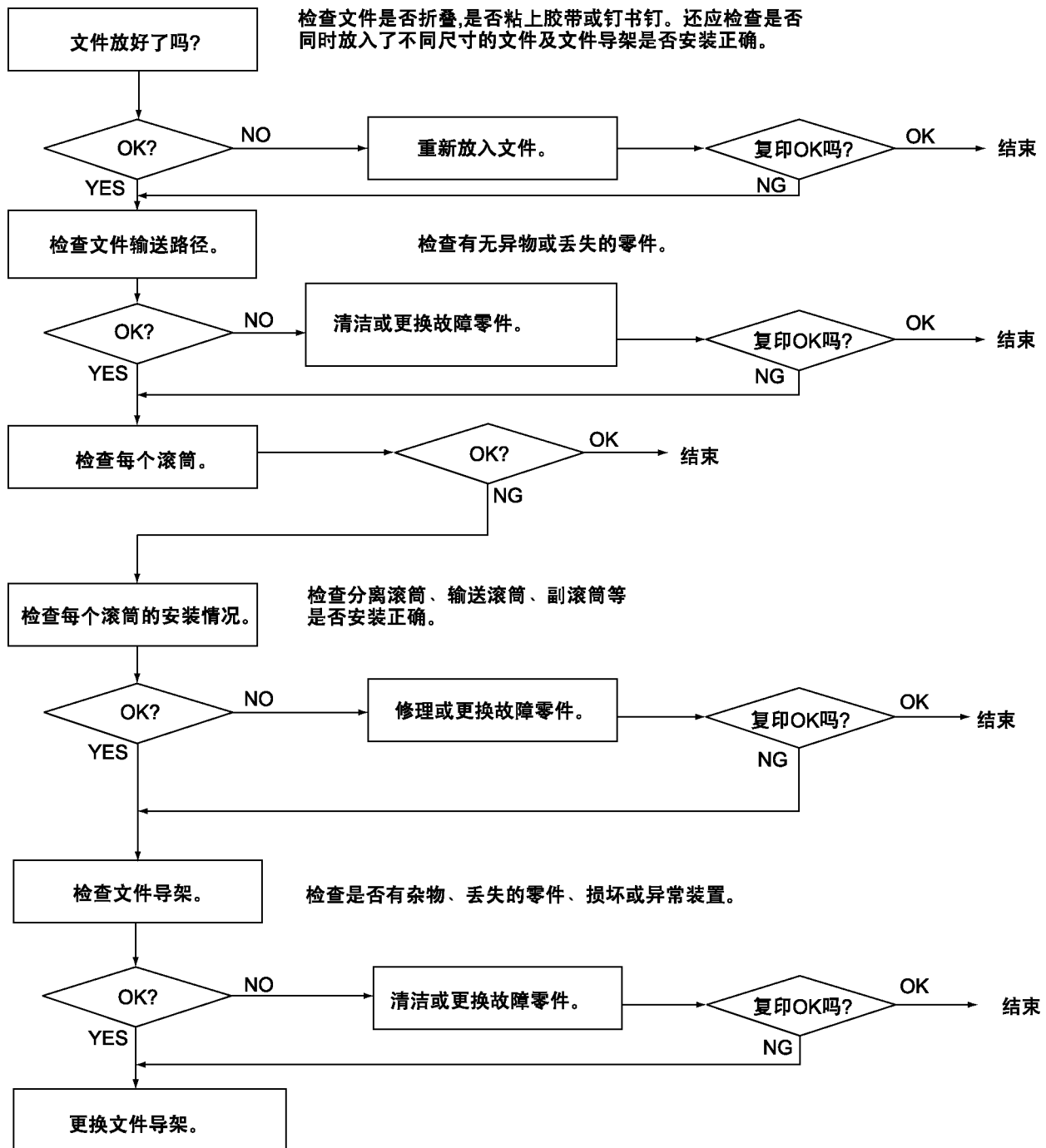
图b

当需确认字符是否扩展或变形, 或送纸有无问题时, 请使用此测试图表。(图b)

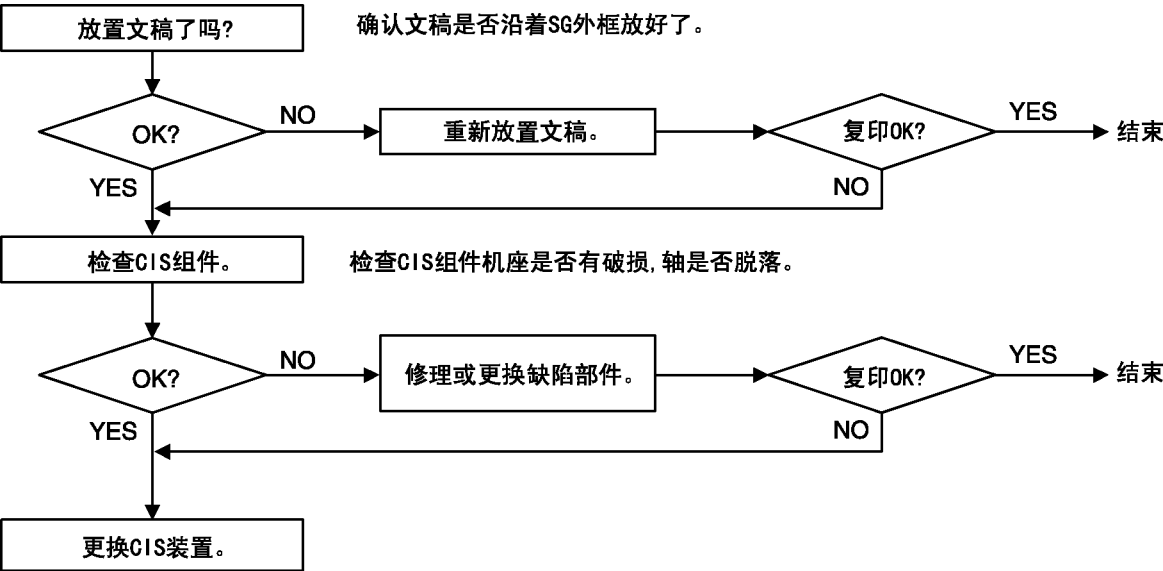
相互参考:
6. 5. 12. 马达部分 (P. 116)

6.5.5.2. 歪斜

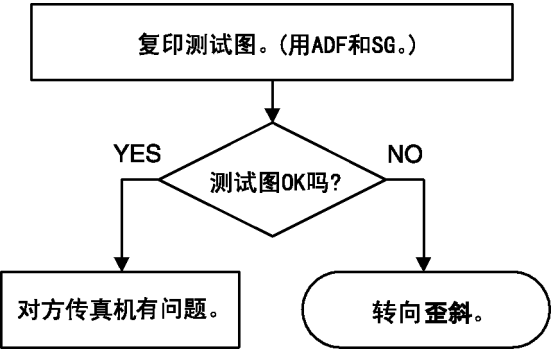
6.5.5.2.1. ADF (文件自动输送)



6.5.5.2.2. 扫描仪玻璃



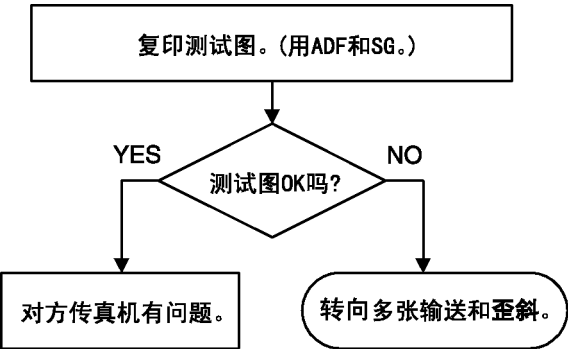
6.5.5.3. 发送的传真资料歪斜



相互参考：

6.5.5.2. 歪斜 (P. 84)

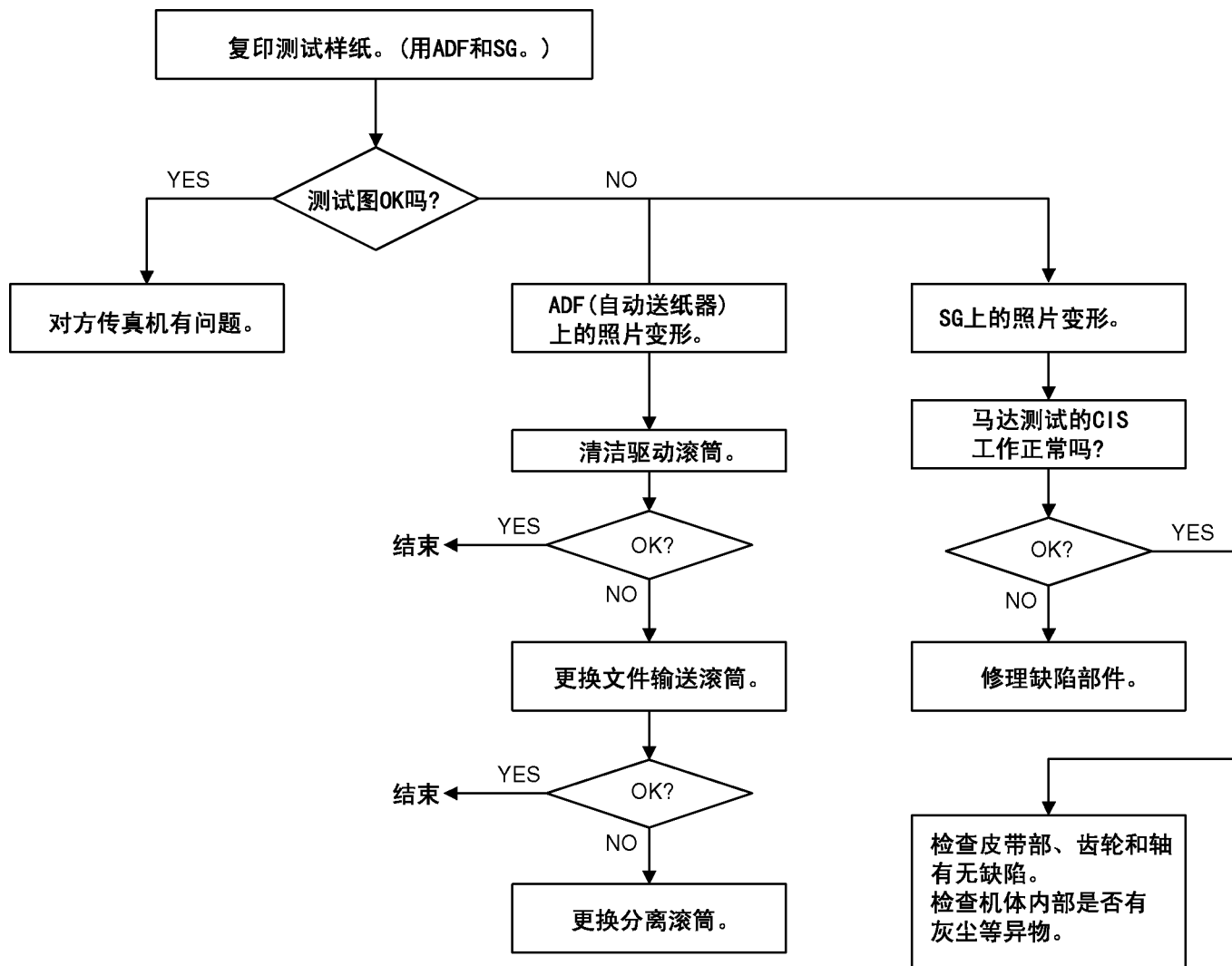
6.5.5.4. 接收的传真资料歪斜



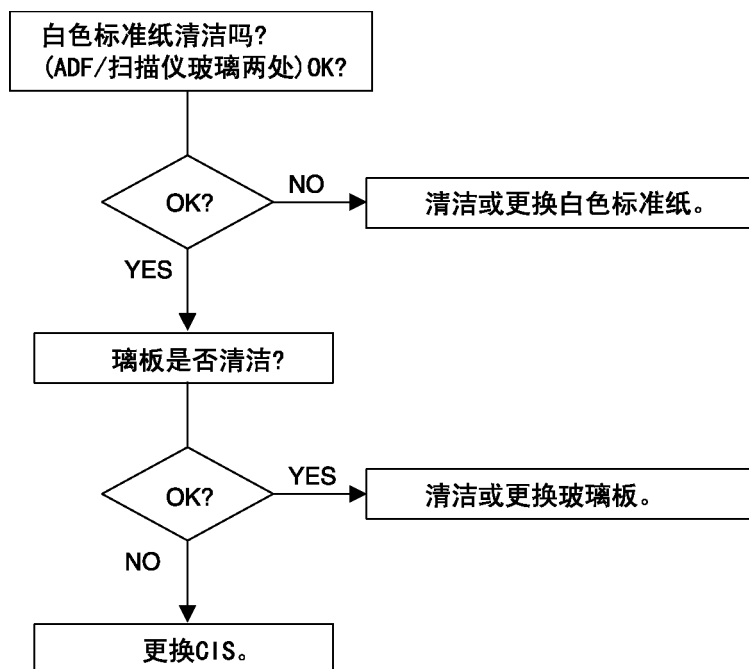
相互参考：

6.5.4.3. 多张输送和歪斜 (P. 75)

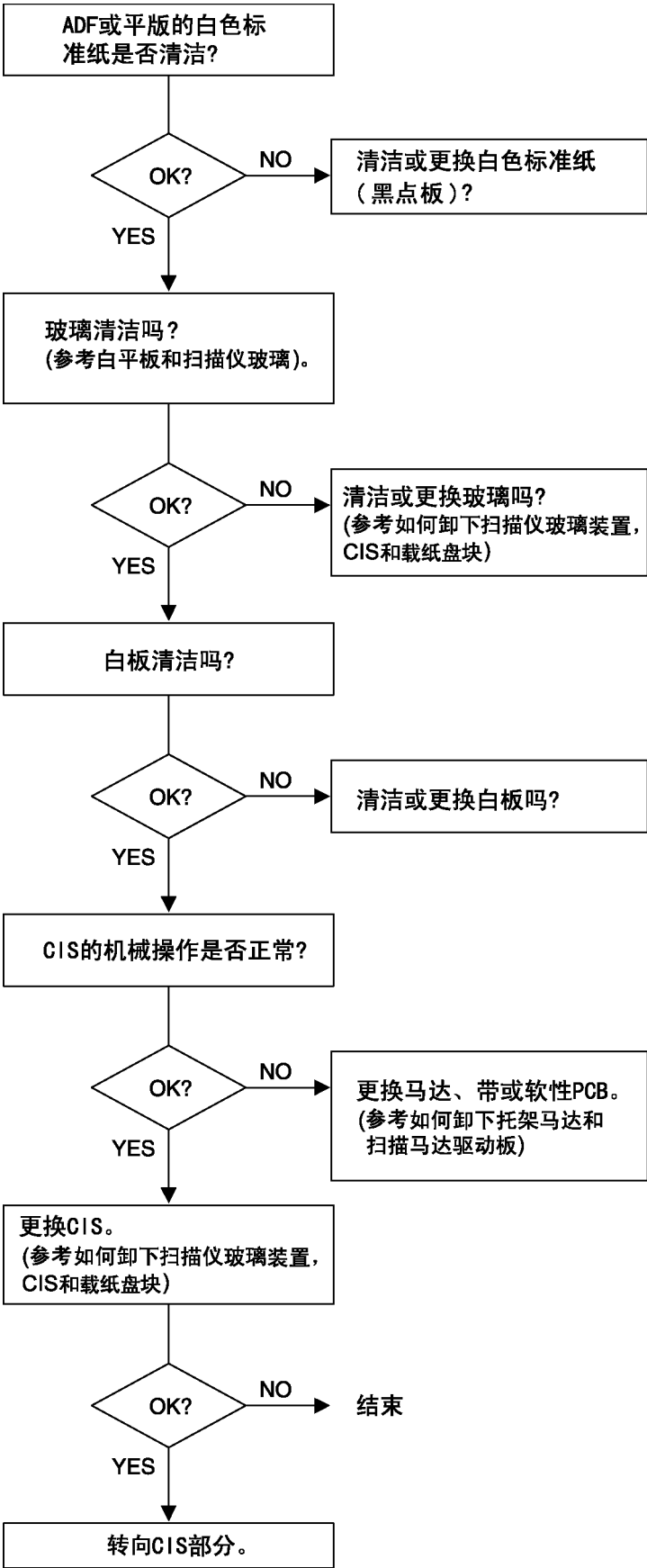
6.5.5.5. 接收或复印的资料被扩大



6.5.5.6. 复印出现黑或白色垂直线



6.5.5.7. 复制出异常图像



相互参考:

- 4.5.1. 清洁白平板和扫描仪玻璃 (P. 26)
- 5.2.17. 如何卸下扫描仪玻璃装置, CIS 和载纸盘块 (P. 49)
- 5.2.19. 如何卸下托架马达和扫描马达驱动板 (P. 50)
- 6.5.13. CIS (接触式图像传感器) 部分 (P. 119)

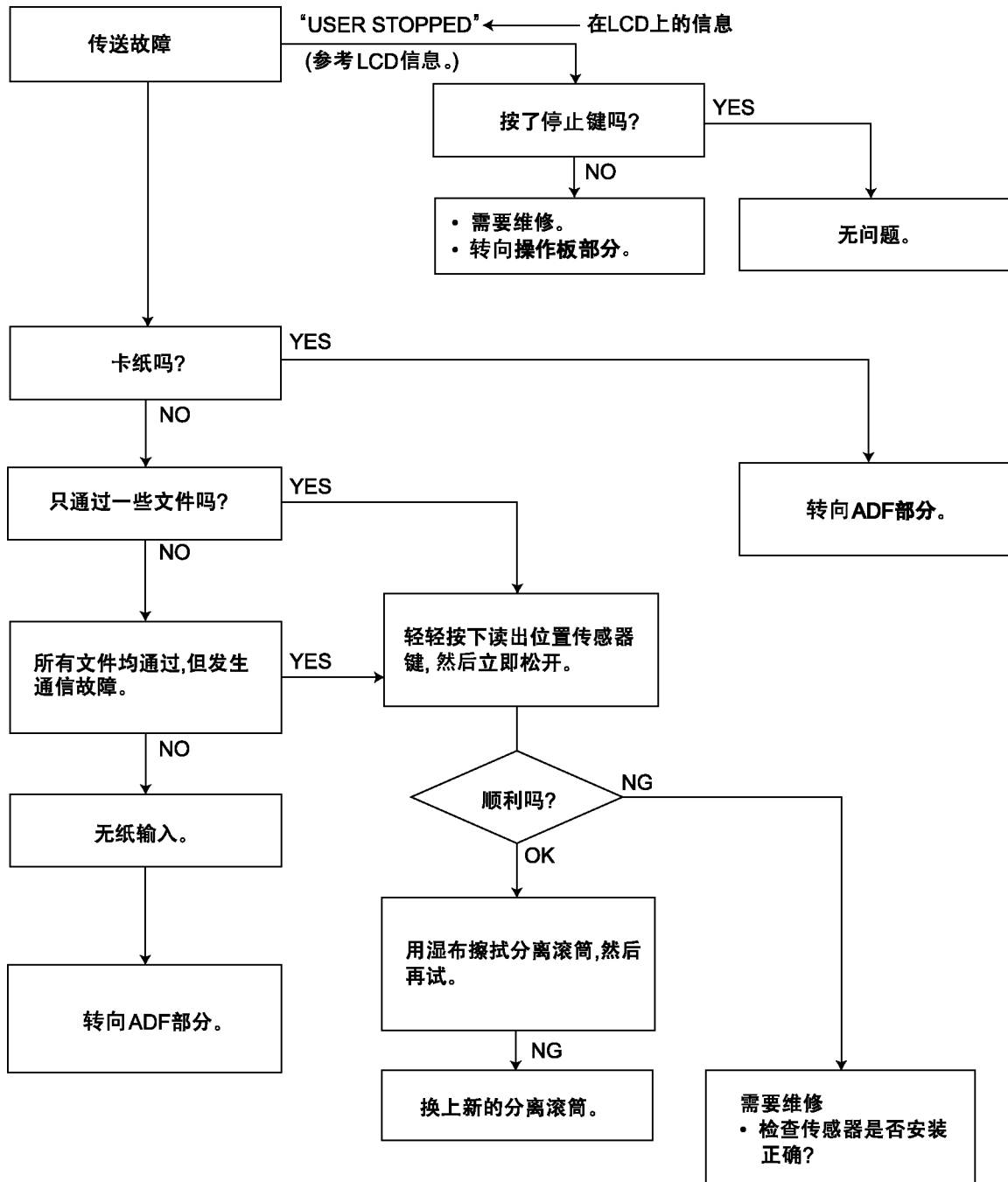
6.5.6. 通信部分

找出下表中所列的问题，并参考 **6.5.6.1. 传真故障部分** (P. 89) 中相应的故障检修工序。

编号	症状	内容	可能的原因
1	传真时不能正常送纸。 (复印方式下也不正常送纸)。	故障检修	供纸机械问题。 (参考 6.5.6.1.1. 传送故障 (P. 89))。
2	传真发送时好时坏。 (本机能复印文件)。	故障检修	维修线路问题或接收方传真机有问题。 (参考 6.5.6.1.2. 有时出现传送故障 (P. 90))。
3	传真接收时好时坏。 (本机能复印文件)。	故障检修	维修线路问题或发送方传真机有问题。 (参考 6.5.6.1.3. 接收故障 (P. 91))。
4	传真机完全不能发送或接收。 (本机能复印文件)。	故障检修	电路问题。 (参考 6.5.6.1.4. 本机能复印但不能传送接收 (P. 92))。
5	在打长途电话或国际长途电话时，传真机既不能发送也不能接收。 (本机能复印文件)。	可能原因的详细说明 (类似于 2.3 的故障检修项目)	维修线路问题。
6	在打长途或国际长途电话期间，传送或接收的传真图文质量差。		
7	1-5	各故障代码的故障检修工序将在通信结果报告上打印出来。	(参考 6.5.7.4. 如何输出日报表 (P. 98))。

6.5.6.1. 传真故障部分

6.5.6.1.1. 传送故障

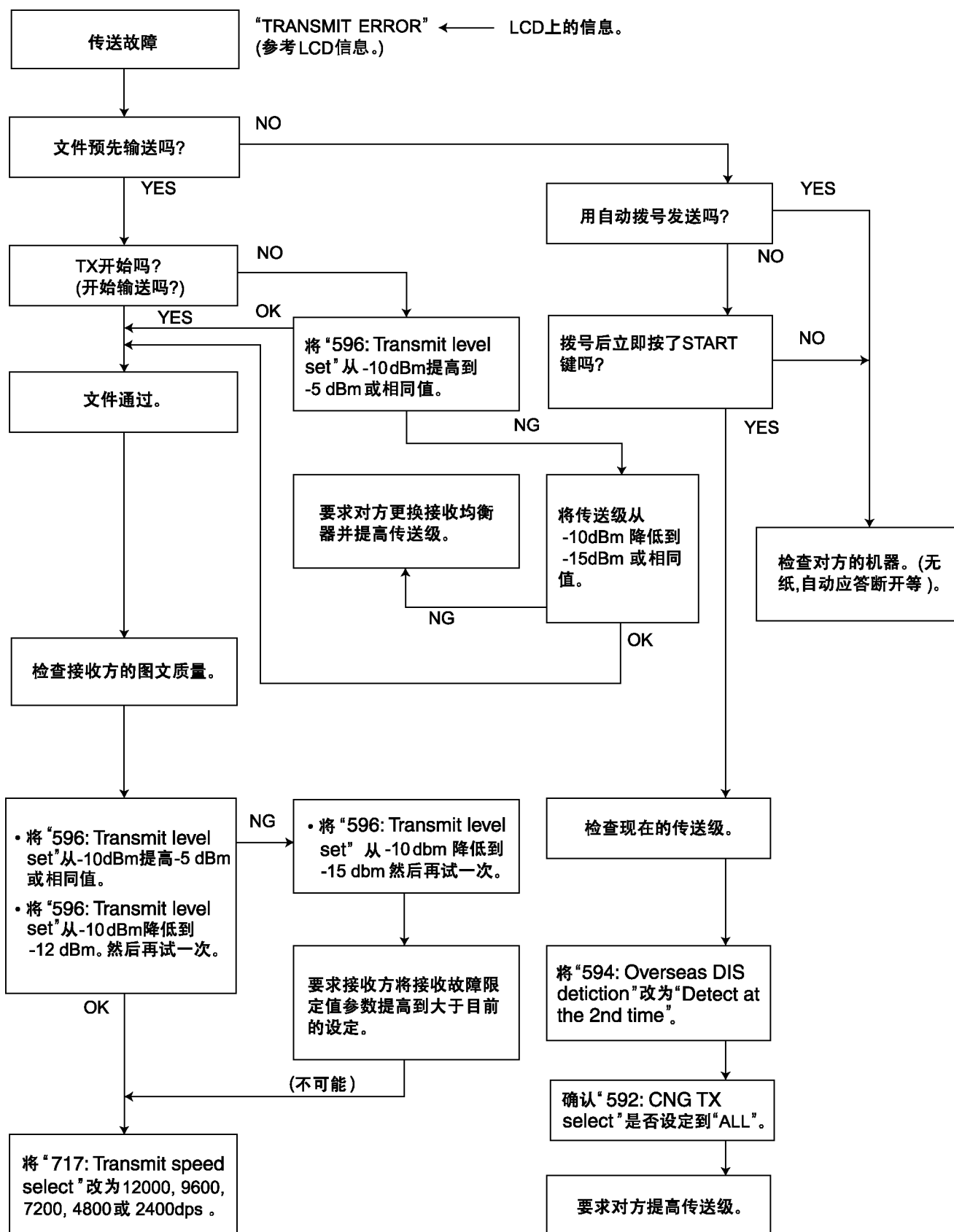


相互参考：

6.5.5. ADF（文件自动输送）部分（P. 82）

6.5.10. 操作板部分（P. 112）

6.5.6.1.2. 有时出现传送故障



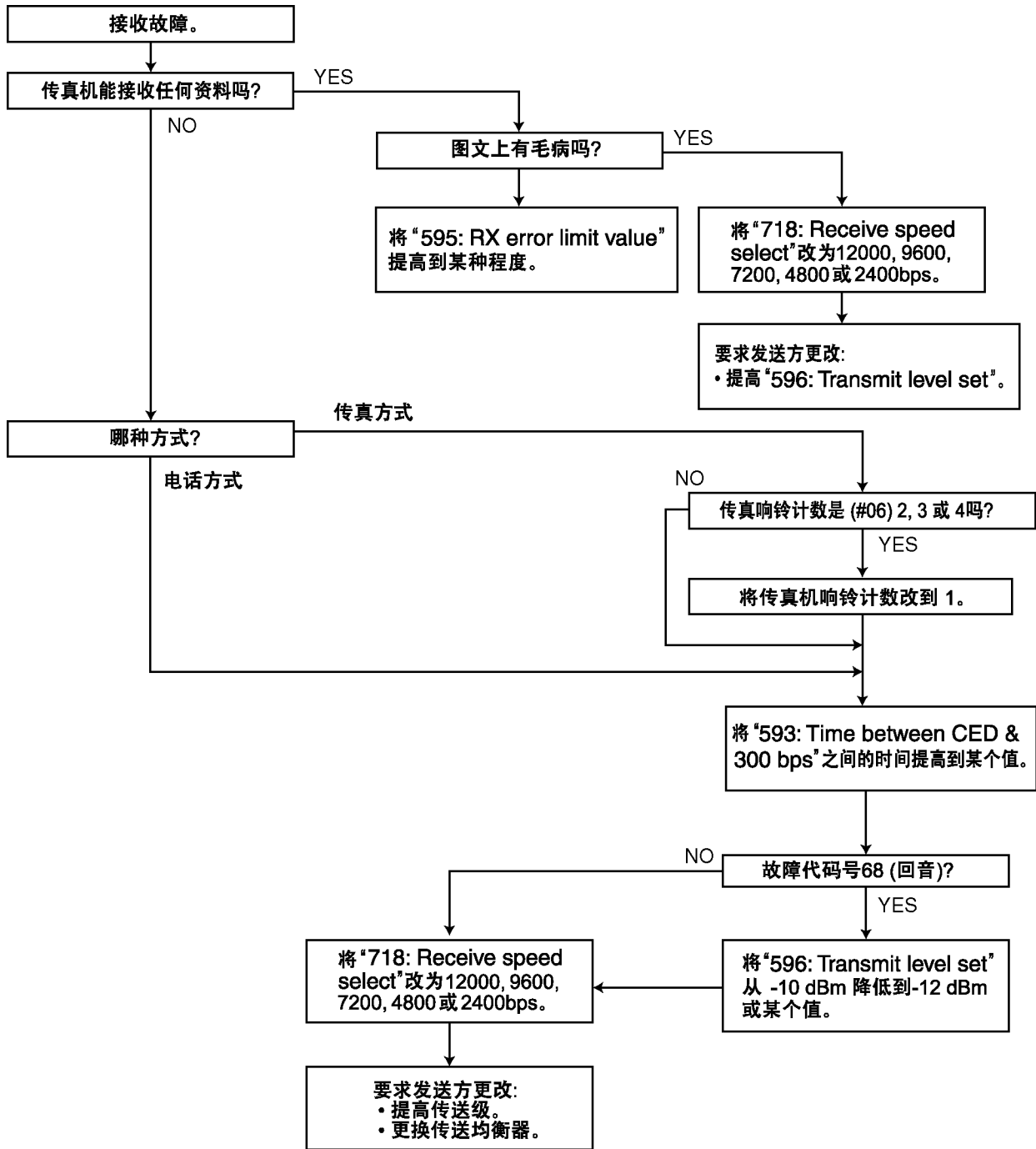
注：

“596: Transmit level set”表示维修代码。(参考 6.2.3. 维修功能表 (P.59)。)

6.5.6.1.3. 接收故障

开始故障检修前请确认以下情况。

- 记录纸安装得正确吗？参考下一页。



注：
“596: Transmit level set”表示维修代码。（参考 6.2.3. 维修功能表（P.59）。）

备注：
关于接收问题，除了有关软件的故障外，我们在流程图上调查了可想象的原因。然而，当传真机切换到记忆接收方式和记忆容量装满不打印的资料时，由于有关软件问题例如“OUT OF PAPER”，可能发生某些故障。在这种情况下，LCD 上显示错误信息 [MEMORY FULL] 及主要原因，例如 LCD 上会显示“CHECK PAPER”。您一旦解决了主要问题，[MEMORY FULL] 将被取消，而接收问题将会得到解决。

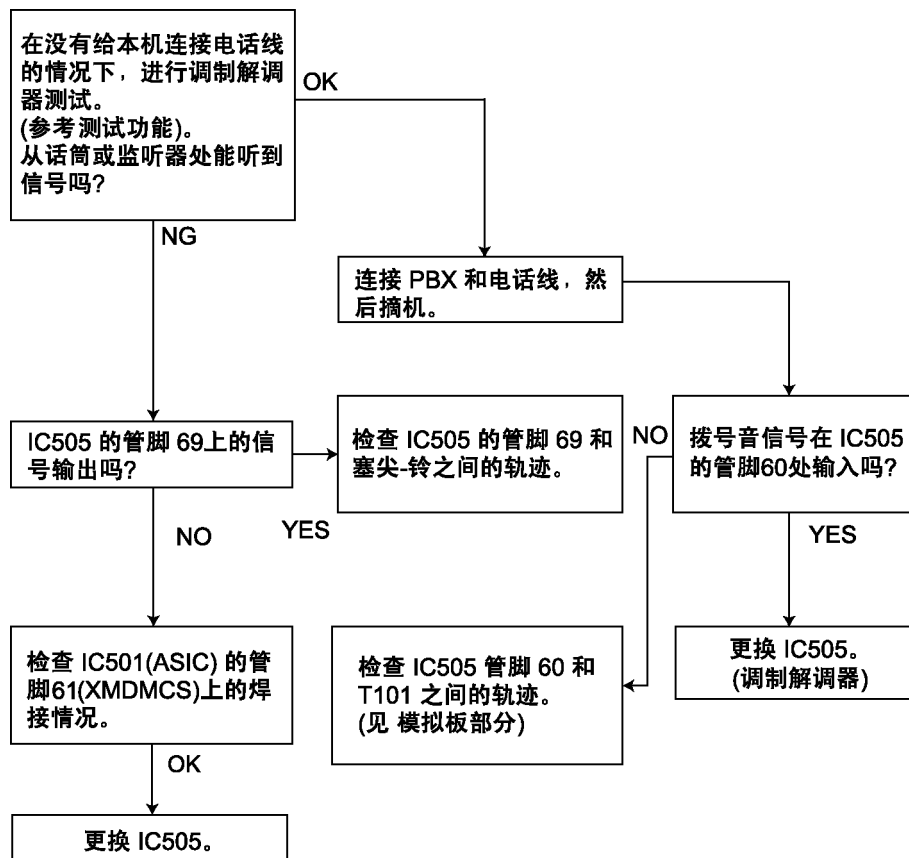
指出故障原因的 LCD 显示信息列出如下。

- CHECK PAPER
- COVER OPEN
- UNIT OVERHEATED (COVER OPEN, etc.)... 使本机复位。
- PAPER JAMMED
- CHECK FILM

关于以上各项，请参考 6.1. 用户可修复的故障（P.56）。

另外，如果实际上出现硬件畸形，请检查每个传感器。（参考 6.3. 测试功能（P.61）。）

6.5.6.1.4. 本机能复印但不能传送接收



相互参考：

- 6.3. 测试功能 (P. 61)
- 6.5.9. 模拟板部分 (P. 110)

6.5.7. 特殊维修日报表

以下显示日报表 2 和日报表 3，这是有关最近 35 次通信提供的补充详细资料的特殊日报表，能用维修代码 881 或 882 打印。还备有供维修技术员用的日报表（日报表，日报表 2 和日报表 3）的遥控打印功能。（参考 6.4.2. 编程方式表（P.65））。日报表仅向您提供通信的基本信息，但其他两个日报表提供有关同一项目（通信）的不同信息。

JOURNAL

Mar. 23 2002 09:51AM

YOUR LOGO :
YOUR FAX NO:

NO.	OTHER FACSIMILE	START TIME	USAGE TIME	MODE	PAGES	RESULT	*CODE
01	3332222	Jan. 21 02:14PM	00'45	SND	01	OK	
02	9998765	Jan. 21 03:17PM	00'58	SND	02	OK	
03	John	Jan. 21 05:18PM	00'48	RCV	01	OK	
04	555556677	Jan. 22 10:35AM	02'45	RCV	03	COMMUNICATION ERROR	(46)

JOURNAL 2

Mar. 23 2002 09:51AM

NO.	(1) RCV. MODE	(2) SPEED (CNT.)	(3) RESOLUTION	(4) RCV-TRIG. (CNT.)	(5) ERROR->MEMORY
01	TEL	9600BPS	STD.		
02	TEL	9600BPS	FINE		
03	FAX ONLY	7200BPS	STD.	FAX MOD	
04	FAX ONLY	9600BPS	STD.	CNG (0003)	

NO RESPONSE DISAPPEARED ON JOURNAL

NO.	START TIME	(1) RCV MODE	(4) RCV-TRIG (CNT.)
YOUR LOGO YOUR FAX NUMBER			

JOURNAL 3

Mar. 23 2002 09:51AM

NO.	(6) ENCODE	(7) MSLT	(8) EQM (RX)	(9) ERROR LINE (RX)	(10) MAKER CODE
01	MH	20msec	0000	00000	79
02	MH	20msec	0000	00000	00
03	MR	20msec	1200	00013	00
04	MR	20msec	0000	00000	00

如何阅读日报表：

- 例：
1. 请看日报表 01 号。如果您想了解有关该项目的详情，参看日报表 2 和日报表 3 中的 01 号，您就能获得以下信息。
 - * 方式：传真发送
 - * 接收方式：电话
 - * 传送速度：9.6 kbps
 - * 清晰度：标准
 - * 编码：MH
 - * 制造商代码：79
 2. 请看日报表 2 中的 04 号，CNG (0003) 表示本机自购买日起已三次收到 CNG 信号。
欲知更详细情况，请参阅 6.5.7.1. 日报表 2（P.94）和 6.5.7.2. 日报表 3（P.95）。

6.5.7.1. 日报表 2

参考 6.5.7.3. 打印举例 (P.96) 中的日报表 2。
日报表 2 显示有关最近 35 次通信的补充详细信息。

说明：

(1) 接收方式

指本机接收传真信息时的接收方式。
当本机传送传真信息时也会显示此情况。

(2) 速度

指通信速度。如果多张纸传送或接收，它表示最后一页的通信速度。如果有通信故障，就显示一个“？”。

(3) 清晰度

指通信清晰度。如果多张传送或接收，它表示最后一页的清晰度。如果有通信故障，就显示一个“？”。

(4) RCV-TRIG. (CNT.)

指使本机转换到传真接收方式的触发器。在 6.5.7.3. 打印举例 (P.96) 的日报表 2 中列出了现有选择。圆括号中的值表示触发器已用了多少次。(例如“0003”指 3 次。)

编号	显示	功能
1	FAX MODE	指本机在传真方式中接收传真信息。
2	MAN RCV	指本机通过人工操作接收传真信息。
3	RMT DTMF	指本机检测遥控输入的 DTMF (遥控传真启动代码)。
4	PAL DTMF	指本机检测由并联电话输入的 DTMF (遥控传真启动代码)。
5	TURN-ON	指本机在振铃 10 响后开始接收 (遥控接通：维修代码 #573)。
6	IDENT	指本机进行振铃检测。

(5) 故障 → 存储器

指本机在存储器中接收传真的信息的原因。

如果您看 6.5.7.3. 打印举例 (P.96) 中的日报表 2 中 11 号，它表示由于“PAPER OUT”，传真信息被接收在存储器里。

NO RESPONSE DISAPPEARED ON JOURNAL

“NO RESPONSE DISAPPEARED ON JOURNAL”显示因“无应答”而中断地约最后 10 次通信的信息。(其中一些因“无应答”而中断的通信不在日报表上显示)。

当传真传送因对方的机器被设定到 TEL 方式而不能进行时，将打印出“无应答”。

6.5.7.2. 日报表 3

参考 6.5.7.3. 打印举例 (P. 96) 中的日报表 3。

说明：

(6) ENCODE 编码

压缩代码：MH/MR/MMR

(7) MSLT

MSLT 指最短扫描线时间，仅在工厂使用。

(8) EQM

EQM 指目视质量监控，仅在工厂使用。

(9) ERROR LINE (RX)

当接收传真时出现故障，这表示故障线数。

(10) MAKER CODE

这表示对方传真机品牌的两位数代码。

0E: "KX" 型

00: 未知

79: "UF" 型

19: "Xerox" 型

6.5.7.3. 打印举例

JOURNAL2

Mar. 25 2002 01:59PM

NO.	RCU. MODE	SPEED (CNT.)	RESOLUTION	RCU-TRIG. (CNT.)	ERROR->MEMORY
01	FAX ONLY	9600BPS	FINE.	FAX MOD	
02	FAX ONLY	9600BPS	STD.	FAX MOD	
03	FAX ONLY	9600BPS	FINE.		
04	FAX ONLY	9600BPS	FINE.	FAX MOD	
05	FAX ONLY	9600BPS	FINE.	FAX MOD	
06	FAX ONLY	9600BPS	FINE.	FAX MOD	
07	FAX ONLY	9600BPS	FINE.		
08	FAX ONLY	9600BPS	FINE.		
09	FAX ONLY	9600BPS	FINE.		
10	FAX ONLY	9600BPS	STD.	FAX MOD	
11	FAX ONLY	9600BPS	FINE.	FAX MOD	PAPER OUT
12	FAX ONLY	9600BPS	STD.	FAX MOD	
13	FAX ONLY	9600BPS	STD.		
14	FAX ONLY	?	?		
15	FAX ONLY	?	?		
16	FAX ONLY	?	?		
17	FAX ONLY	9600BPS	STD.		
18	FAX ONLY	9600BPS	FINE.	FAX MOD	
19	FAX ONLY	9600BPS	STD.	FAX MOD	
20	FAX ONLY	9600BPS	S-FINE.		
21	FAX ONLY	9600BPS	FINE.		
22	FAX ONLY	9600BPS	FINE.	FAX MOD	
23	FAX ONLY	?	?	FAX MOD	
24	FAX ONLY	9600BPS	STD.	FAX MOD	
25	FAX ONLY	9600BPS	STD.	FAX MOD	
26	FAX ONLY	9600BPS	FINE.	FAX MOD	
27	FAX ONLY	9600BPS	FINE.		
28	FAX ONLY	9600BPS	STD.	FAX MOD	
29	FAX ONLY	9600BPS	FINE.	FAX MOD	
30	FAX ONLY	9600BPS	S-FINE.	FAX MOD	
31	FAX ONLY	9600BPS	STD.	FAX MOD	
32	FAX ONLY	9600BPS	STD.	FAX MOD	
33	FAX ONLY	?	?	FAX MOD	
34	FAX ONLY	9600BPS	STD.	FAX MOD	
35	FAX ONLY	9600BPS	STD.	FAX MOD	

NO RESPONSE DISAPPEARED ON JOURNAL

NO.	START TIME	RCU MODE	RCU-TRIG. (CNT.)

JOURNAL3

Mar. 25 2002 01:58PM

NO.	ENCODE	MSLT	EQM(RX)	ERROR LINE(RX)	MAKER CODE
01	MR	10msec	007A	00000	0E
02	MR	20msec	016B	00000	00
03	MH	10msec	0000	00000	00
04	MR	20msec	019B	00003	00
05	MR	20msec	0156	00011	00
06	MR	20msec	0113	00000	00
07	MR	5msec	0000	00000	79
08	MR	5msec	0000	00000	79
09	MR	0msec	0000	00000	19
10	MR	20msec	0100	00000	00
11	MR	10msec	0073	00000	0E
12	MR	20msec	012B	00000	00
13	MH	20msec	0000	00000	79
14	MH	20msec	0000	00000	00
15	MH	20msec	0000	00000	00
16	MH	20msec	0000	00000	00
17	MR	5msec	0000	00000	79
18	MR	10msec	00AB	00004	0E
19	MR	20msec	0124	00000	00
20	MR	20msec	0000	00000	00
21	MR	20msec	0000	00000	00
22	MR	20msec	0135	00000	00
23	MR	20msec	0000	00000	00
24	MR	20msec	01BC	00000	00
25	MR	20msec	01AC	00000	00
26	MR	20msec	020F	00000	00
27	MR	10msec	0000	00000	0E
28	MR	20msec	01DF	00000	00
29	MR	20msec	01EA	00000	00
30	MR	20msec	00CD	00000	00
31	MR	20msec	02F8	00000	0E
32	MR	10msec	04F8	00000	0E
33	MR	10msec	0000	00000	00
34	MR	20msec	03B6	00000	0E
35	MH	20msec	00E0	00000	00

6.5.7.4. 如何输出日报表

1. 按 [目录] 键。
2. 按 [#], 然后 [8] 和 [4].
3. 按 [设定] 键。
4. 打印出报告。

JOURNAL							
				Jan. 20 2002 01:19PM			
				YOUR LOGO :			
				YOUR FAX NO:			
NO.	OTHER FACSIMILE	START TIME	USAGE TIME	MODE	PAGES	RESULT	*CODE
01	2345678	Jan. 20 01:18PM	00'51	SND	00	COMMUNICATION ERROR	(43)

(3) (2) (1)

SND: 直接发送 通信信息 故障代码
RCV: 直接接收
POLL. RCV: 轮询接收

故障代码表：

(1) 代码	(2) 结果	(3) 方式	症状	对策
	PRESSED THE STOP KEY	SND & RCV	通信被 STOP 键中断。	
	DOCUMENT JAMMED	SND	文件纸被卡住。	
	NO DOCUMENT	SND	无文件纸	
	THE COVER WAS OPENED	SND & RCV	机盖打开了。	
40	OTHER FAX NOT RESPONDING	SND	当 T1 TIMER 终止时，传送被停止。	1
41	COMMUNICATION ERROR	SND	在 DCS 传送后，DCS 被接收。	2
42	COMMUNICATION ERROR	SND	在 2400BPS 训练信号传送后，FTT 被接收。	3
43	COMMUNICATION ERROR	SND	留言信息传送三次后仍无应答。	4
44	COMMUNICATION ERROR	SND	RTN 和 PIN 被接收。	5
46	COMMUNICATION ERROR	RCV	在 FTT 传送后无应答。	6
48	COMMUNICATION ERROR	RCV	无留言信息。	7
49	COMMUNICATION ERROR	RCV	RTN 被传送。	8
50	COMMUNICATION ERROR	RCV	PIN 被传送（到 PRI-Q）。	8
51	COMMUNICATION ERROR	RCV	PIN 被传送。	8
52	OTHER FAX NOT RESPONDING	RCV	当 T1TIMER 终止时，接收被停止。	9
54	ERROR-NOT YOUR UNIT	RCV	在 DIS 传送后 DCN 被接收。	11
58	COMMUNICATION ERROR	RCV	在 FTT 传送后 DCN 被接收。	13
59	ERROR-NOT YOUR UNIT	SND	DCN 应答留言信息。	14
64	COMMUNICATION ERROR	POLL. RCV	不能查询。	15
65	COMMUNICATION ERROR	SND	在 DIS 接收前 DCN 被接收。	2
65	COMMUNICATION ERROR	RCV	接收不是 EOP, EOM, PIP, PIN, RTP 或 RTN。	2
68	COMMUNICATION ERROR	RCV	在 MCF 或 CFR 被传送后对方无应答。	13
70	ERROR-NOT YOUR UNIT	RCV	在 CFR 传送后 DCN 被接收。	13
72	COMMUNICATION ERROR	RCV	当图像信号被接收后载波被切断。	16
75	MEMORY FULL	RCV	由于存储器满载，文件未被接收。	
79	CANCELED	SND	多分机传送被用户拒绝。	
FF	COMMUNICATION ERROR	SND & RCV	调制解调器故障。关于 DCN, DCN 等缩写，参考 8.4. 调制解调器部分 (P. 164)。	12

SND= 传送 RCV= 接收

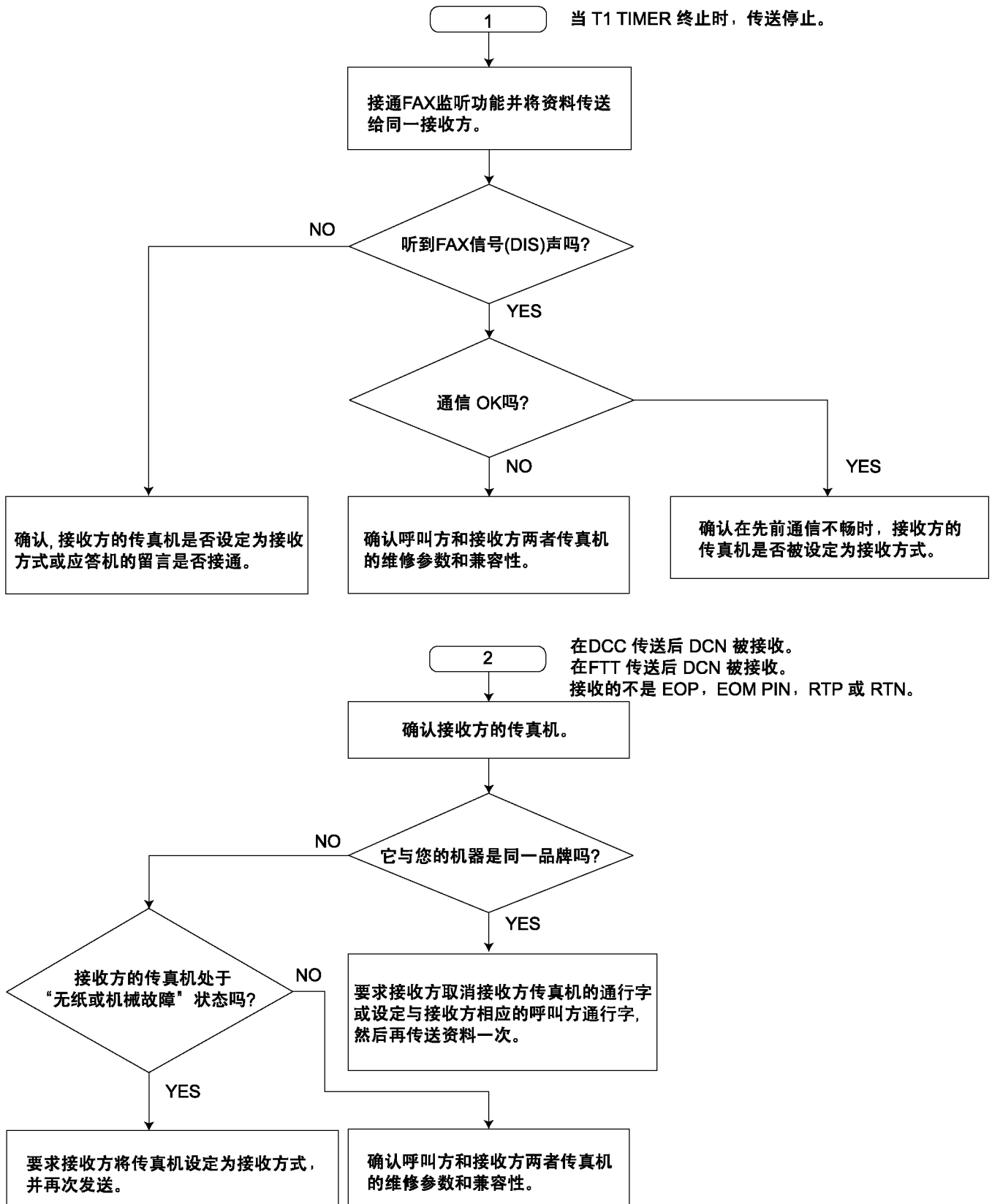
大多数传真通信故障可用以下步骤来解决。

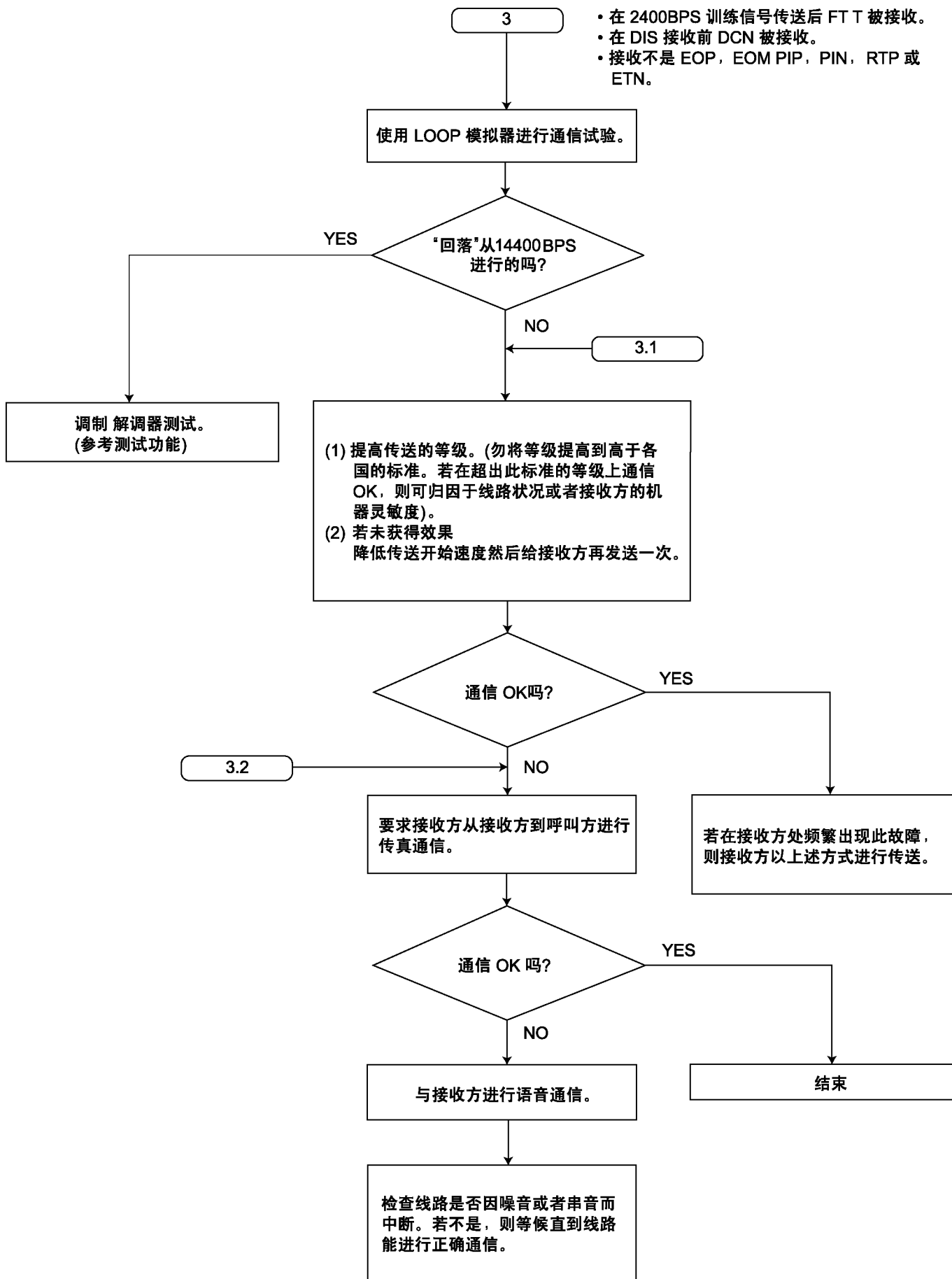
1. 改变传送级。（维修代码：596，参考 6.2.3. 维修功能表 (P. 59)）。
2. 改变传送速度 / 接收速度。（维修代码：717/718，参考 6.2.3. 维修功能表 (P. 59)）。

注*：

如果仍有问题，见“对策”流程图。

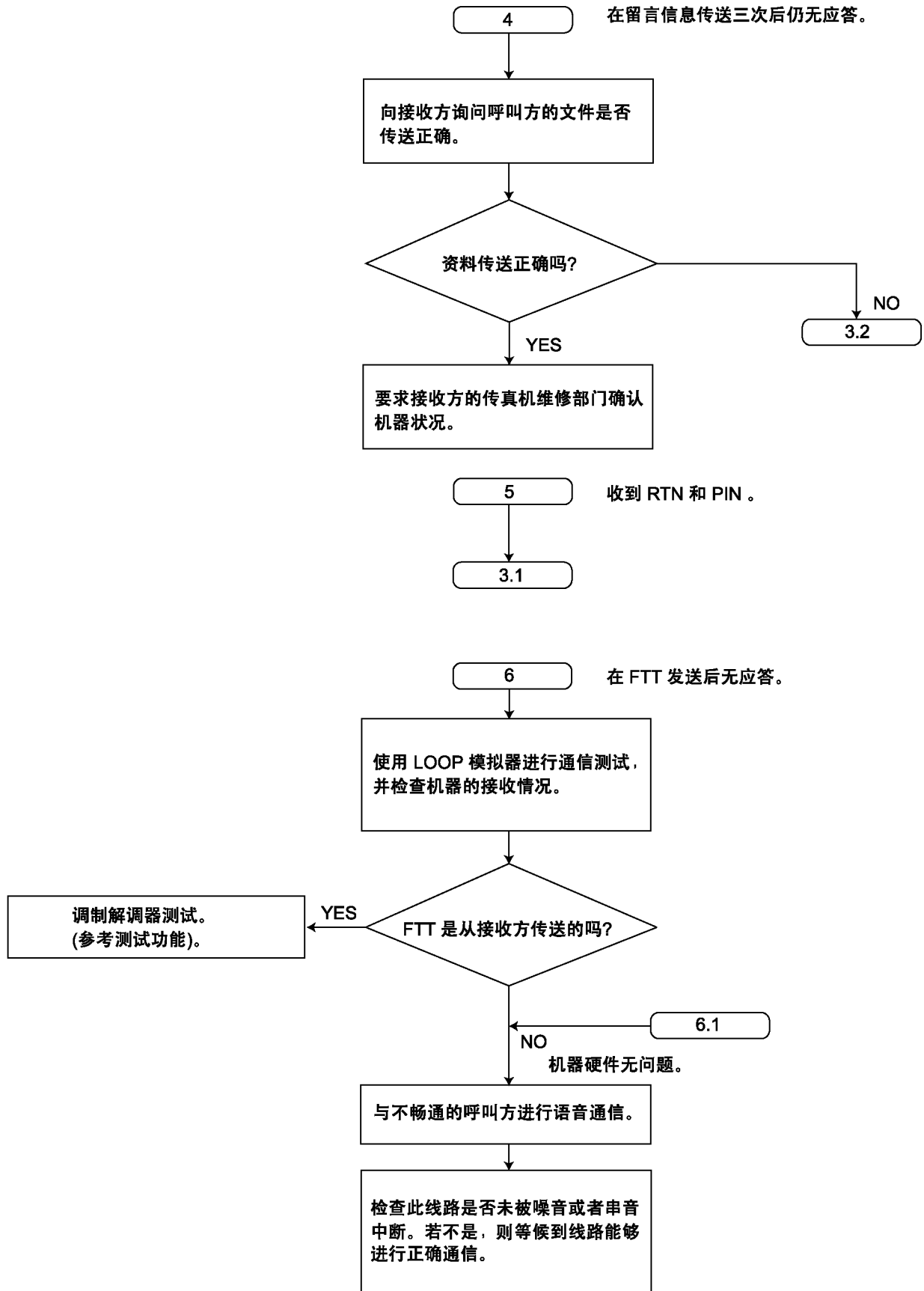
对策



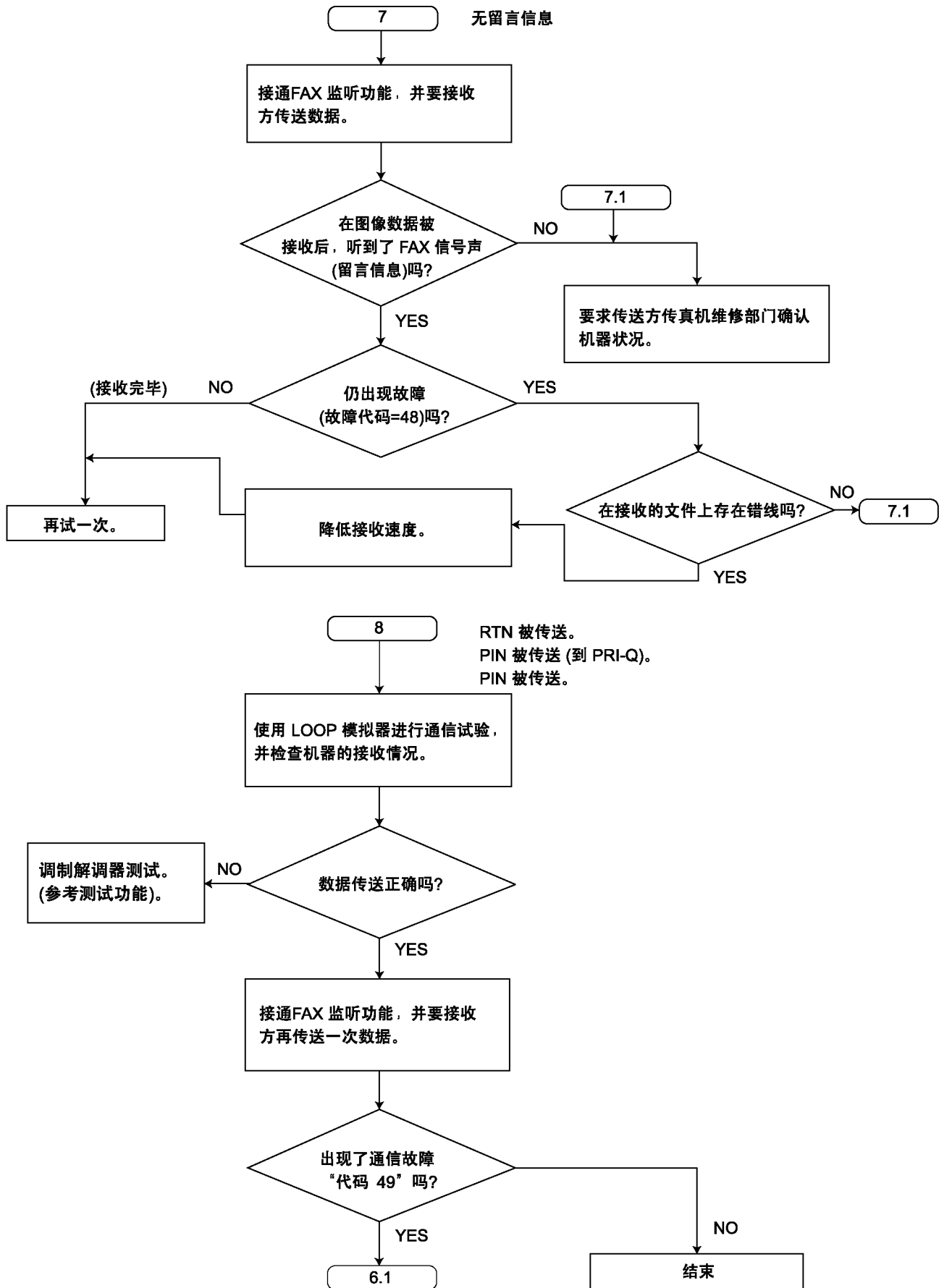


相互参考：

6.3. 测试功能 (P. 61)

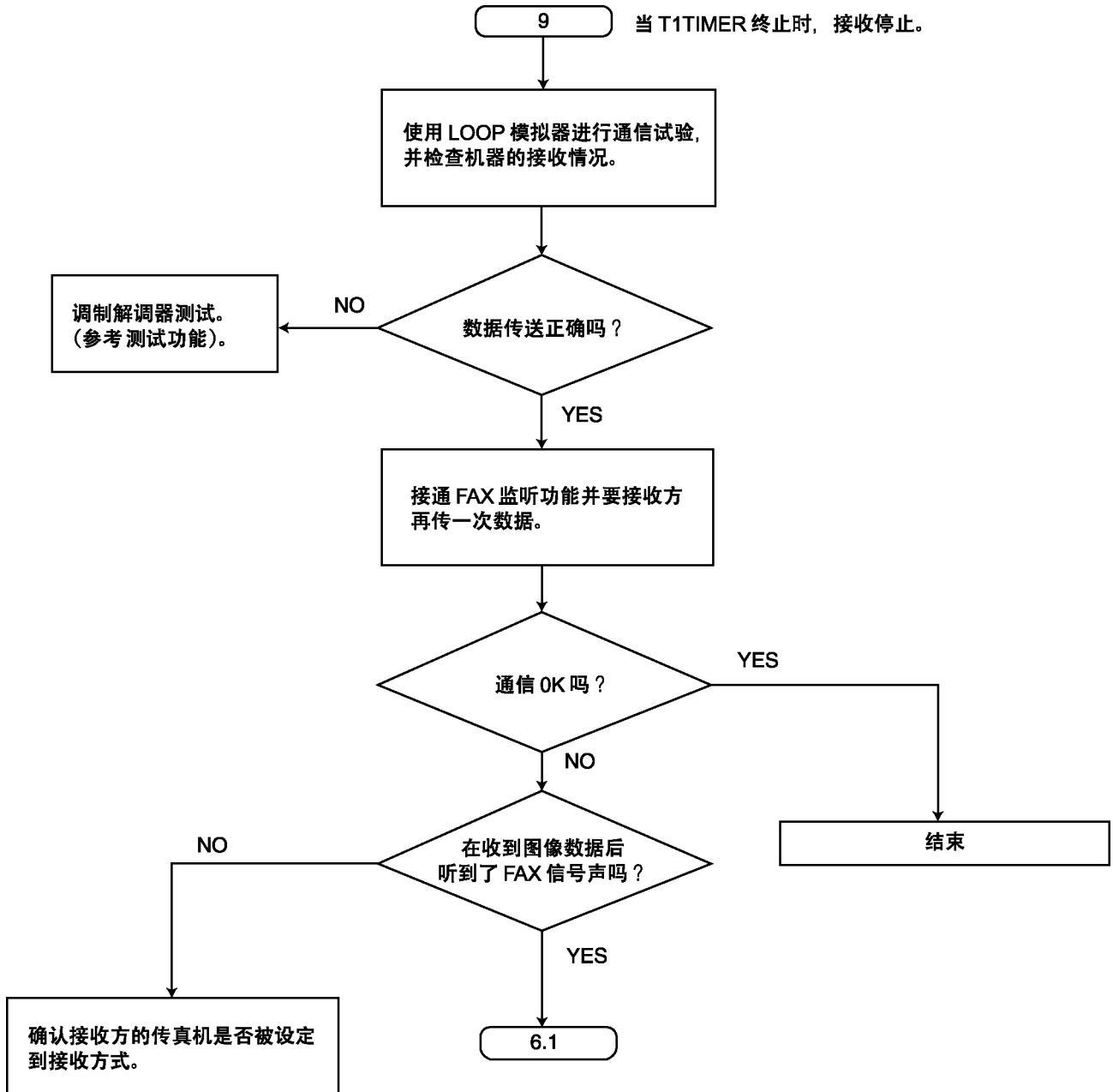


相互参考：
6.3. 测试功能 (P. 61)



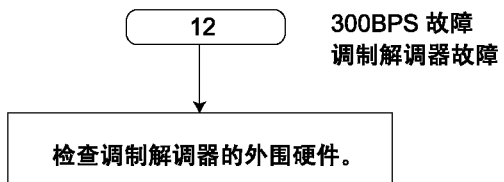
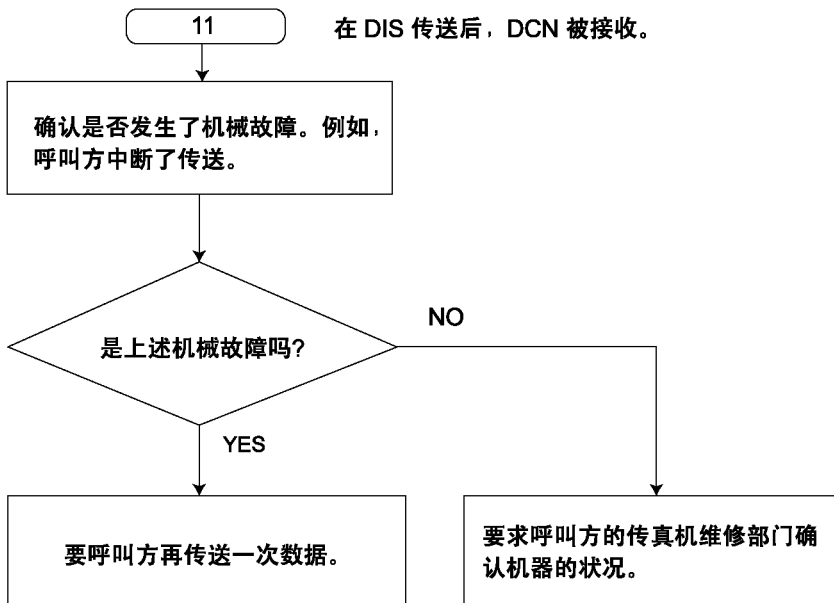
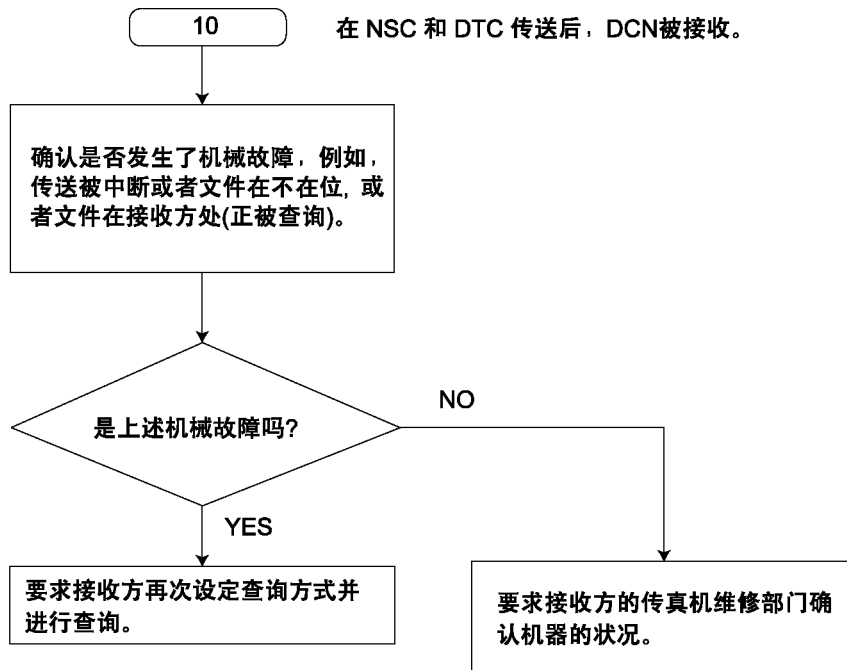
相互参考：

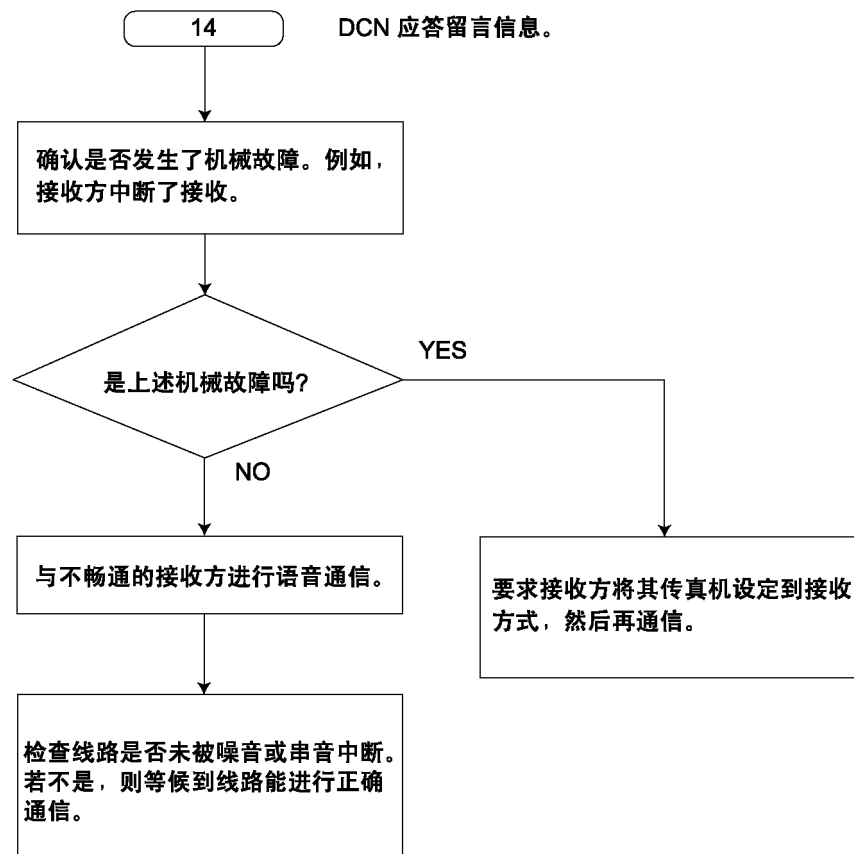
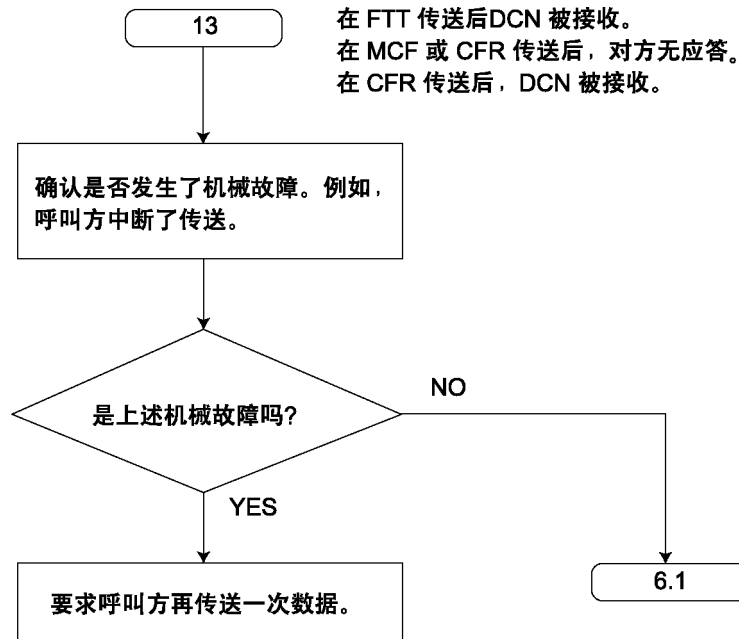
6.3. 测试功能 (P. 61)

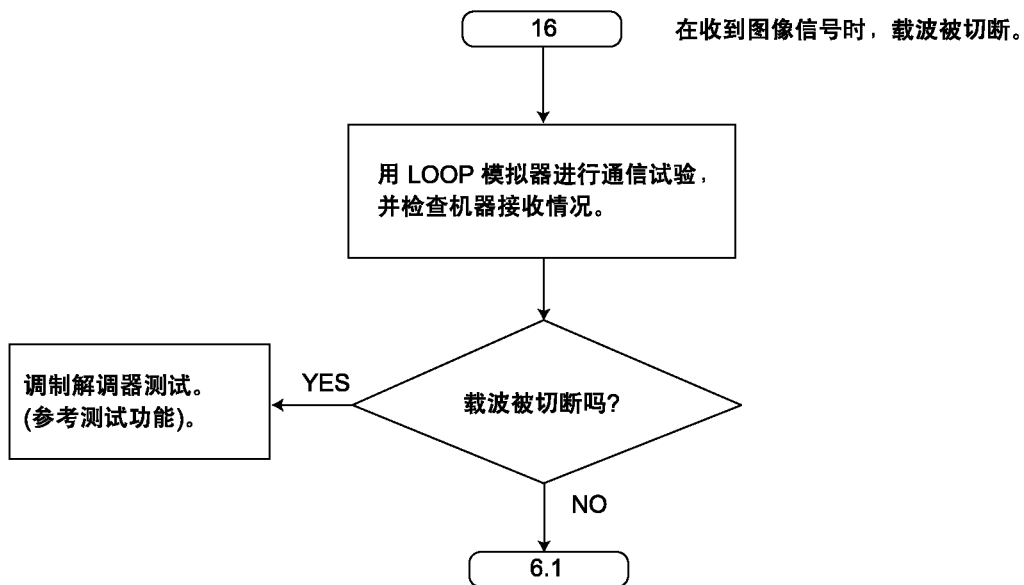
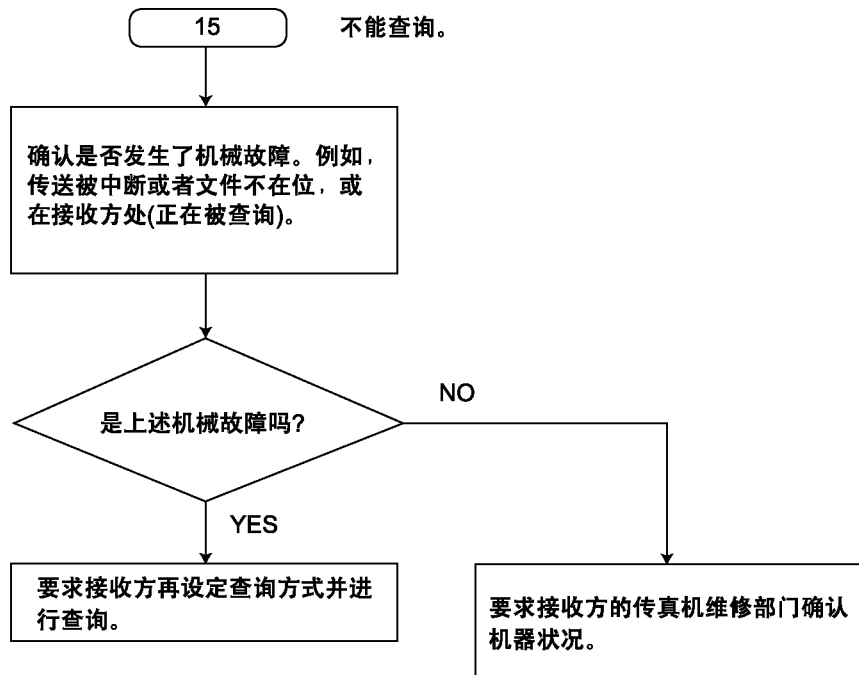


相互参考：

6.3. 测试功能 (P. 61)





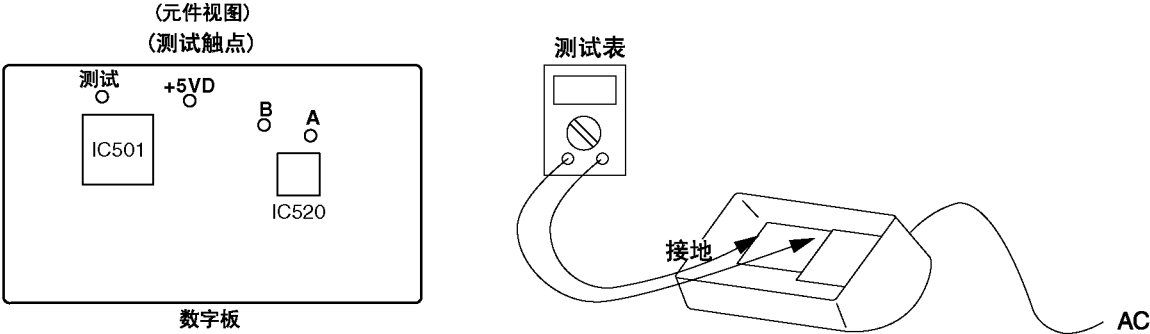


相互参考：

6.3. 测试功能 (P. 61)

6.5.7.5. 检查数字板的状况

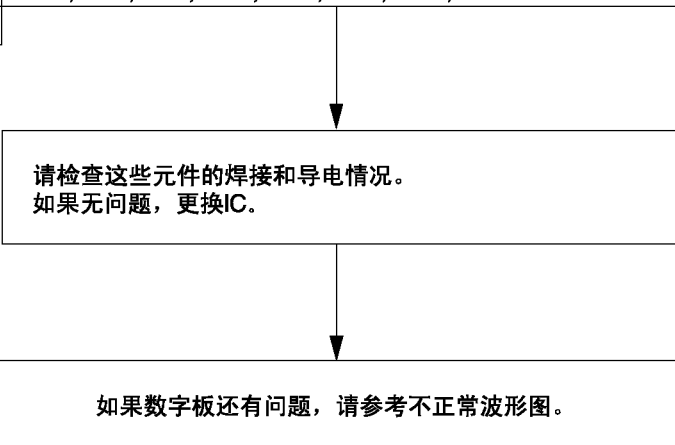
请检查测试触点 A 和 B 的状况。
结果会告诉您有个故障点。



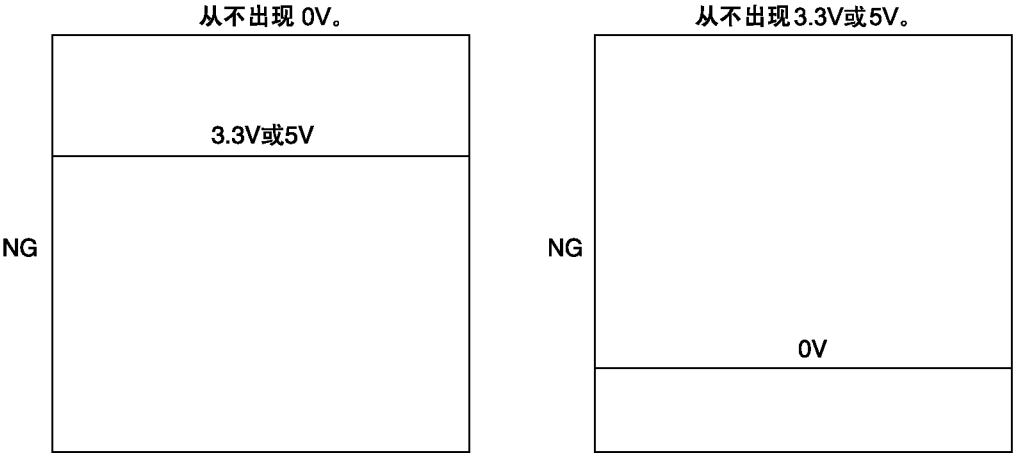
- 切断电源。
- 使用一个诸如镊子的金属物，使测试点和+5V触之间短路，并接通AC电源数秒钟，并取出金属物。
- 使用示波器或测试表检查以下电压。
- 若要取消状态检查方式，切断AC电源。

故障点	检查点电压		检查项目
	A	B	
RTC (IC501)	0V	0V	IC501(IC501 中包括 RTC)
DRAM (IC503)	0V	5V	IC503(管脚 8,23),R549,R551,IC501(管脚62,63),L507,RA509,RA510
MODEM (IC505)	5V	0V	IC501(管脚 61), IC505(管脚 90~92),RA506,RA511,L510,L515,L519,L520,R564,C553,C554,Q525,Q526
ALL OK	5V	5V	

- 这表示地址/数据总线， RAM， ROM， MODEM和 ASIC 都正确地连接到 ASIC， 并且能从 ASIC 进行控制。

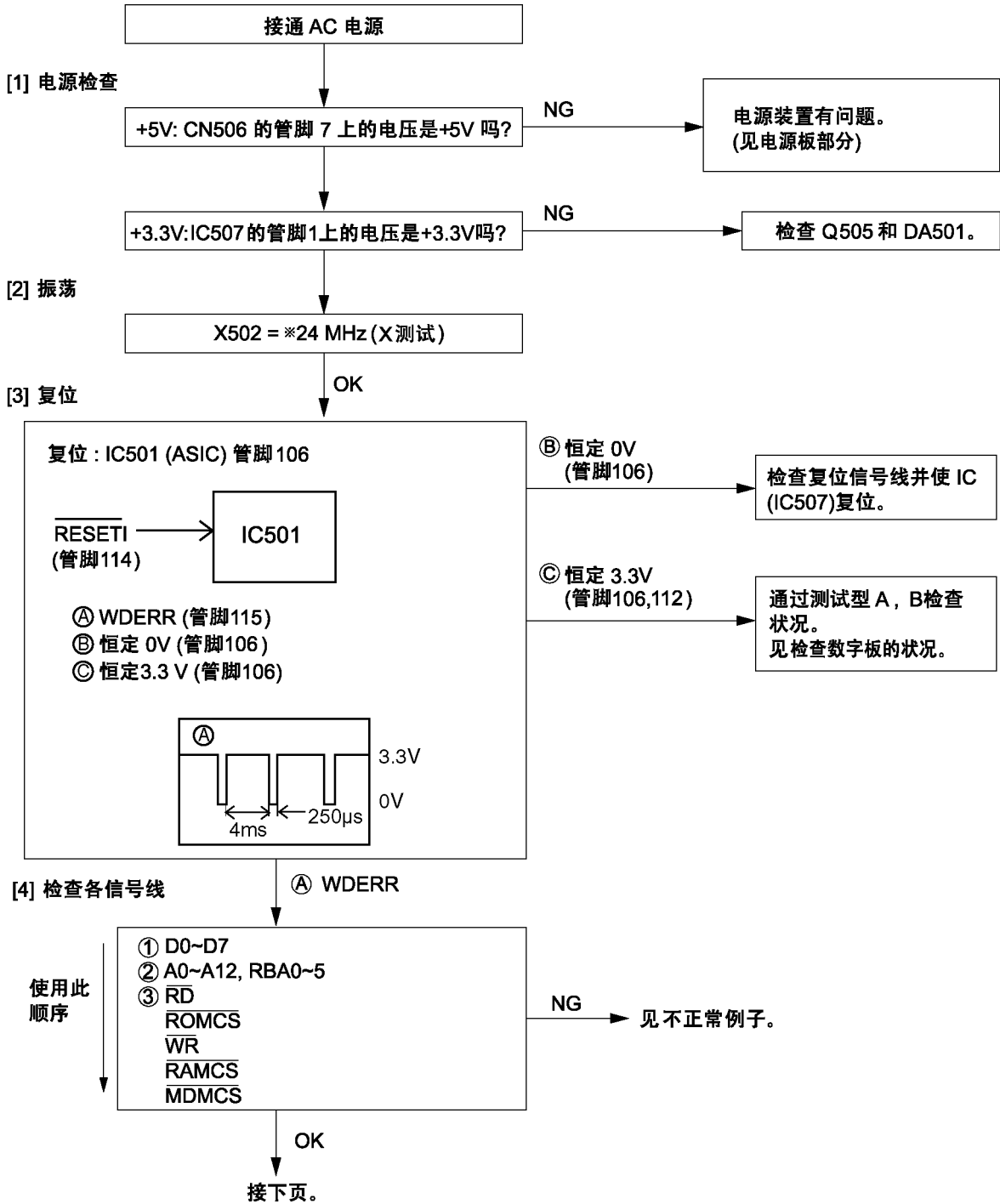


不正常波形图



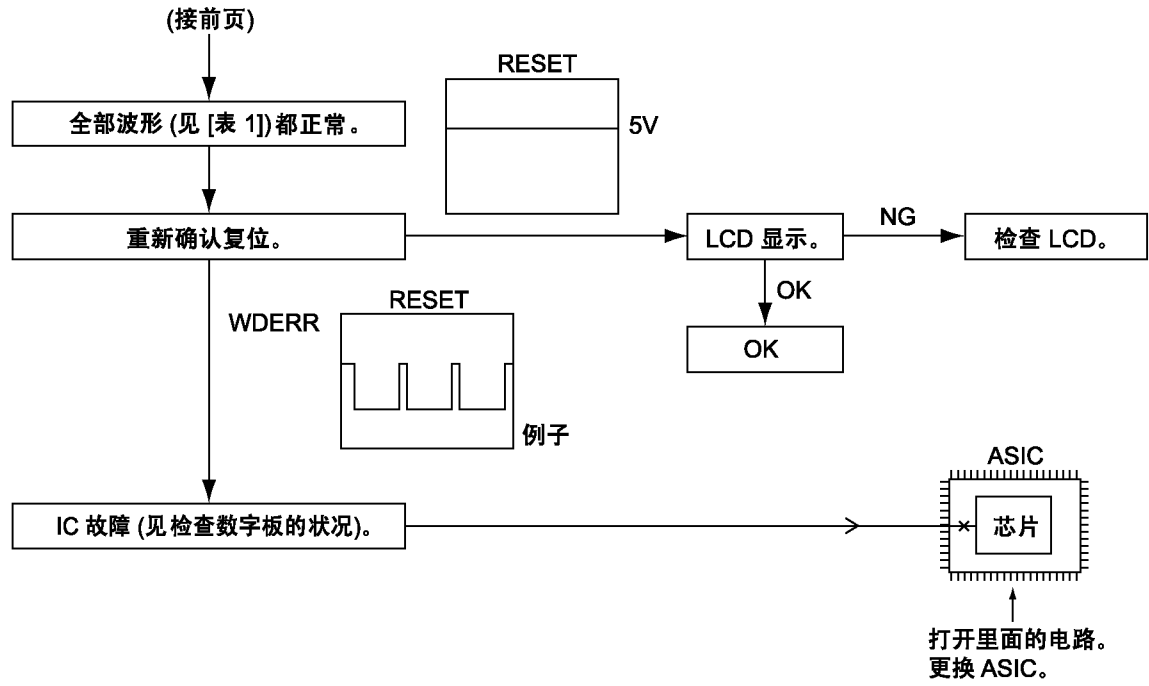
6.5.8. 初始化错误

电源接通后，ASIC 启动并检查每个 IC。
 检查 ROM，DRAM 和调制解调器。
 如果 IC 启动失败，系统也不能启动。
 此时，请查找以下原因。



相互参考：

- 6.5.7.5. 检查数字板的状况 (P. 107)
- 6.5.15. 电源板部分 (P. 121)
- 8.3.1. 不正常例子 (P. 163)



相互参考：

6.5.7.5. 检查数字板的状况 (P. 107)。

6.5.9. 模拟板部分

本章介绍模拟部件的测试工序。待测的信号路径依目的而定。例如话筒传送路径从话筒麦克风开始，信号被输出到电话线上。在此路径上流动的信号主要是模拟的。使用一台示波器就能跟踪信号。在每个路径上流动的信号如下列的检查表所示。如果您发现本机的具体问题，例如，如果您不能用 H/S 通信，就可用下面的检查表跟踪当地的信号路径并给故障定位。

6.5.9.1. 检查表

(SYMPTOM) ITEMS TO CHECK		signal IN → ROUTE → OUT
MONITOR		TEL LINE — T102 — C112 — R112 — IC101(2-1) — CN101(4) — {CN511(4) — IC509(9-8) — L550 — C570 — R575 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — C642 — R648 — IC519(4-5,8) — CN510(1,2)} — SPEAKER
Handset TX		HS MIC — CN104(4) — L110 — C139 — R139 — IC101(6) — IC101(7) — J107 — CN101(6) — {CN511(6) — R593 — C586 — R594 — C581 — R583 — IC511(2-1) — L559 — CN511(5)} — CN101(5) — C125 — R121 — R120 — T102 — TEL LINE
Handset RX		TEL LINE — T102 — C112 — R112 — IC101(2-1) — CN101(4) — {CN511(4) — IC509(9-8) — L550 — C570 — R575 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — R584 — C576 — IC509(4-3) — CN511(7)} — CN101(7) — J124 — R134 — Q103(Base-Emitter) — C132 — R149 — L108 — CN104(3) — HS SP
FAX TX DTMF for TEL Line		{IC505(69) — IC509(1-2) — L553 — C571 — R579 — IC511(2-1) — L559 — CN511(5)} — CN101(5) — C125 — R121 — R120 — T102 — TEL LINE
FAX RX		TEL LINE — T102 — C112 — R112 — IC101(2-1) — CN101(4) — {CN511(4) — C573 — R576 — IC505(60)}
DTMF MONITOR	HS	{IC505(72) — L551 — C567 — R571 — Q508(Base-Collector) — C601 — R566 — IC501(32-31) — C579 — R587 — IC511(6-7) — R584 — C576 — IC509(4-3) — CN511(7)} — CN101(7) — J124 — R134 — Q103 (Base-Emitter) — C132 — R149 — L108 — CN104(3) — HS SP
	SP	{IC505(72) — C567 — R571 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — C642 — R648 — IC519(4-5,8) — CN510(1,2)} —
CNG / DTMF / VOX Detection		TEL LINE — T102 — R120 — J106 — C113 — Q101(Collector-Emitter) — C114 — R114 — IC101(2-1) — CN101(4) — {CN511(4) — C573 — R576 — IC505(60)}
Ringing / Alarm / Beep / Key Tones		{IC501(29) — R568 — Q511(Emitter-Collector) — L552 — C568 — R572 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — C642 — R648 — IC519(4-5,8) — CN510(1,2)} — SPEAKER

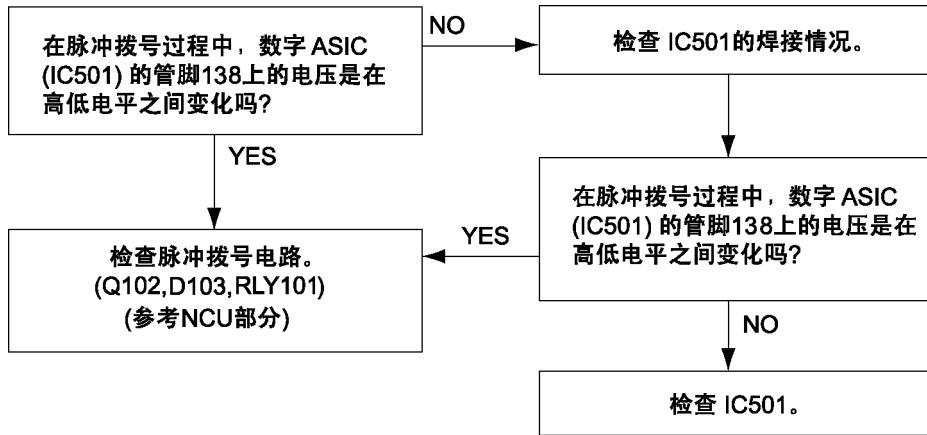
注：
{ }：在数字板内

6.5.9.2. 故障 ITS（综合电话系统）部分

1. 话筒和监听器不发送 / 不接收

在 ITS 或 NCU 部分进行信号测试，并且在话筒麦克风和电话线（传送）之间，或者在电话线和话筒扬声器（接收）之间，或者在麦克风和电话线（发送）之间，或者在电话线和扬声器（接收）之间，查找每一条路径上的故障点（信号消失之处）。检查该点上的元件。6.5.9.1. 检查表 (P. 110) 会对此检查有用。

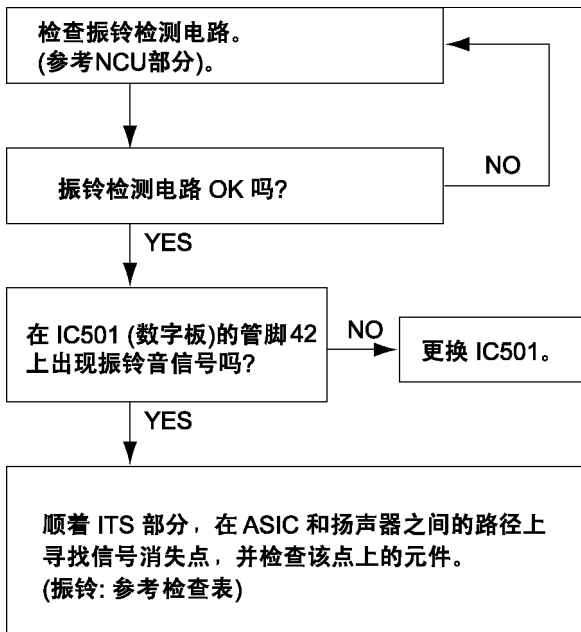
2. 无脉冲拨号



相互参考：

8.5.NCU 部分 (P. 170)

3. 无振铃音（或无铃声）

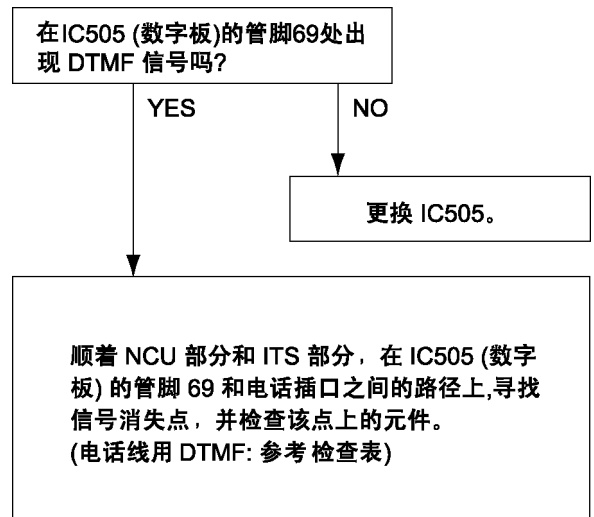


相互参考：

6.5.9.1. 检查表 (P. 110)

8.5.NCU 部分 (P. 170)

4. 无音频拨号音



相互参考：

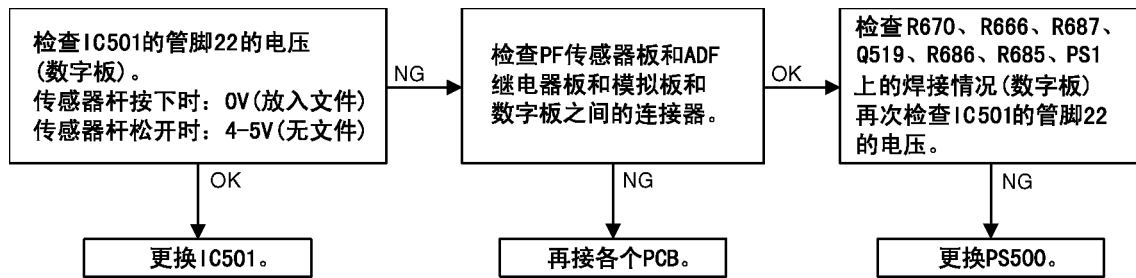
6.5.9.1. 检查表 (P. 110)

6.5.11. 传感器部分

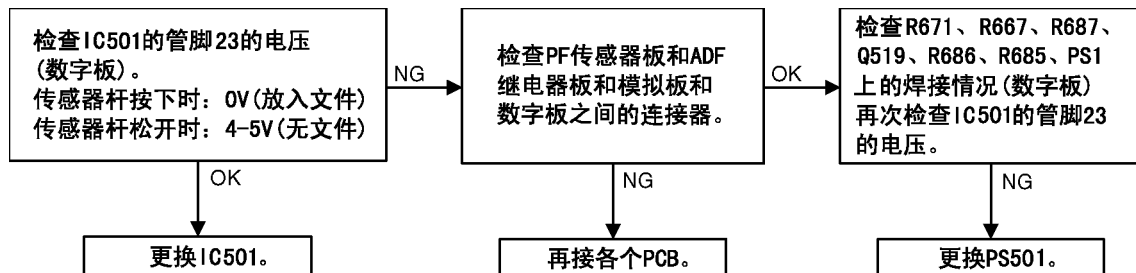
参考 7.6. 传感器和开关 (P. 145)。

进行传感器检查以确定传感器是否操作正常。

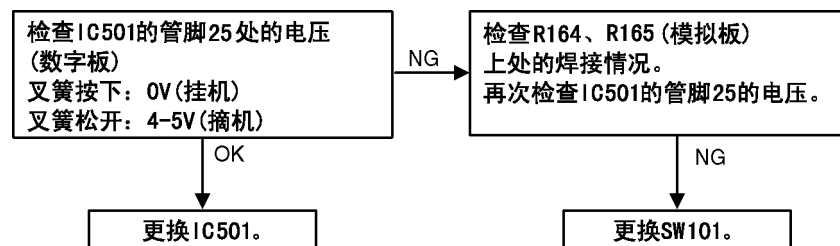
1. 检查文件传感器…… “CHECK DOCUMENT”



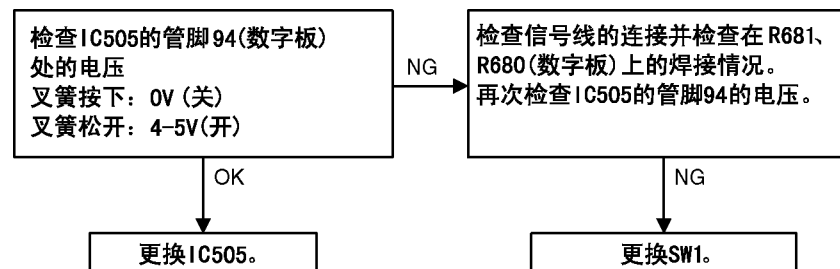
2. 检查纸输送传感器…… “REMOVE DOCUMENT”



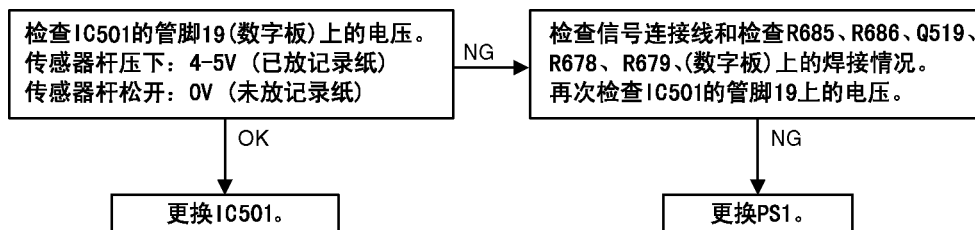
3. 检查叉簧



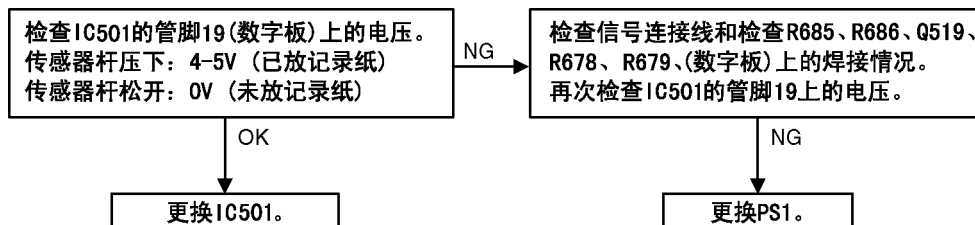
4. 检查开盖开关…… “COVER OPEN”



5. 检查纸传感器…… “OUT OF PAPER”



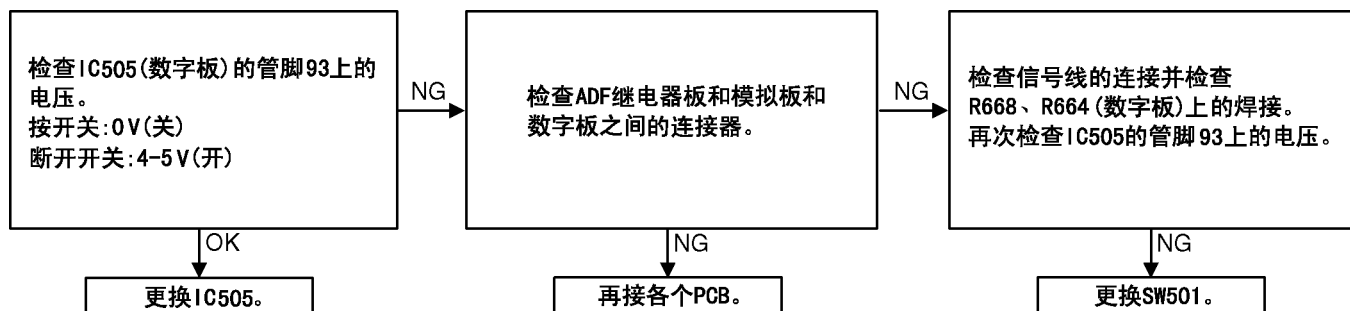
6. 检查纸传感器…… “PAPER JAMED”



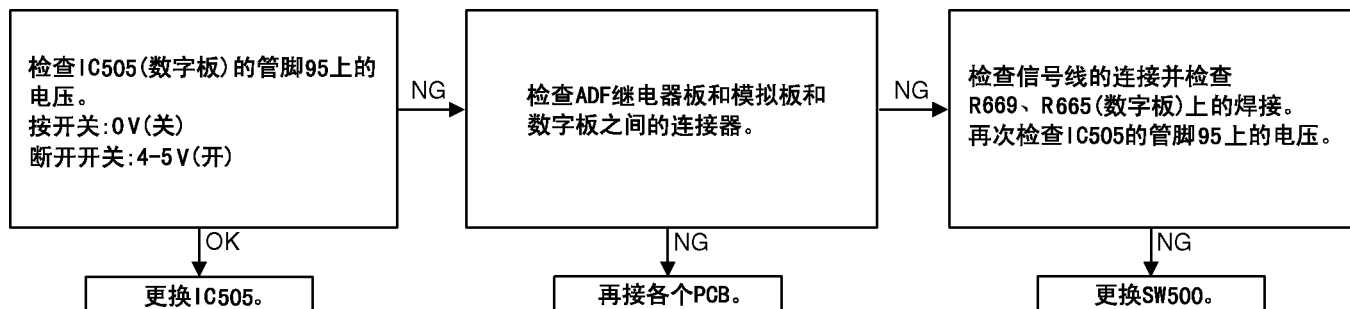
7. 检查印字薄膜传感器…… “CHECK FILM TYPE” 或 “CHECK FILM SLACK”

更换 SW401。

8. 检查 ADF 开盖开关



9. 检查 FB 盖开的启开关



10. 检查 CIS 位置传感器 (ADF 内侧)

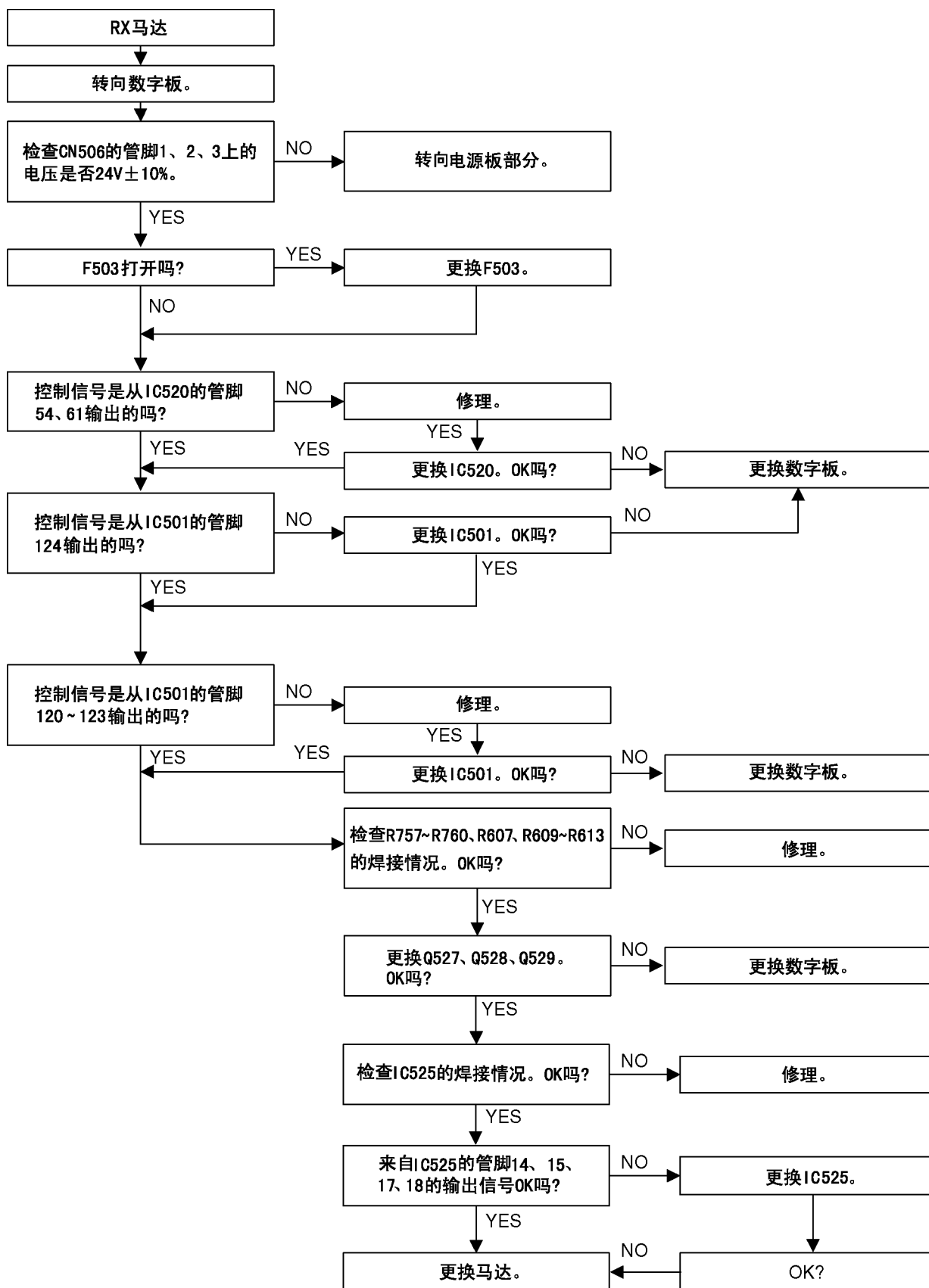


11. 检查 CIS 位置传感器 (FB 内侧)



6. 5. 12. 马达部分

6. 5. 12. 1. RX 马达

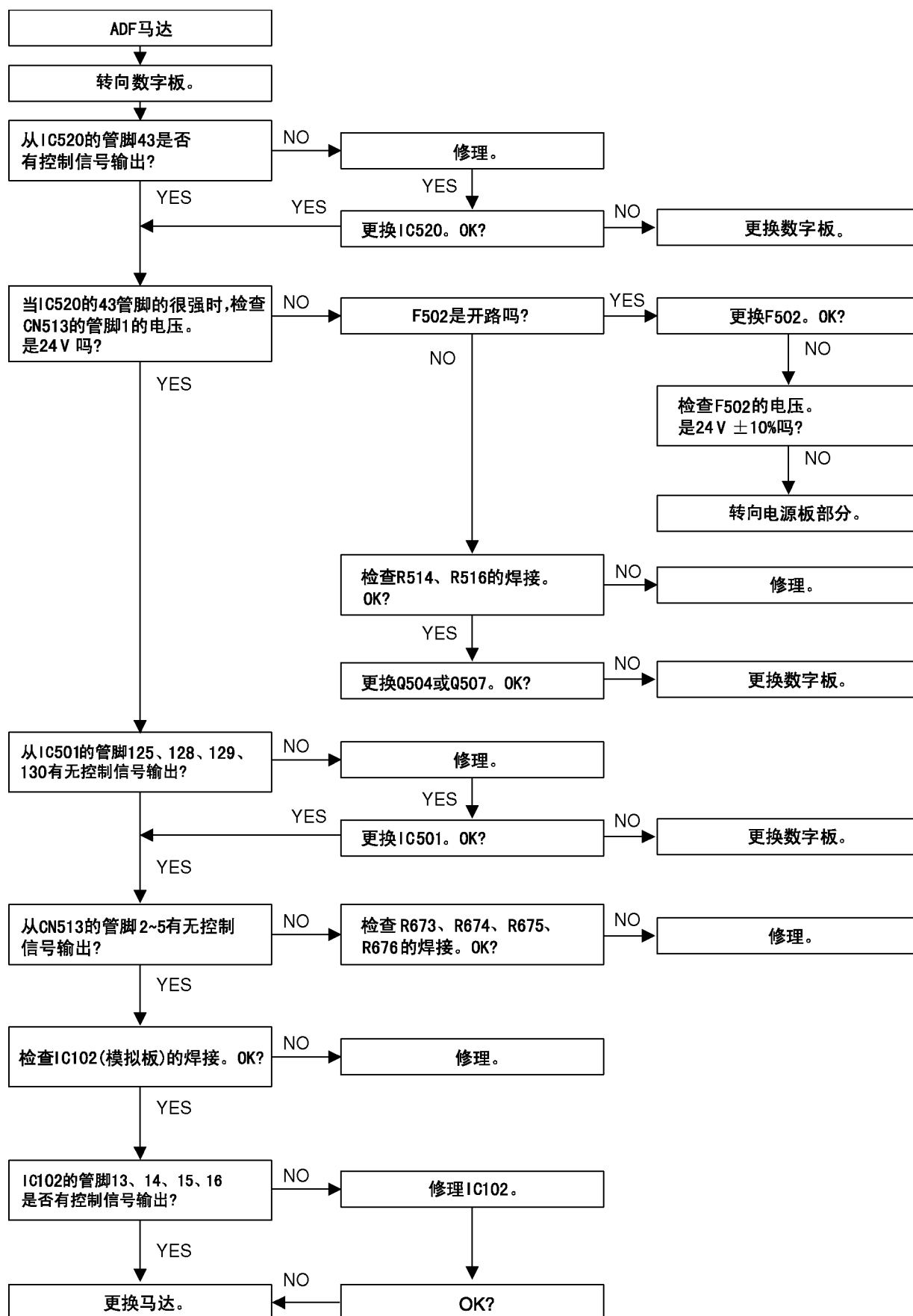


相互参考：

5. 2. 6. 如何卸下压纸滚筒，锁杆和扬声器 (P. 41)

6. 5. 15. 电源板部分 (P. 121)

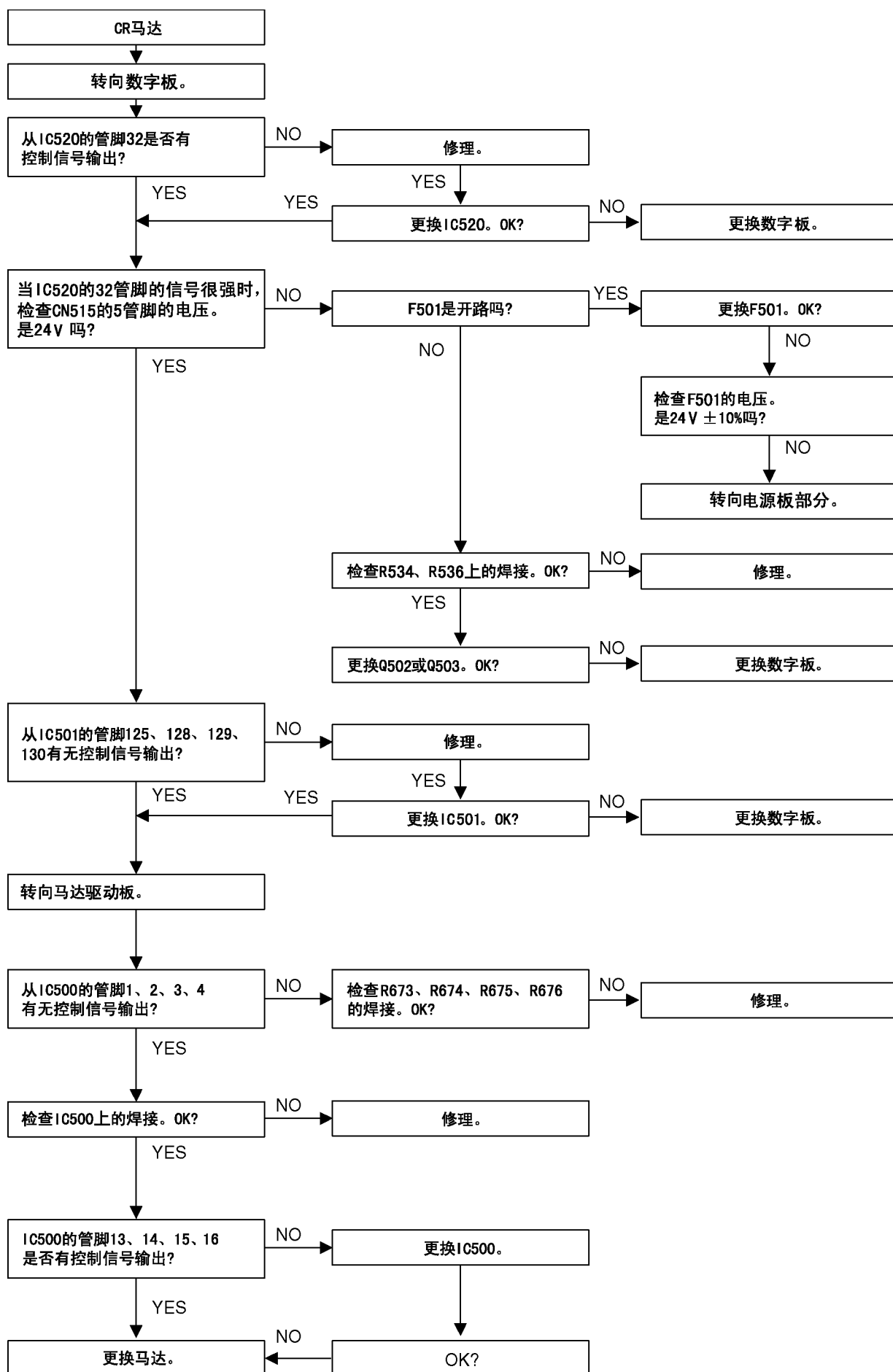
6.5.12.2. ADF 马达



相互参考：

6.5.15. 电源板部分 (P. 121)

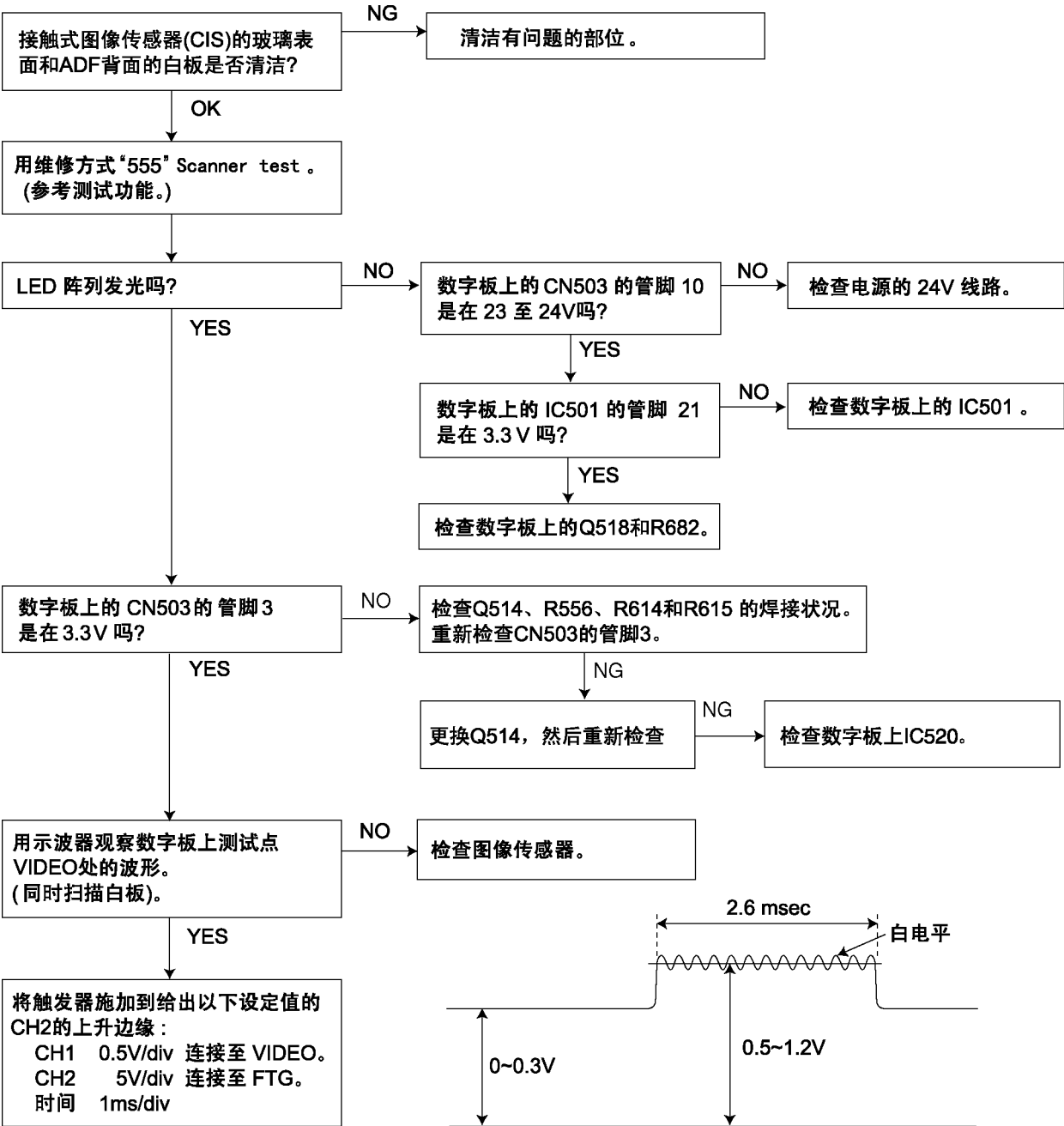
6.5.12.3. CR 马达



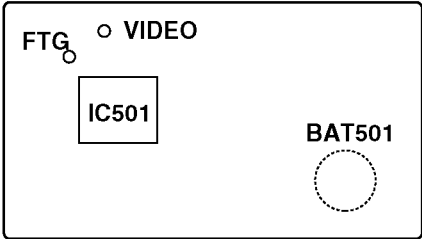
相互参考：

6.5.15. 电源板部分 (P. 121)

6.5.13. CIS（接触式图像传感器）部分

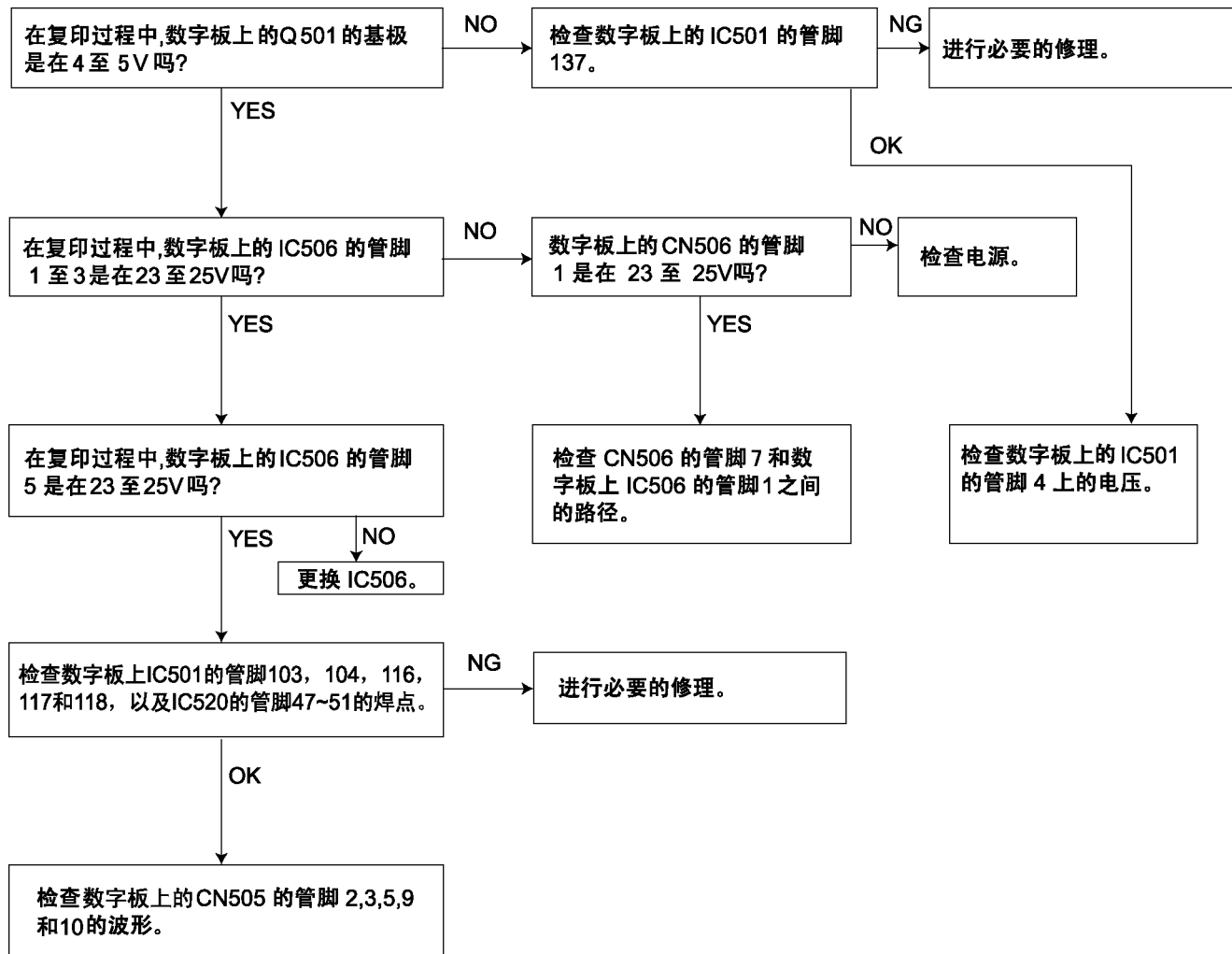


数字板
(元件视图)



相互参考：
6.3. 测试功能 (P. 61)

6.5.14. 热敏头部分



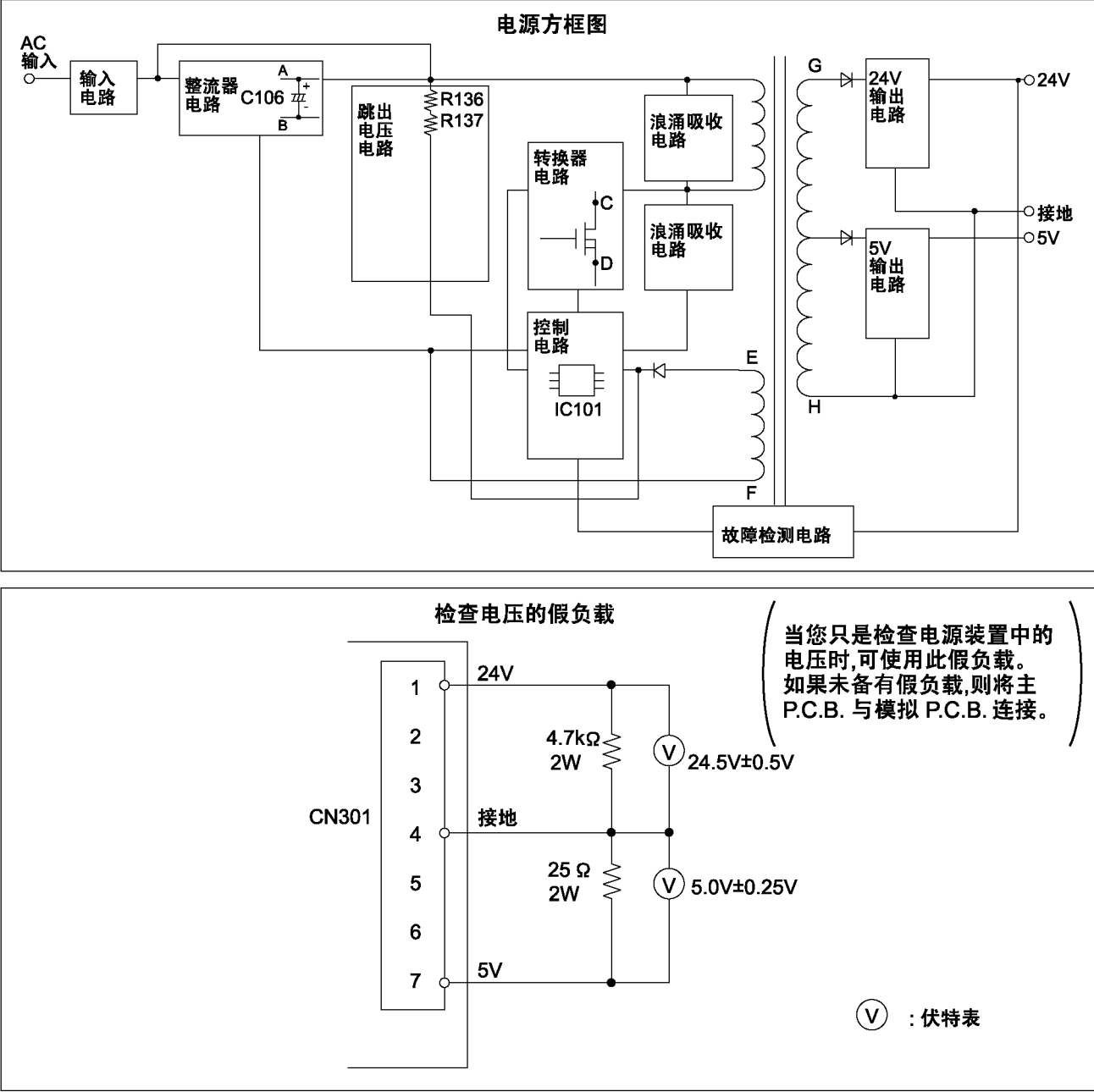
6.5.15. 电源板部分

6.5.15.1. 故障检修的主要元件

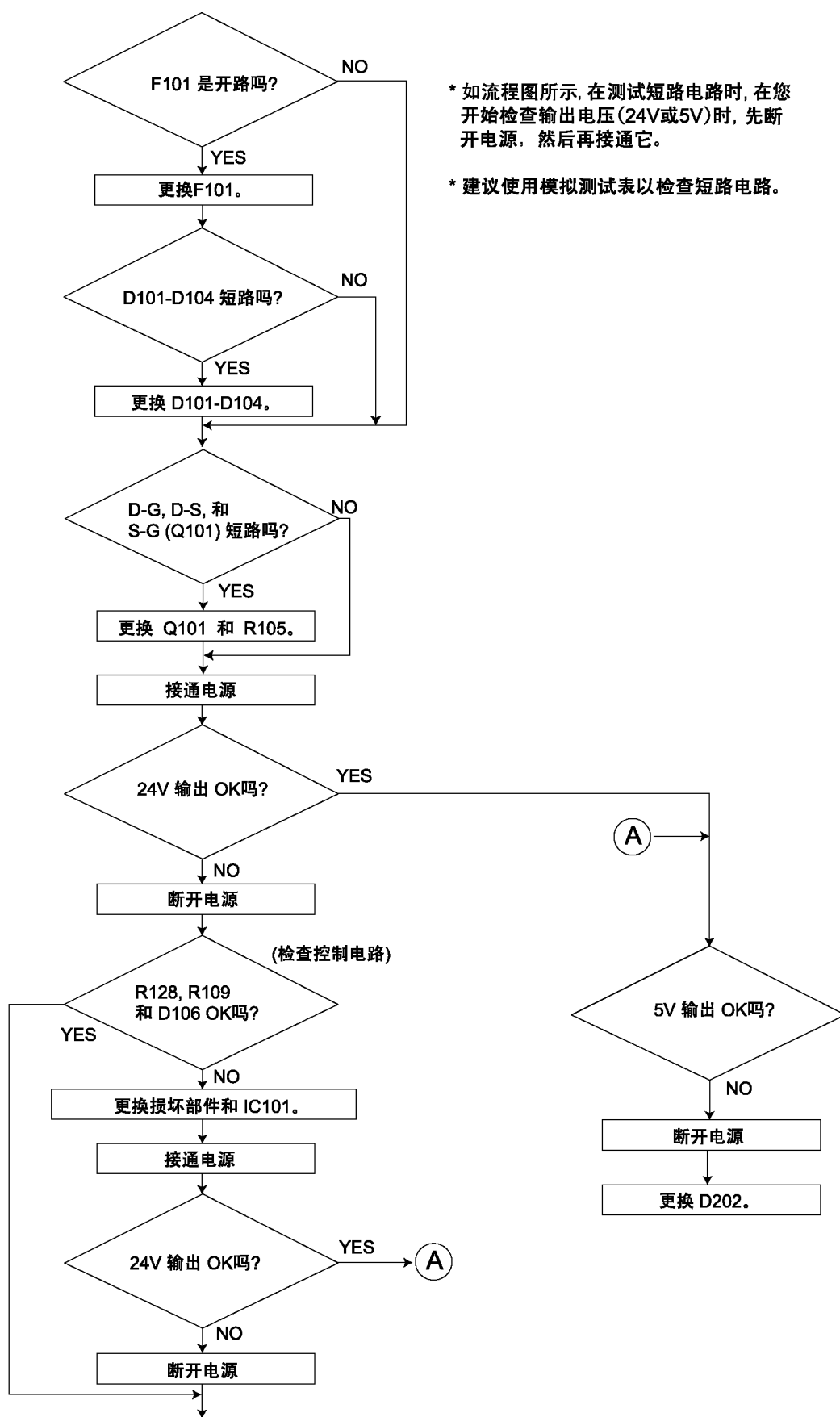
首先检查以下部件：F101， D101-D104， C106， Q101， PC101 和 C101。
这是根据我们的试验性测试的经验。例如：电源和照明浪涌电压测试、耐压测试、故意短路测试等。

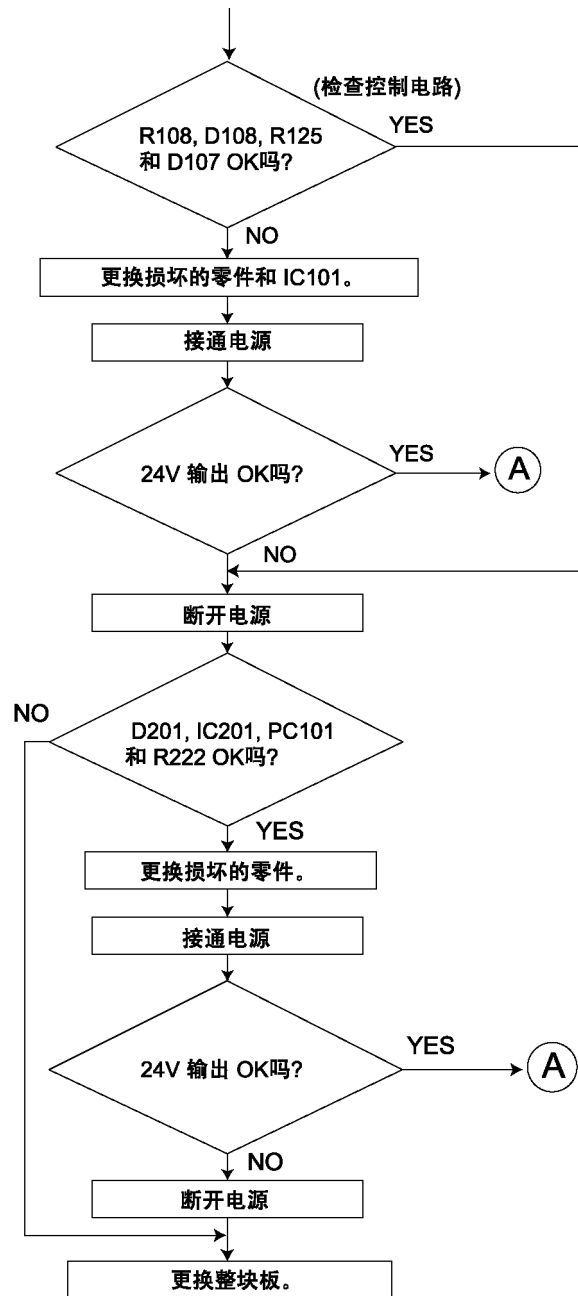
注意：
如果您发现本机器中的保险丝熔断，在找到和修理故障零件（保险丝除外）之前，切勿接通电源；否则保险丝会再次熔断，而您也难以确认故障点。

在大多数情况下，症状是毫无输出，故障在初级侧比在次级侧的可能性大，所以先检查初级侧。



6. 5. 15. 2. 故障检修流程图





6. 5. 15. 3. 修理损坏部件的详细说明

(D101, D102, D103, D104)

检查终端 4 的短路情况。如果 D101, D102, D103 和 D104 短路, F101 就会熔断 (开路)。在此情况下, 更换全部零件 (D101, D102, D103, D104, F101)。

(Q101)

Q101 的最严重情况是漏极和门之间的短路, 因为损坏会扩大到 Q101 的外围电路。这是由于极高电压通过由 R128, R109, D106 和 IC101 组成的门电路致。

您应更换下面所列的全部零件。

F101, Q101, R128, R109, D106, IC101

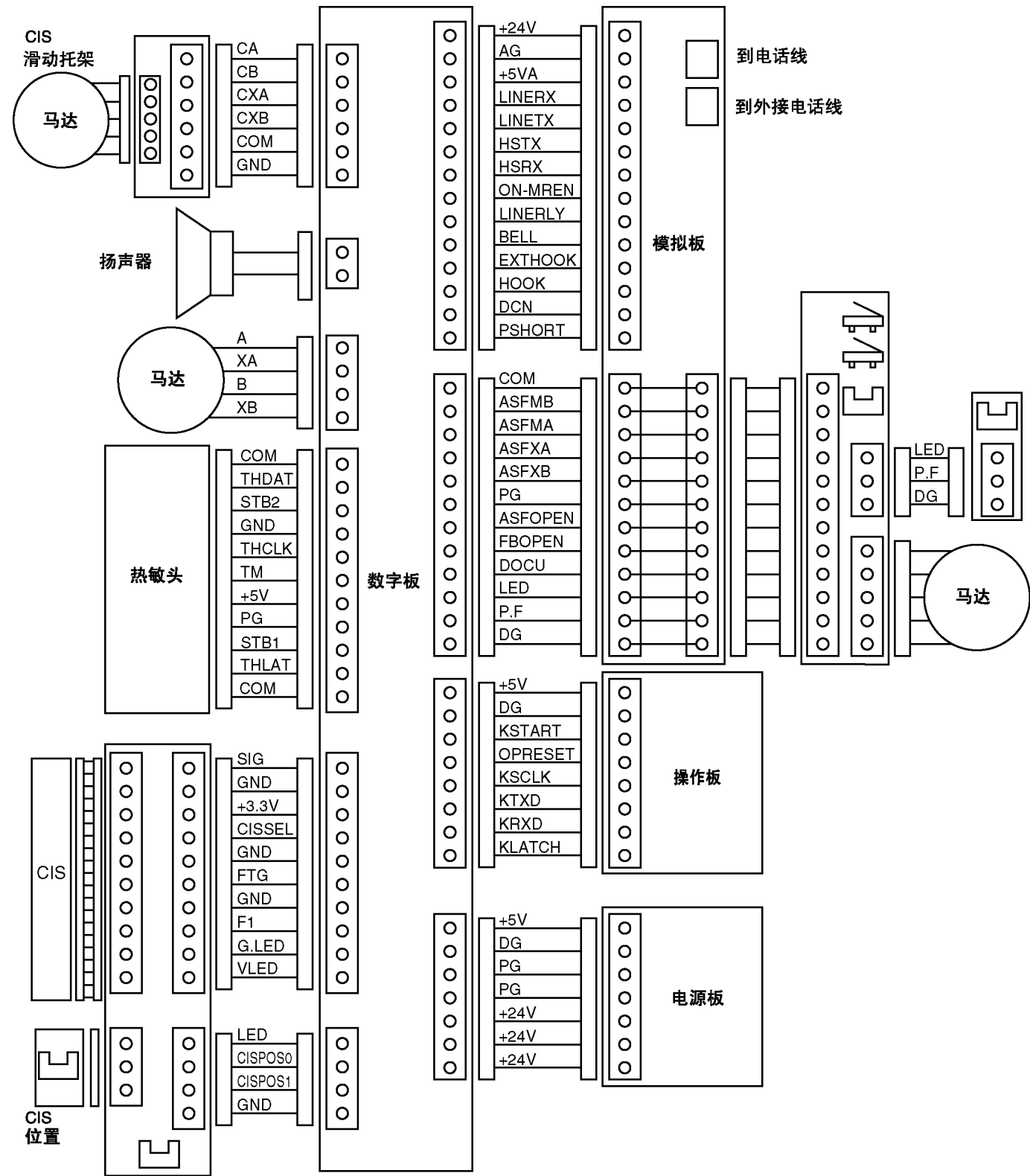
(D201)

如果 D201 损坏, 电源中的振荡电路不能工作。请用电表检查它。

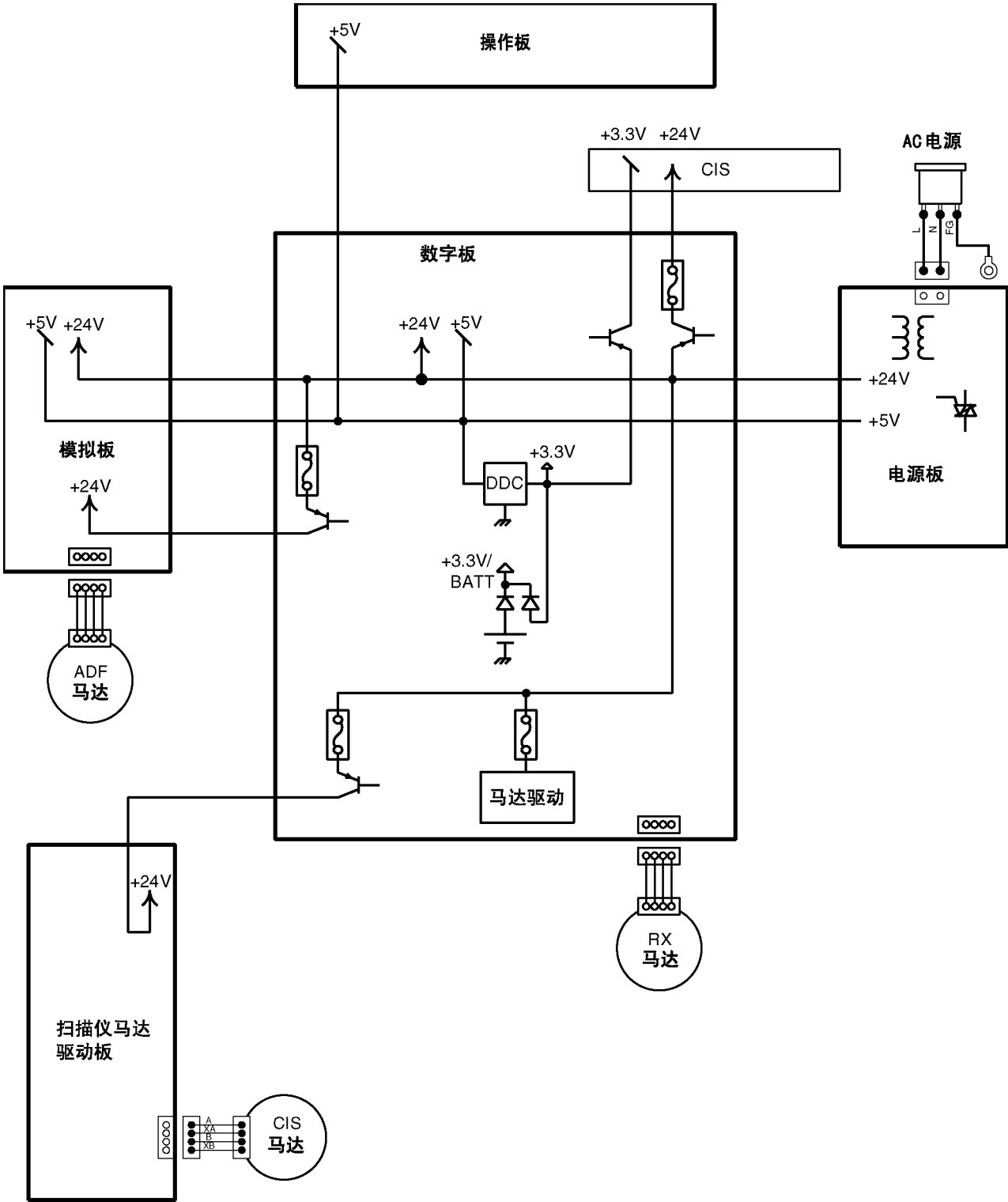
7 电路操作

7.1. 接线图

7.1.1. 接线图 (1)



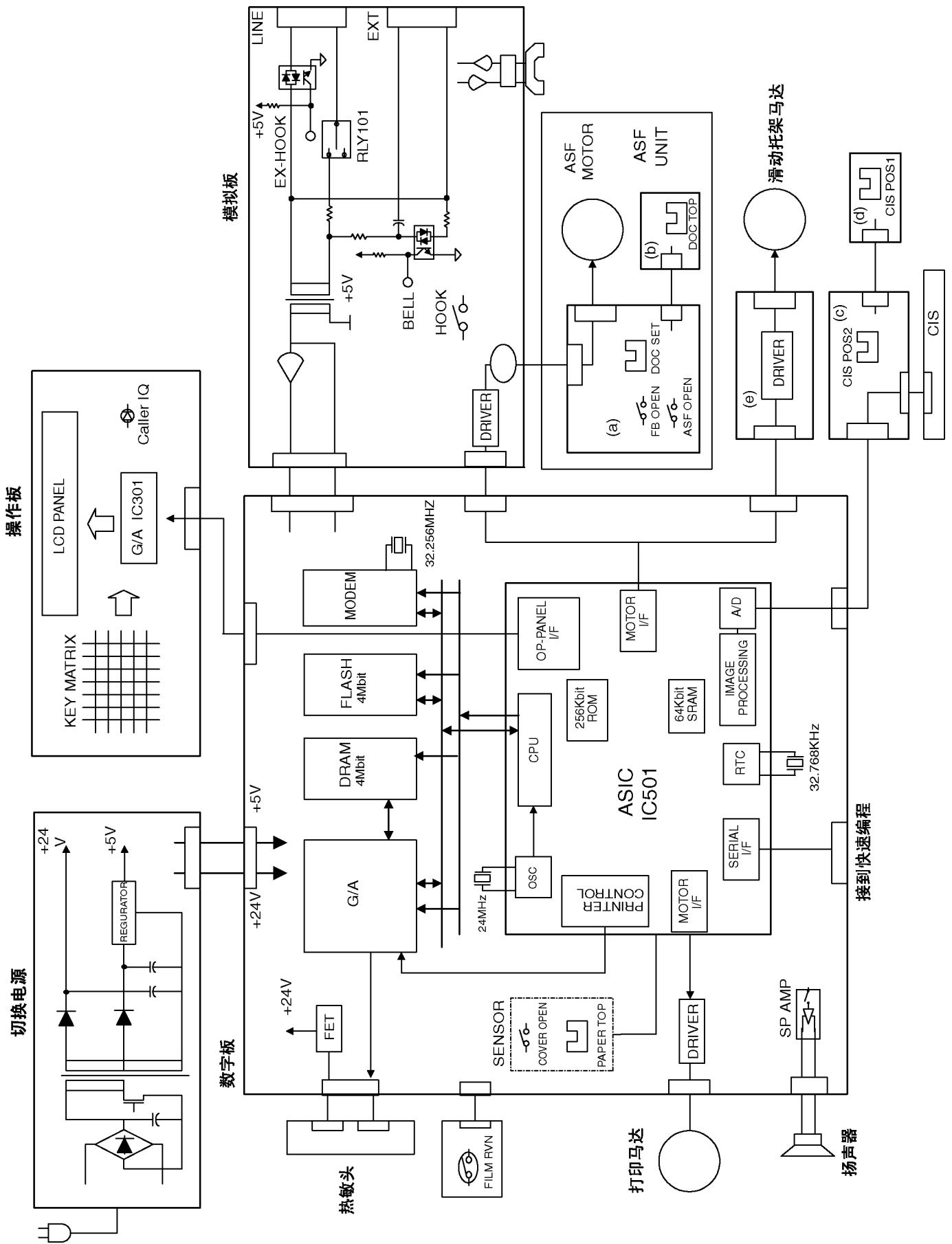
7. 1. 2. 电源流程



7.2. 总方框图

以下是数字板上各装置 IC 的概要。

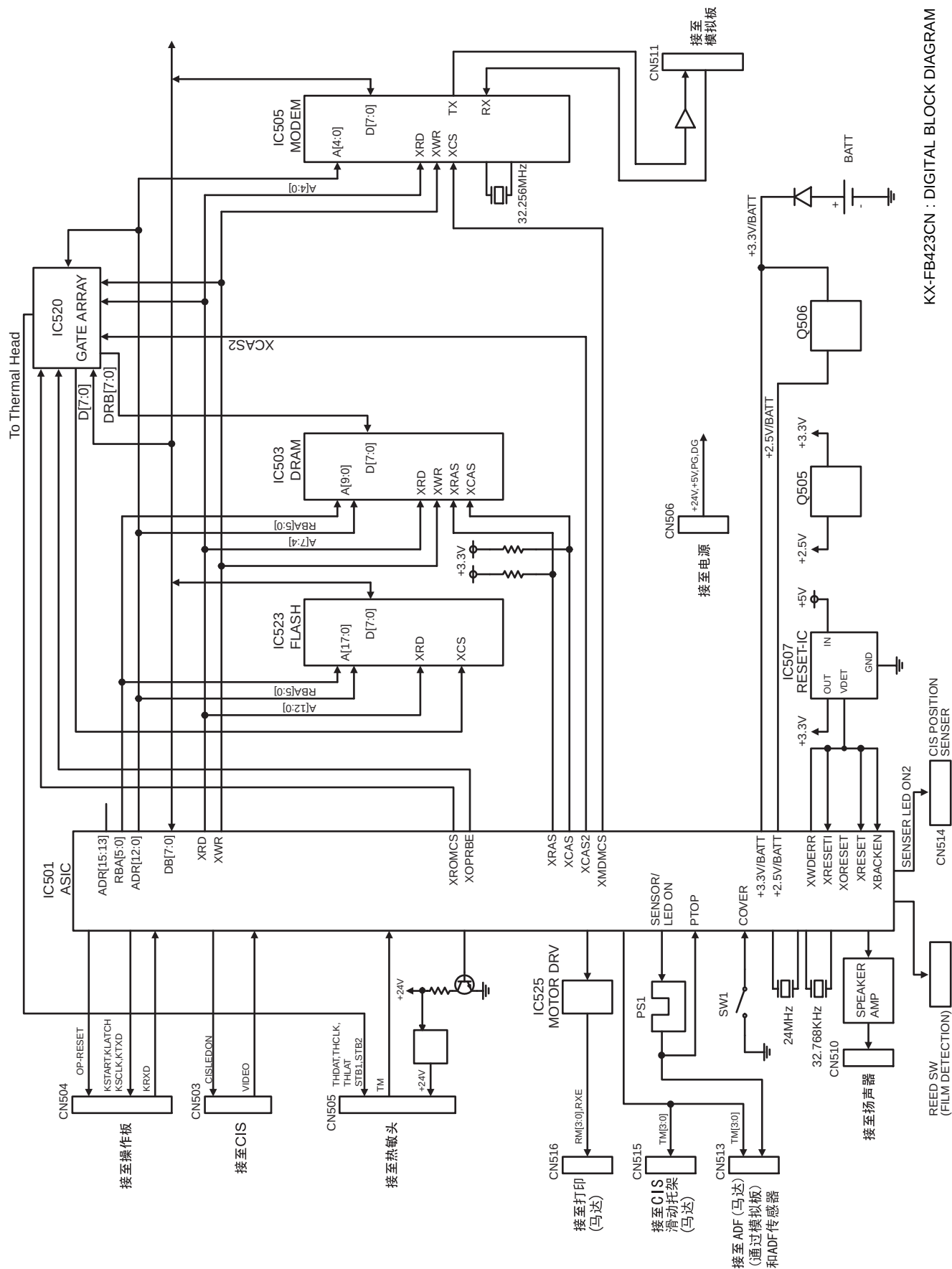
1. ASIC (IC501)
 - 主要由地址解码器、调制解调器控制部分组成。
 - 控制一般 FAX 的操作。
 - 进行图像处理。
 - CPU 和实时时钟
 - 控制操作板 I/F。
 - 控制模拟 I/F 和 CIS I/F。
2. 快速 ROM (IC523)
 - 包括本机操作的全部程序说明。
3. 动态 RAM (IC503)
4. 读出部分
 - CIS 图像传感器可读出传送文件。
5. 马达驱动器部分
 - 驱动打印马达。
6. 模拟板
 - 由 ITS 电路、NCU 电路构成，并且包含驱动 ADF 马达部件。
7. 传感器部分
 - 由机盖开启开关、文件设置传感器、文件顶部传感器和 CIS 位置传感器等组成。
8. 电源板开关部分
 - 向本机提供 +5V 和 +24V 电压。
9. 印字薄膜检测部件
 - 检测印字薄膜是否为松下制造，以及报告印字薄膜的剩余量。
10. 热敏头
 - 包括点矩阵图像打印的加热元件。



7.3. 传真部分

7.3.1. 数字部分

7.3.1.1. 数字方框图



KX-FB423CN : DIGITAL BLOCK DIAGRAM

7.3.1.2. ASIC (IC501)

此定制集成电路用于一般传真操作。

1. CPU:

此型机使用一个在 8MHz 条件下操作的 Z80 等效 CPU。许多外围功能都由定制的 LSI 完成。因此, CPU 只需要处理结果。
2. RTC:

实时时钟
3. 解码器:

给地址解码。
4. ROM/RAM I/F:

控制 ROM 或 RAM 的选择信号及存储体开关。
5. CIS I/F:

控制文件读出。
6. 图像资料 RAM:

此存储器被编入 ASIC, 并用 8 千字节进行图像处理 (见图 A*)。
7. 热敏头 I/F:

将记录的数据传送给热敏头。
8. 马达 I/F:

控制输送文件的传送马达。
控制输送记录纸的接收马达。
9. 操作板 I/F:

带操作板的串行接口。
10. I/O PORT:

I/O 端口接口。
11. 模拟装置:

话筒和监听器的电子音量。
发送嘟嘟声等。

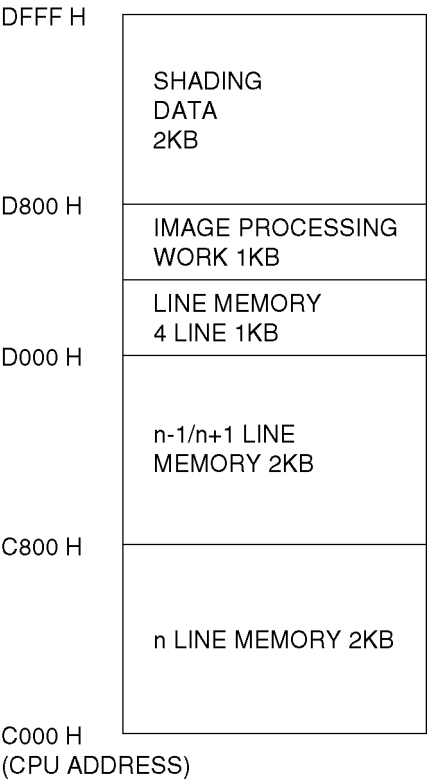


图 A

注*:
此存储器被组合到 ASIC (IC501) 中并用于图像处理。
图 A 表示图像数据 RAM 的存储器分配图。

7.3.1.3. 快速存储器 (IC523)

该 512KB ROM (快速存储器) 具备一个 32KB 的公用区, 以及分别有 8KB (BK4-BK63) 的存储区。
从 0000H 至 7FFFH 的地址为公用区, 从 8000H 至 9FFFH 的地址为存储区。

7.3.1.4. 动态 RAM (IC503)

DRAM 起 CPU 的作用并接收存储。

地址为 F200H-F3FFH (DRAM 存取窗口 1) 和 F600H-F7FFH (DRAM 存取窗口 2)。

管脚分配 (IC501) 说明

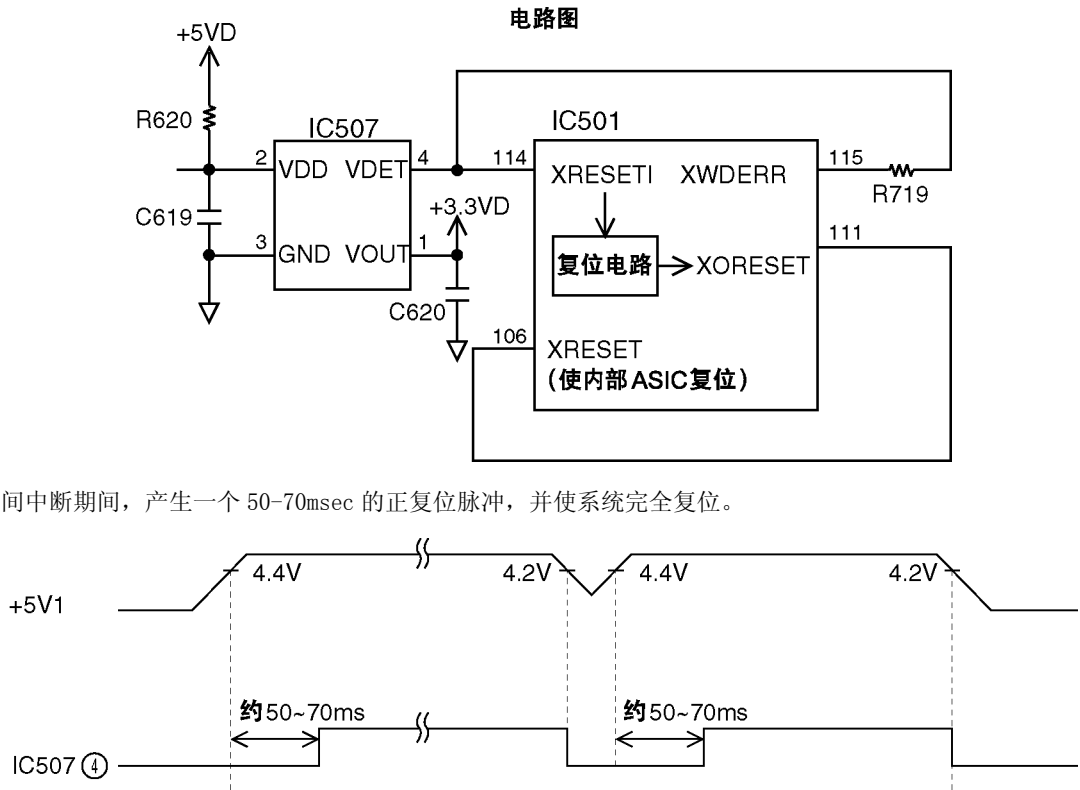
编号	信号	I/O	电源电压	说明
1	VSSA		GND	POWER SOURCE (ANALOG GND)
2	VDDA 3.3		3.3V	POWER SOURCE (ANALOG +3.3V)
3	AIN1	A	3.3V	CCD IMAGE SIGNAL INPUT
4	AIN2	A	3.3V	THERMISTOR TEMPERATURE WATCH INPUT
5	AIN3	A	3.3V	-----
6	AMON	A	3.3V	ANALOG SIGNAL MONITOR TERMINAL
7	VSS		GND	POWER SOURCE (GND)
8	X32OUT	O	3.3V/BATT	RTC (32.768KHz) CONNECTION
9	X32IN	I	3.3V/BATT	RTC (32.768KHz) CONNECTION
10	VDD (3.3V / B)		-----	POWER SOURCE (+3.3V/LITHIUM BATTERY)
11	XBACEN	I	3.3V/BATT	BACKUP ENABLE
12	XRAMCS	O	3.3V/BATT	NOT USED
13	VDD (3.3V / B)		-----	POWER SOURCE(+3.3V / LITHIUM BATTERY)
14	VDD (2.5V/B)		-----	POWER SOURCE (+2.5V / LITHIUM BATTERY)
15	FTG	O	3.3V	SH SIGNAL OUTPUT FOR CIS (S1)
16	F1	O	3.3V	O1 SIGNAL OUTPUT FOR CIS (CLK)
17	F2/OP	O	3.3V	OUTPUT PORT (HSTXMUTE)
18	FR/OP	O	3.3V	OUTPUT PORT (MDMRST)
19	CPC	I	3.3V	INPUT PORT (PTOP)
20	RVN	I	3.3V	RVN
21	IRDATXD/IOP	O	3.3V	OUTPUT PORT (CISLED)
22	IRDARXD/IOP80	I	3.3V	INPUT PORT (DOCU)
23	TXD/IOP	I	3.3V	INPUT PORT (RDPOS)
24	RXD/IOP	O	3.3V	OUTPUT PORT (SENLED1)
25	XRTS/IOP	I	3.3V	INPUT PORT (HOOK)
26	XCTS/IOP	O	3.3V	OUTPUT PORT (SPMUTE)
27	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
28	TONE1	A	3.3V	TONE OUTPUT
29	TONE2	A	3.3V	TONE OUTPUT
30	VOLUREF	A	3.3V	ANALOG REF VOLTAGE
31	VOLUOUT	A	3.3V	VOLUME OUTPUT
32	VOLUIN	A	3.3V	VOLUME INPUT
33	XNMI	I	3.3V	HIGH FIXED
34	FMEWDO/IOP	O	3.3V	OUTPUT PORT (ON-MREN)
35	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
36	VSS		GND	POWER SOURCE (GND)
37	VSS		GND	POWER SOURCE (GND)
38	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
39	MIDAT/IOP	O	3.3V	OUTPUT PORT (TONE1EN)
40	MICLK/IOP	I	3.3V	INPUT PORT (OP RESET)
41	MILAT/IOP	O	3.3V	OUTPUT PORT (ASFMHLD)
42	20KOSC/IOP	I	3.3V	INPUT PORT (BELL)
43	XWAIT	I	3.3V	INPUT PORT (KOVER)
44	HSTRD/IOP	O	3.3V	NOT USED
45	HSTWR/IOP	O	3.3V	NOT USED
46	XOPRBE	O	3.3V	MFCS
47	ADR15	O	3.3V	CPU ADDRESS BUS 15 (NOT USED)
48	ADR14	O	3.3V	CPU ADDRESS BUS 14 (NOT USED)
49	ADR13	O	3.3V	CPU ADDRESS BUS 13 (NOT USED)
50	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
51	XOUT	O	3.3V	SYSTEM CLOCK (24MHz)
52	XIN	I	3.3V	SYSTEM CLOCK (24MHz)
53	VSS		GND	POWER SOURCE (GND)
54	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
55	XTEST	O	3.3V	24MHz CLOCK
56	TEST1	I	3.3V	HIGH FIXED
57	TEST2	I	3.3V	HIGH FIXED
58	TEST3	I	3.3V	HIGH FIXED
59	TEST4	I	3.3V	HIGH FIXED

编号	信号	I/O	电源电压	说明
60	XMDMINT	I	3.3V	MODEM INTERRUPT
61	XMDMCS	0	3.3V	MODEM CHIP SELECT
62	XRAS/10P	0	3.3V	DRAM (1C503) ROW ADDRESS STROBE
63	XCAS1/10P	0	3.3V	DRAM (1C503) COLUMN ADDRESS STROBE
64	XCAS2/10P	0	3.3V	DRAM (1C503) CHIPSELECT
65	XRESCS2	0	3.3V	FLASH CHIP SELECT
66	DB3	I/O	3.3V	CPU DATA BUS 3
67	DB2	I/O	3.3V	CPU DATA BUS 2
68	DB4	I/O	3.3V	CPU DATA BUS 4
69	DB1	I/O	3.3V	CPU DATA BUS 1
70	DB5	I/O	3.3V	CPU DATA BUS 5
71	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
72	VSS		GND	POWER SOURCE (GND)
73	VSS		GND	POWER SOURCE (GND)
74	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
75	DB0	I/O	3.3V	CPU DATA BUS 0
76	DB6	I/O	3.3V	CPU DATA BUS 6
77	DB7	I/O	3.3V	CPU DATA BUS 7
78	XROMCS	0	3.3V	ROM (1C523) CHIP SELECT
79	RD	0	3.3V	CPU RD
80	WR	0	3.3V	CPU WR
81	ADR0	0	3.3V	CPU ADDRESS BUS 0
82	ADR1	0	3.3V	CPU ADDRESS BUS 1
83	ADR2	0	3.3V	CPU ADDRESS BUS 2
84	ADR3	0	3.3V	CPU ADDRESS BUS 3
85	ADR4	0	3.3V	CPU ADDRESS BUS 4
86	ADR5	0	3.3V	CPU ADDRESS BUS 5
87	VSS		GND	POWER SOURCE (GND)
88	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
89	ADR6	0	3.3V	CPU ADDRESS BUS 6
90	ADR7	0	3.3V	CPU ADDRESS BUS 7
91	ADR8	0	3.3V	CPU ADDRESS BUS 8
92	ADR9	0	3.3V	CPU ADDRESS 9
93	ADR10	0	3.3V	CPU ADDRESS 10
94	ADR11	0	3.3V	CPU ADDRESS 11
95	ADR12	0	3.3V	CPU ADDRESS 12
96	RBA0	0	3.3V	ROM/RAM BANK ADDRESS 0
97	RBA1	0	3.3V	ROM/RAM BANK ADDRESS 1
98	RBA2	0	3.3V	ROM/RAM BANK ADDRESS 2
99	RBA3	0	3.3V	ROM/RAM BANK ADDRESS 3
100	RBA4	0	3.3V	ROM/RAM BANK ADDRESS 4
101	RBA5	0	3.3V	ROM/RAM BANK ADDRESS 5
102	RBA6/10P96	0	3.3V	A19
103	STB1	0	3.3V	STROBE SIGNAL OUTPUT TO THERMAL HEAD (VIA GATE ARRAY)
104	STB2	0	3.3V	STROBE SIGNAL OUTPUT TO THERMAL HEAD (VIA GATE ARRAY)
105	STB3	0	3.3V	NOT USED
106	XRESET	I	3.3V	RESET INPUT
107	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
108	VSS		GND	POWER SOURCE (GND)
109	VSS		GND	POWER SOURCE (GND)
110	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
111	XORESET	0	3.3V	LATED RESET SIGNAL OUTPUT
112	VDD (5V)		-----	POWER SOURCE (+5V)
113	VSS		GND	POWER SOURCE (GND)
114	XRESET I	I	3.3V	RESET INPUT
115	WDERR	0	3.3V	WATCHED ERROR OUTPUT SIGNAL
116	THDAT	0	3.3V	RECORDED IMAGE OUTPUT
117	THCLK	0	3.3V	CLOCK OUTPUT FOR DATA TRANSFER
118	THLAT	0	3.3V	PULSE OUTPUT FOR DATA LATCH
119	STBNP	I	3.3V	INPUT PORT (TEST)
120	RM0/10P	0	3.3V	RX MOTOR A PHASE
121	RM1/10P	0	3.3V	RX MOTOR A PHASE
122	RM2/10P	0	3.3V	RX MOTOR B PHASE
123	RM3/10P	0	3.3V	RX MOTOR B PHASE
124	RXE/10P	0	3.3V	RX MOTOR ENABLE SIGNAL
125	TMO	0	3.3V	ASF/CIS MOTOR A PHASE
126	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
127	VSS		GND	POWER SOURCE (GND)

编号	信号	I/O	电源电压	说明
128	TM1/IOP	0	3.3V	ASF/CIS MOTOR B PHASE
129	TM2/IOP	0	3.3V	ASF/CIS MOTOR $\bar{A}$ PHASE
130	TM3/IOP	0	3.3V	ASF/CIS MOTOR $\bar{B}$ PHASE
131	TXE/IOP	0	3.3V	ASF/CIS MOTOR ENABLE SIGNAL
132	KSTART	0	3.3V	OPERATION PANEL CONTROL
133	KLATCH	0	3.3V	OPERATION PANEL CONTROL
134	KSCLK	0	3.3V	OPERATION PANEL CONTROL
135	KTXD	0	3.3V	OPERATION PANEL CONTROL
136	KRXD	I	3.3V	OPERATION PANEL CONTROL
137	FMEMCLK/IOP	0	3.3V	OUTPUT PORT (THON)
138	FMEMDI/IOP	0	3.3V	OUTPUT PORT (LINERLY)
139	ADSEL1	0	3.3V	CHANNEL SELECT SIGNAL FOR AIN2
140	VDDA (2.5V)		2.5V	POWER SOURCE (ANALOG +2.5V)
141	VREFB	A	3.3V	A/D CONVERTER'S ZERO STANDARD VOLTAGE OUTPUT
142	VCL	A	3.3V	ANALOG PART STANDARD VOLTAGE SIGNAL
143	VREFT	A	3.3V	A/D CONVERTER'S FULL SCALE VOLTAGE OUTPUT
144	VSSA		GND	POWER SOURCE (ANALOG GND)

7.3.2. 复位电路（监视计时器）

电压检测 IC(IC507) 管脚 4 的输出信号（复位）输入到 ASIC(IC501) 114 管脚。



1. 在电源瞬间中断期间，产生一个 50~70msec 的正复位脉冲，并使系统完全复位。

2. 装在 ASIC（IC501）内的监视计时器由 CPU 启动，约每 1.5ms 初始化一次。
当监视计时器发生故障时，ASIC（IC501）的管脚 115 变为低电平。
将 'WDERR' 信号的终端连接至复位线上，这样，'WDERR' 信号就作为复位信号工作。

7.3.3. RTC 备用电路

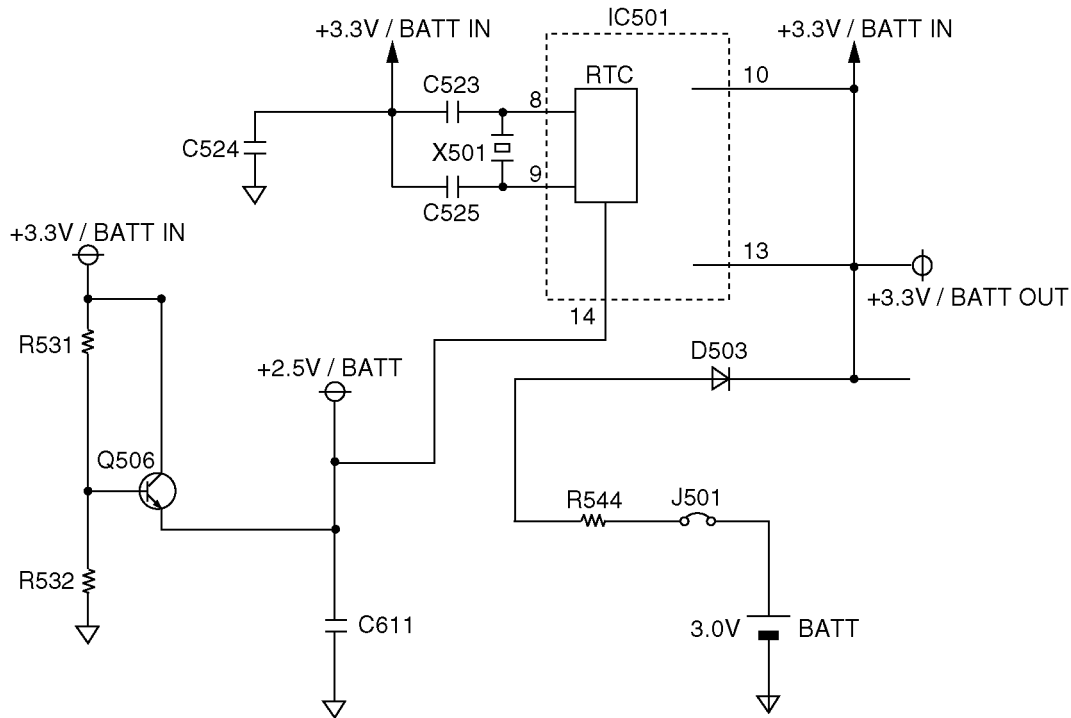
1. 功能

本机备有一个用于实时时钟 (RTC: 在 IC604 内) 的锂电池 (BAT600)。
RTC 以锂电池为备用电池, 即使电源开关切断, RTC 仍能继续工作。

2. RTC 内部 (IC604) 备用电路操作

当电源接通时, 向 RTC (IC604 内) 供电。此时 IC604 的管脚 F17 上的电压为 +3.3V。当电源开关断开时, 电池 600 通过 D602 向 RTC 供电, IC604 的管脚 F17 上的电压约 +2.5V。当电源断开, +3.3V 的电压降低时, RTC (IC604) 的管脚 F17 上的电压与电池电压大致相同。RTC 进入耗电较低的备用方式。

电路图



7.3.4. 模拟部分

7.3.4.1. 模拟部分方框图的说明

1. 功能

模拟部分在电话线之间起接口作用, 传真信号的传送和传真信号的接收用的数字板 (IC505) 借助于 NCU 部分中的多工器组成, 在数字板 (IC505) 和其他部分之间切换, 到各模拟部分的控制信号主要从 ASIC IC501 输出, 各部分的状态信息也保持在 ASIC IC501 中。
有关各部分简单说明如下。

2. 电路操作:

[NCU 部分]

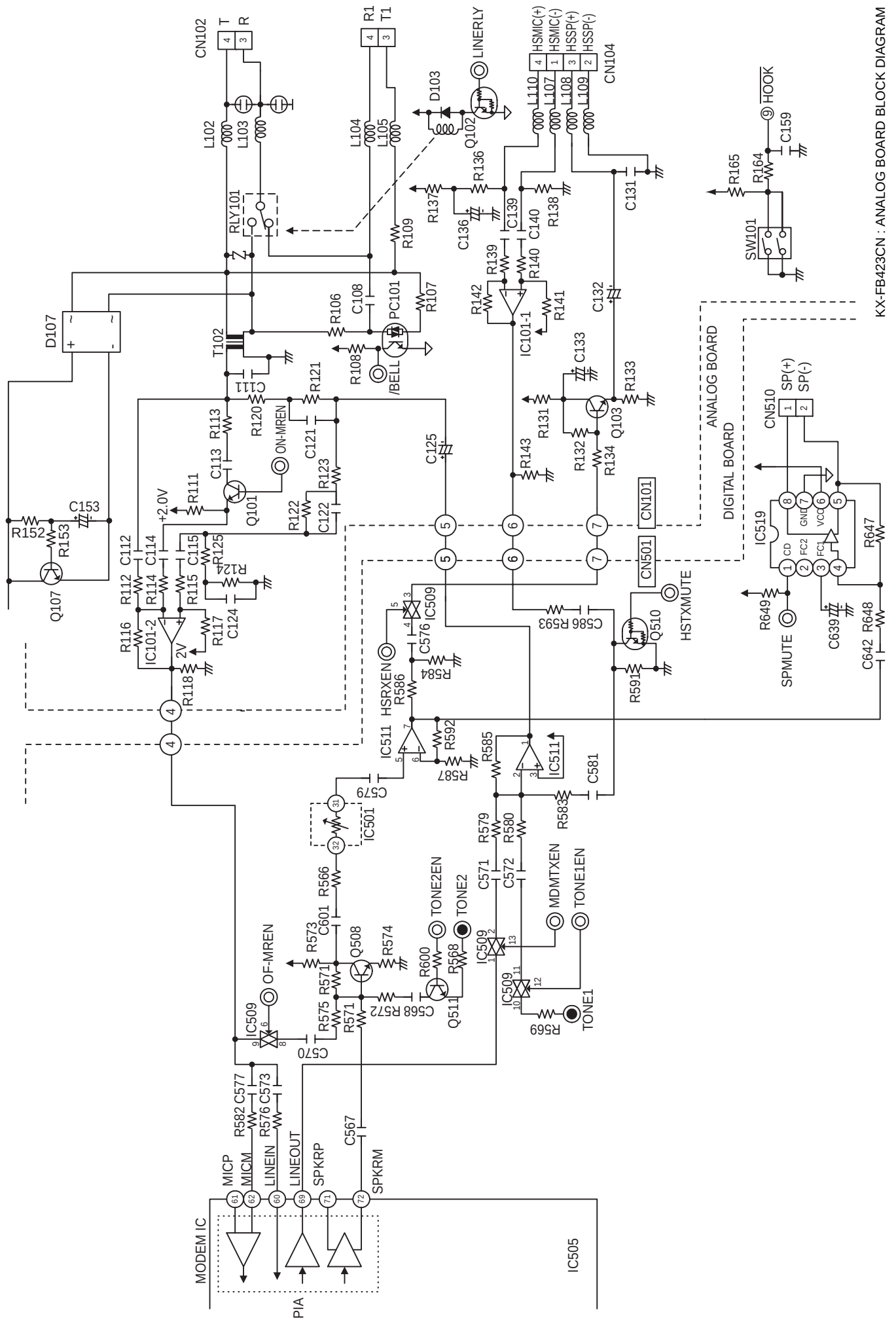
由响铃检测电路、脉冲拨号发生电路、线路发送和接收放大器电路、侧音电路、分机线路摘机检测电路、远程传真启动电路组成。

参考 8.5. NCU 部分 (P. 170)

[调制解调器 (IC505)]

用于传真信号音频调制和 DTMF 信号发送。DTMF 信号被置于 TX 系统中。

7.3.4.2. 方框图

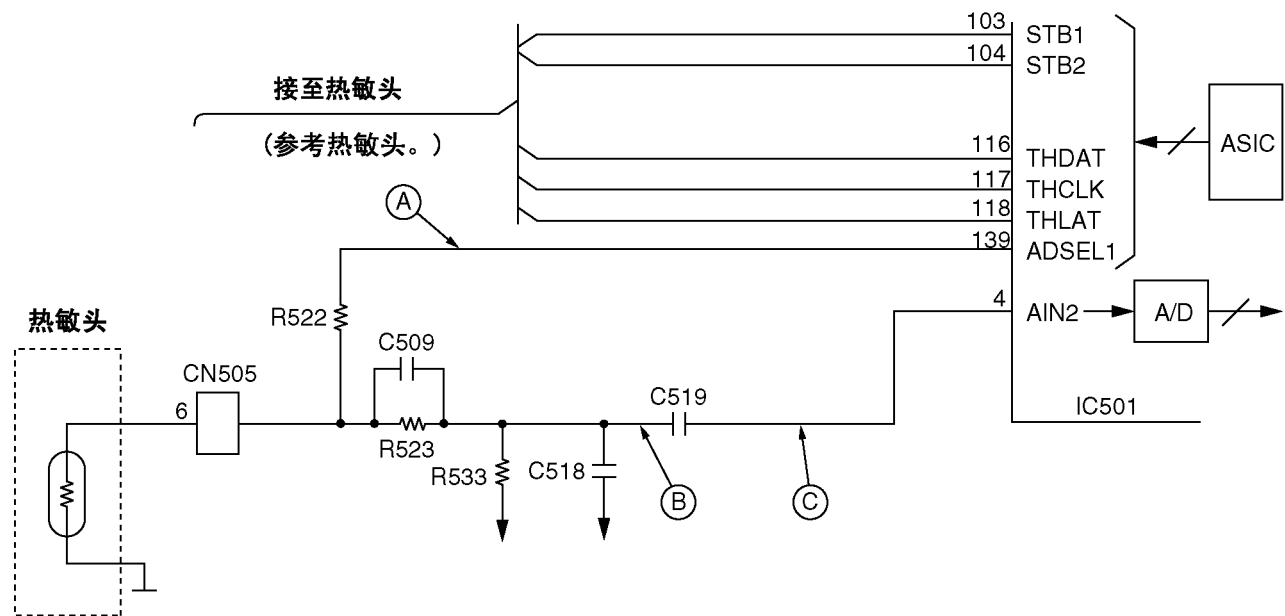


7.3.5. 热敏头温度监控电路

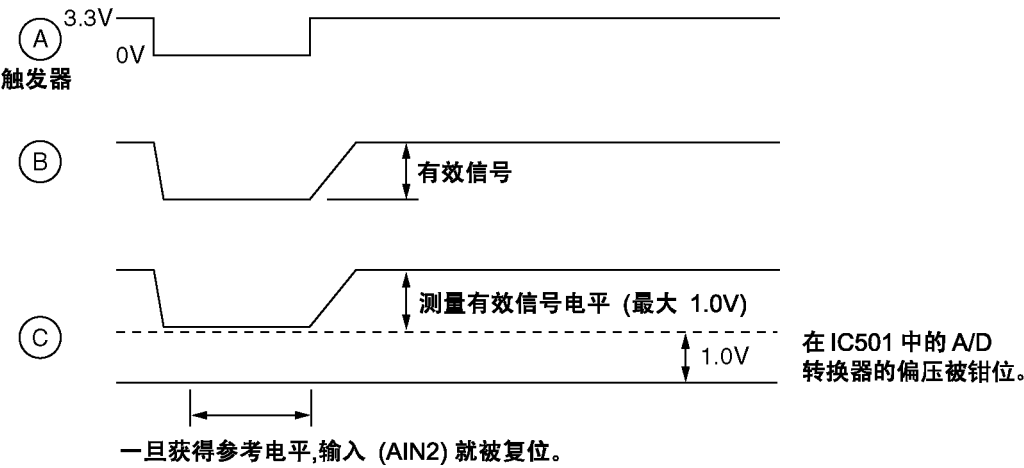
• 功能

热敏头电阻器根据温度改变电阻，并使用热敏电阻器的特性。IC501 的管脚 139 的输出变成低电平。然后，当它变成高电平时，它会触发 A 点。在 C 点上，根据电压输出时间以检测热敏头的温度。
在热敏头温度被转换成 B 中的电压后，它在 IC501 内的 A/D 转换器中被转换成数字数据。CPU 根据此值决定热敏头的选通脉冲宽度。因此，为了稳定打印密度并防止热敏头过热，此电路能保持热敏头处于稳定温度。

电路图



计时图

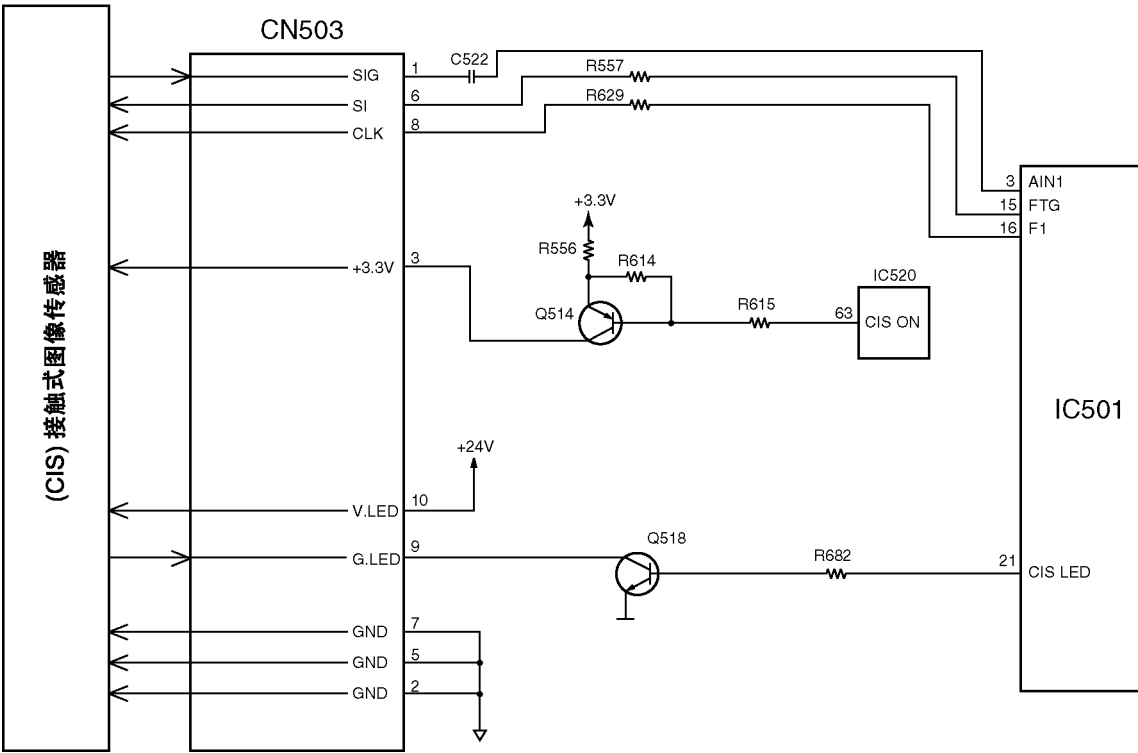


相互参考：
7.10. 热敏头 (P. 155)

7.4. 扫描块

本机的扫描块由一个控制电路和一个由孔镜阵列组成的接触式图像传感器。一个 LED 阵列及光电转换元件组成。

电路图



当插入一份原件时，按下开始键，IC501 的管脚 21 进入高电平，晶体管 Q507 接通。这将电压施加至 LED 阵列上以便将它照亮。接触式图像传感器由从 IC501 输出的各个 FTG-F1 信号驱动，而被 LED 阵列照亮的原图像经光电转换，而输出一个模拟图像信号 (SIG)。将模拟图像信号输入至 AIN1 (IC501 的管脚 3) 上的系统 LSI，并由 IC501 内的 A/D 转换器转换成 8 比特数据。然后，此信号经过数字处理以获得高质量图像。

7. 5. 步进马达驱动部分

7. 5. 1. 动力马达的驱动电路

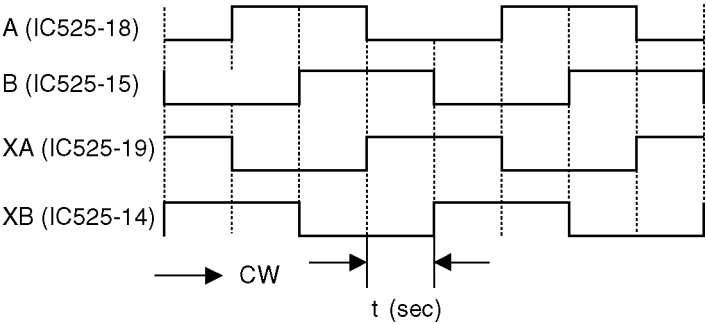
1. 功能

此马达用于接收传真和复印打印等主要操作。
供给记录纸的同时进行打印。
2. 马达操作

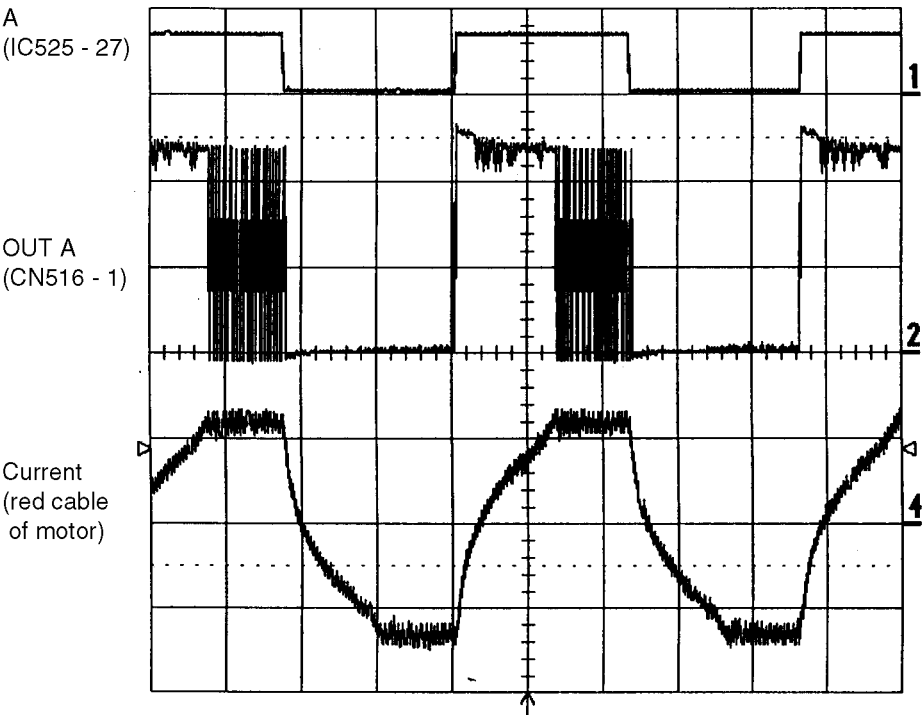
励磁脉冲从 ASIC (IC501) 管脚 120 ~ 123 输出。然后，步进脉冲从驱动 IC (IC525) 管脚 18、19、15 和 14 输出，驱动马达线圈。
其结果，0.32A 电流被供给马达线圈。

7. 5. 1. 1. 同步图

(1) 2 相激励



(2) 2 相激励输出波形（例 “A 相”）

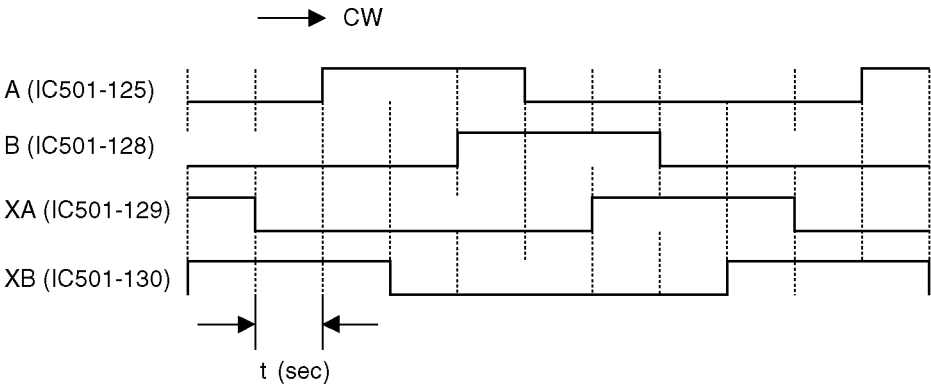


其他相（B, XA, XB）和A相同样操作。

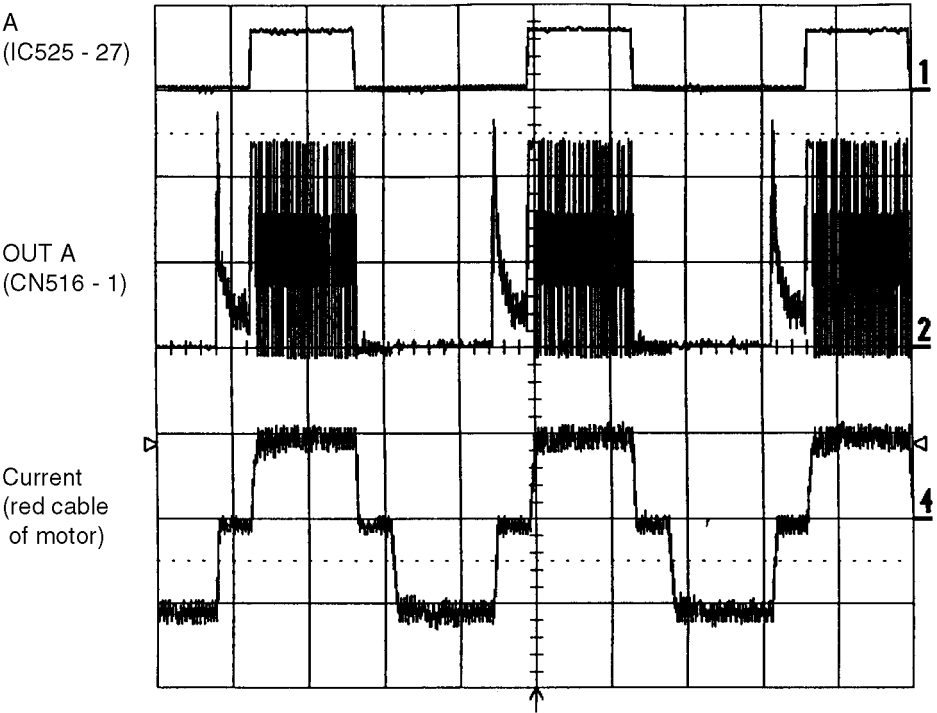
驱动马达

功能	方式	相位图	速度	电流
记录纸输送	-	2 相	432pps	0.32A
精细	复印	2 相	432 / 216pps	0.29A / 0.22A
超精细	复印	1-2 相	216pps	0.22A
照片	复印	1-2 相	432pps	0.22A
精细	接收	1-2 相	432pps	0.29A
超精细	接收	1-2 相	216pps	0.22A
照片	接收	1-2 相	432pps	0.29A

(1) 1-2 相激励



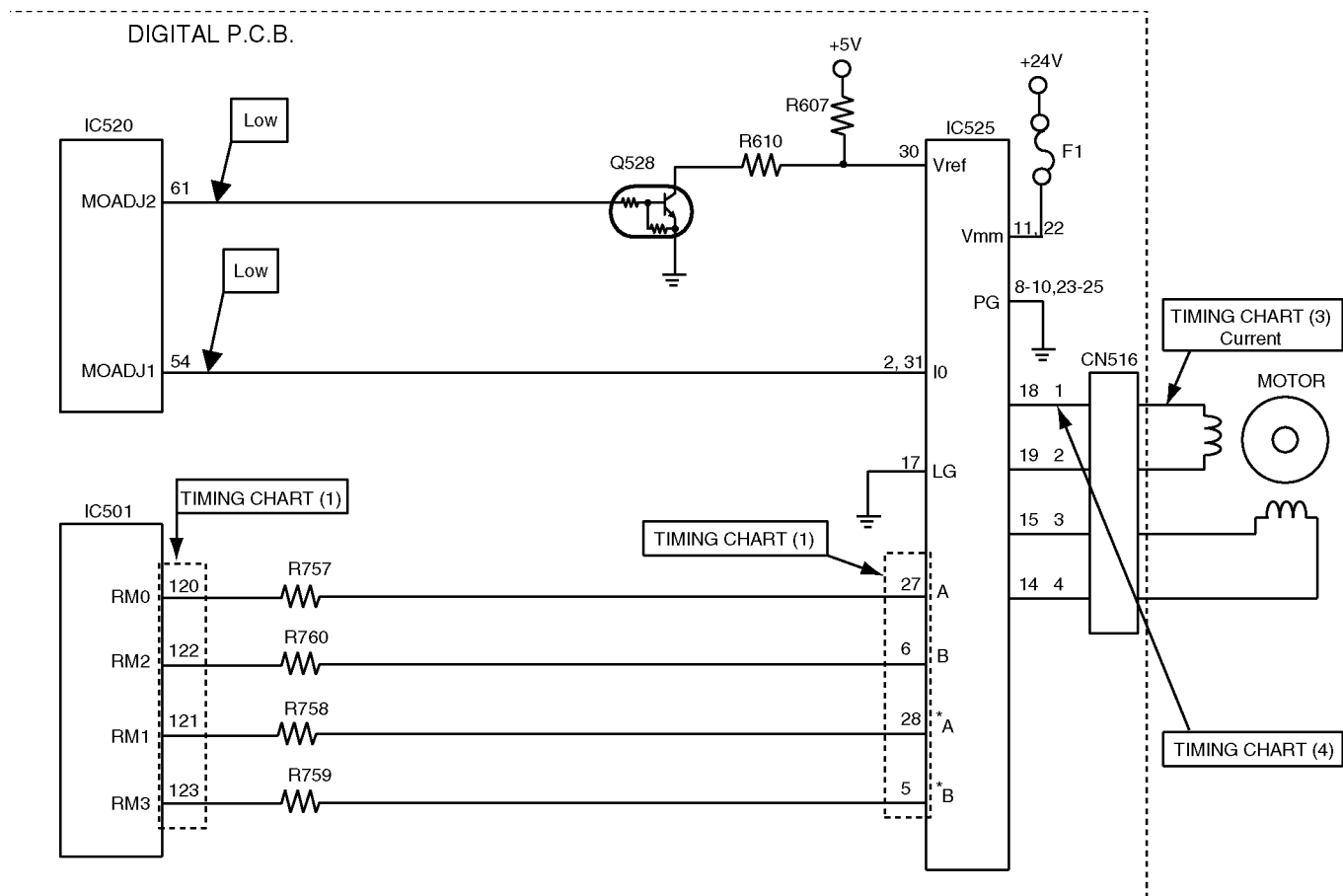
(2) 1-2 相激励输出波形 (例 “A 相”)



其他相 (B, XA, XB) 和A相同样操作。

7.5.1.2. 动力马达的驱动电路

(1) 电路图



7.5.2. ADF（自动送纸器）马达驱动电路

1. 功能

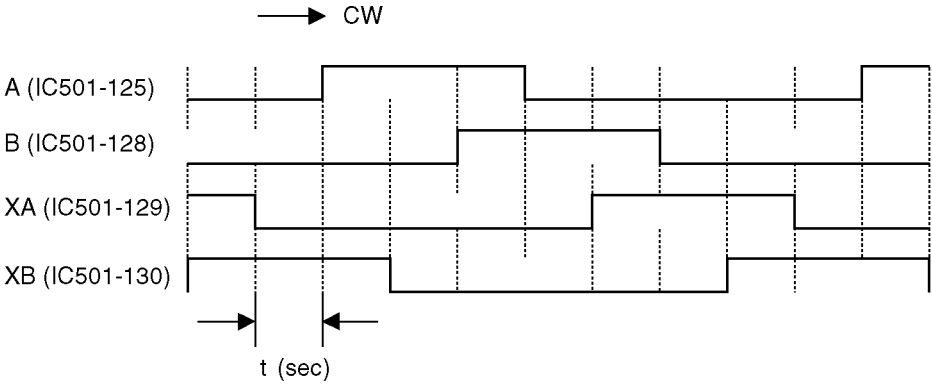
此马达主要用于传真送信, ADF 复印和 PC 扫描。
文稿供纸的同时进行同步读入文稿。

2. 马达操作

在马达驱动过程中, 门阵列 IC520 的管脚 43 变成高电平, Q507, Q504 接通。
其结果, 24V 电流输入马达线圈。
阶跃脉冲从 ASIC IC501 的管脚, 125, 128, 129, 130 输出, 然后向 IC102 (模拟板上) 的管脚 1 ~ 4 输出以驱动马达线圈。
此马达线圈在 2 相增量中按顺序进行励磁, 形成 1- 步旋转, 一个 1- 步旋转可供 0.042mm 的文稿。

7.5.2.1. 同步图

(1) 1-2 相激励



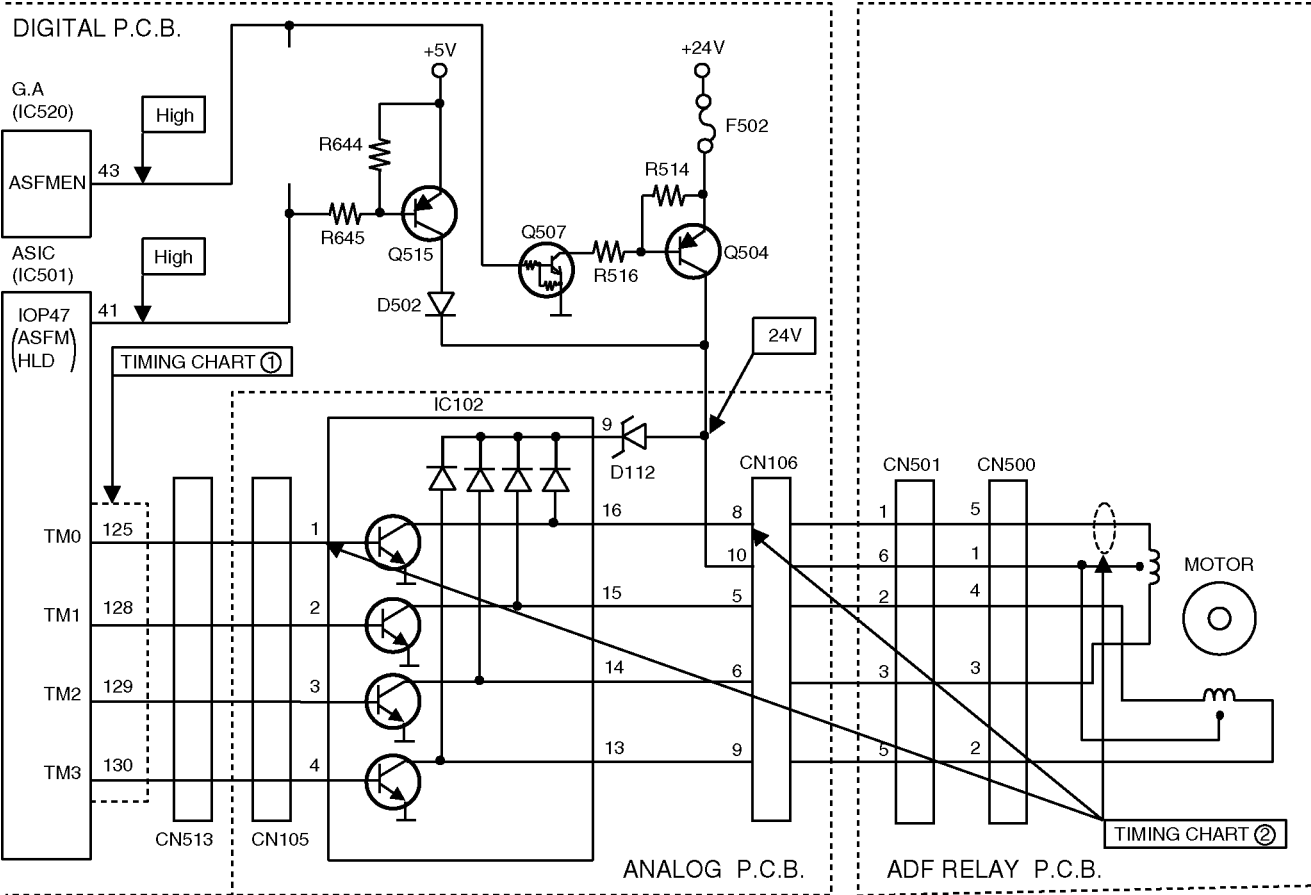
(2) 1-2 相激励输出波形（例 “A 相”）



其他相 (B, XA, XB) 和A相同样操作。

7. 5. 2. 2. ADF（自动送纸器）马达驱动电路

(1) 电路图



驱动马达

功能	方式	相位图	速度
传真	标准	1 - 2 相位	432pps
传真 / 复印	精细 / 半色调	1 - 2 相位	432pps
传真 / 复印	超精细	1 - 2 相位	216pps
送纸	-	1 - 2 相位	432pps
待机状态	-	相位全部关	-

7.5.3. CR(滑动托架)马达驱动电路

1. 功能

此马达用于传真送信,FB 复印和 PC 扫描等主要操作。
文稿供纸的同时进行读入文稿。

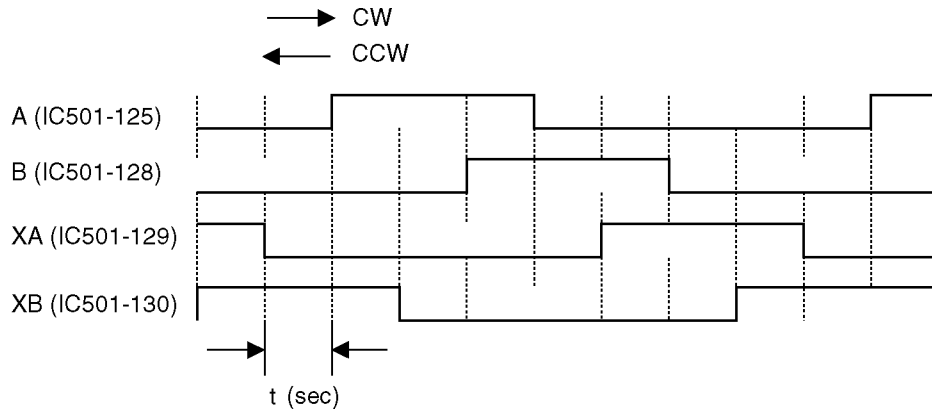
2. 马达操作

在马达驱动过程中,门阵列 IC520 的管脚 32 变成高电平,Q503,Q502 接通。
其结果,+24V 电流输入马达线圈。

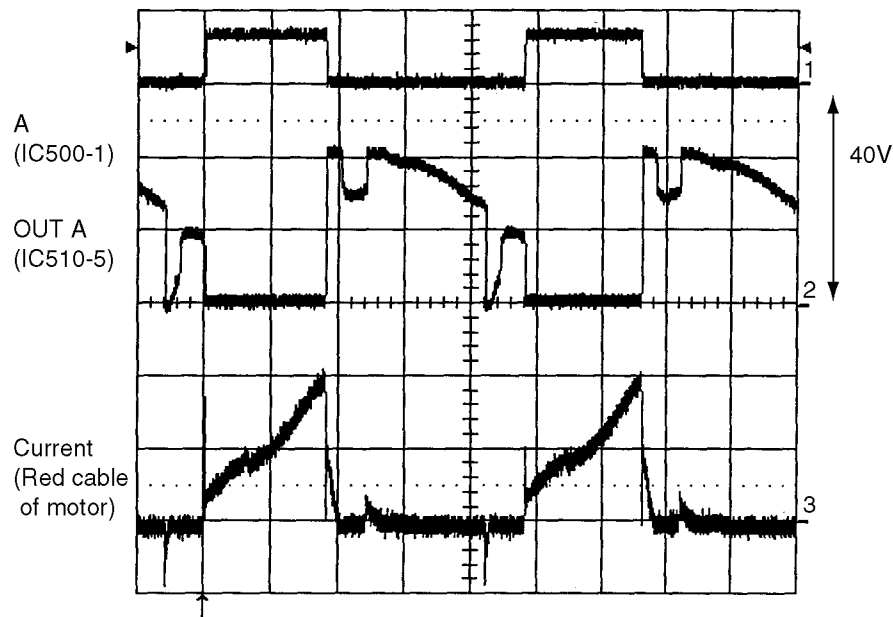
阶跃脉冲从 ASIC IC501 的管脚,125,128,129,130 输出,然后向 IC500 的管脚 16~13 输出以驱动马达线圈。
此马达线圈在 2 相增量中按顺序进行励磁,形成 1-步旋转,一个 1-步旋转可供 0.042mm 的文稿。

7.5.3.1. 同步图

(1) 1-2 相激励

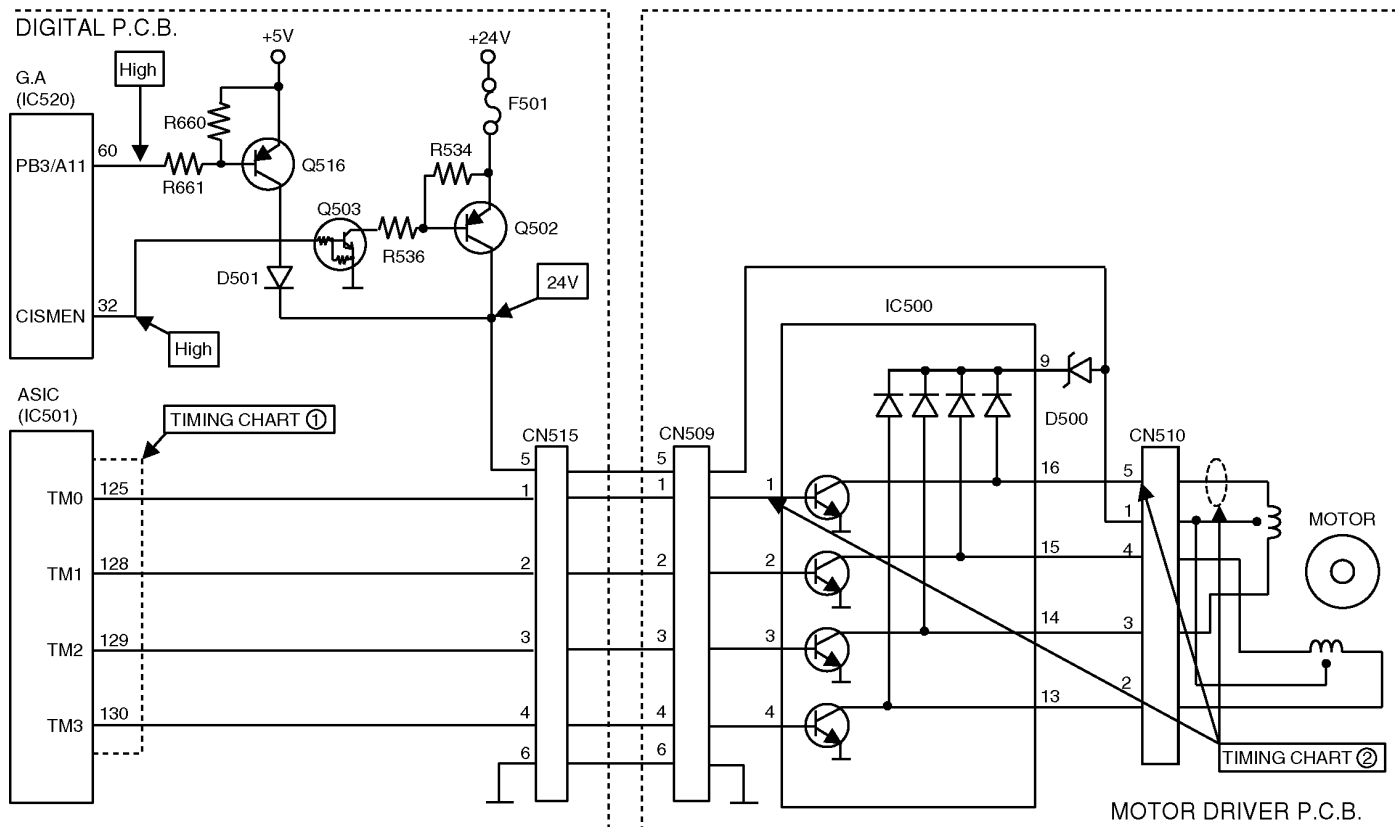


(2) 1-2 相激励输出波形 (例 “A 相”)



其他相 (B, XA, XB) 和 A 相同样操作。

7.5.3.2. CR (滑动托架) 马达驱动电路
(1) 电路图



驱动马达

功能	方式	相位图	速度
传真	标准	1 - 2 相位	432pps
传真 / 复印	精细 / 半色调	1 - 2 相位	432pps
传真 / 复印	超精细	1 - 2 相位	216pps
不扫描	-	1 - 2 相位	432pps
待机状态	-	相位全部关	-

7.6. 传感器和开关

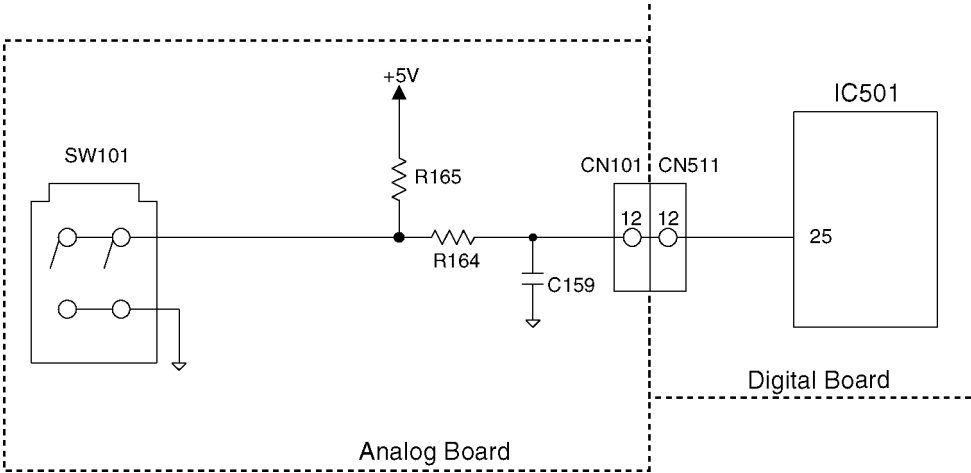
下面列出全部传感器和开关。

传感器电路位置	传感器	传感器或开关名称	故障信息
ADF 继电器板	PS500	文稿	[CHECK DOCUMENT]
PF 传感器板	PS501	送纸	[REMOVE DOCUMENT]
数字板	SW1	盖开启	[COVER OPEN]
	PS1	纸张顶部	[PAPER JAM]
ADF 继电器板	SW501	ADF 盖开启	_____
	SW500	FB 盖开启	_____
CIS 继电器板	PS502	CIS 位置 (ADF 内部)	_____
CIS 传感器板	PS503	CIS 位置 (FB 内部)	_____
模拟板	SW101	叉簧	_____
薄膜检测板	SW401	薄膜检测	[CHECK FILM SLACK]

注：
参阅用于传感器测试的测试功能 – 传感器检查部分。
(维修方式测试的 #815。参考 6.3. 测试功能 (P. 61))

7.6.1. 叉簧

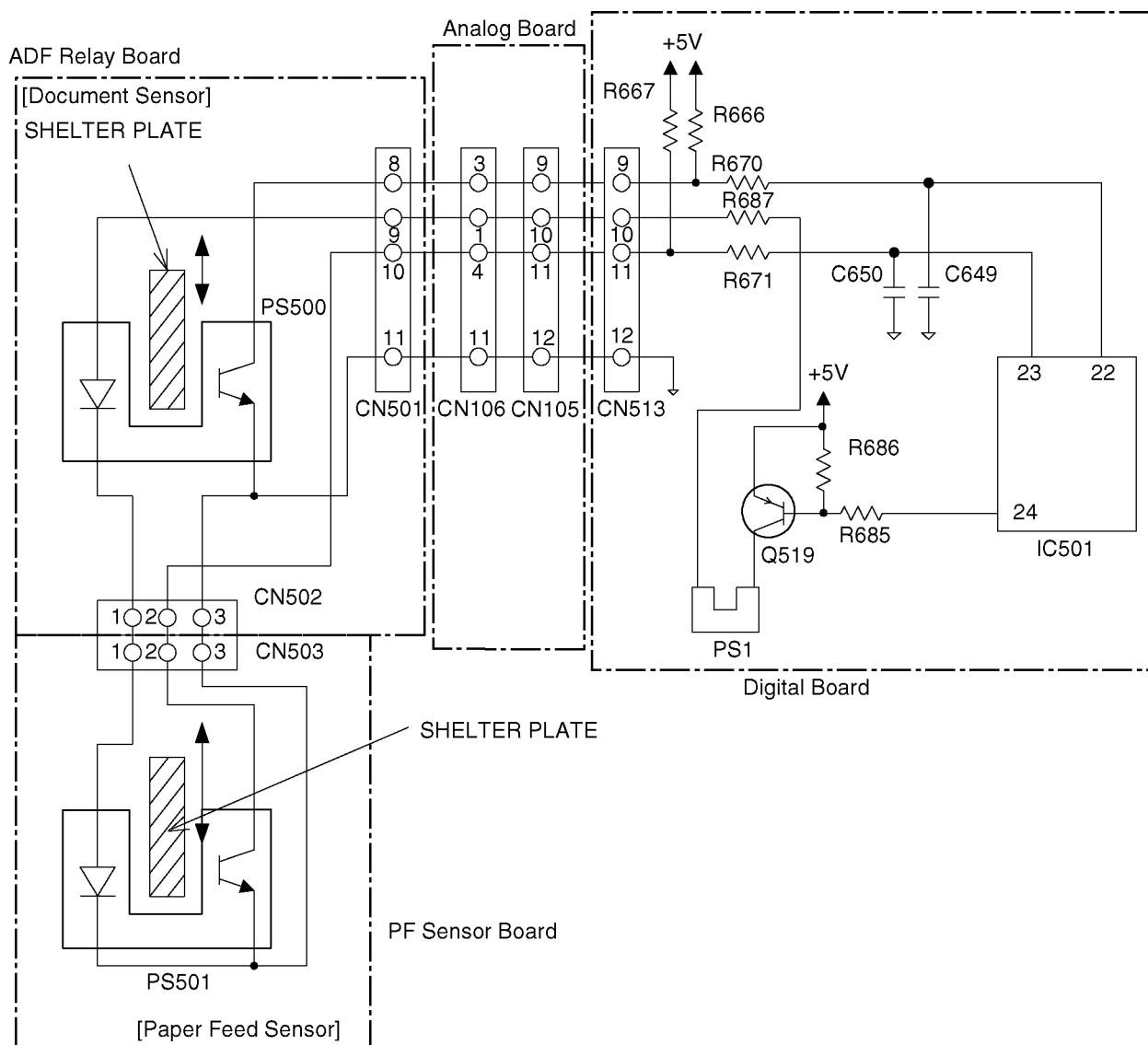
摘机时，开关接通，IC501 的管脚 25 上的信号变为低电平。
挂机时，开关断开，IC501 的管脚 25 上的信号变为高电平。



7.6.2. 文稿传感器，“CHECK DOCUMENT”和送纸（供纸）传感器，“REMOVE DOCUMENT”

这些传感器感知检测文稿是否到位。如果文稿被检测感知出来，其遮蔽板就让传感器光通过，光电晶体管接通，IC501-22 管脚 /IC501-23 管脚的输入信号变成低电平。

当没有文稿时，遮蔽板会遮住传感器光，光敏晶体管就会断开，IC501-22 管脚 /IC501-23 管脚的输入信号变成高电平。



文稿传感器

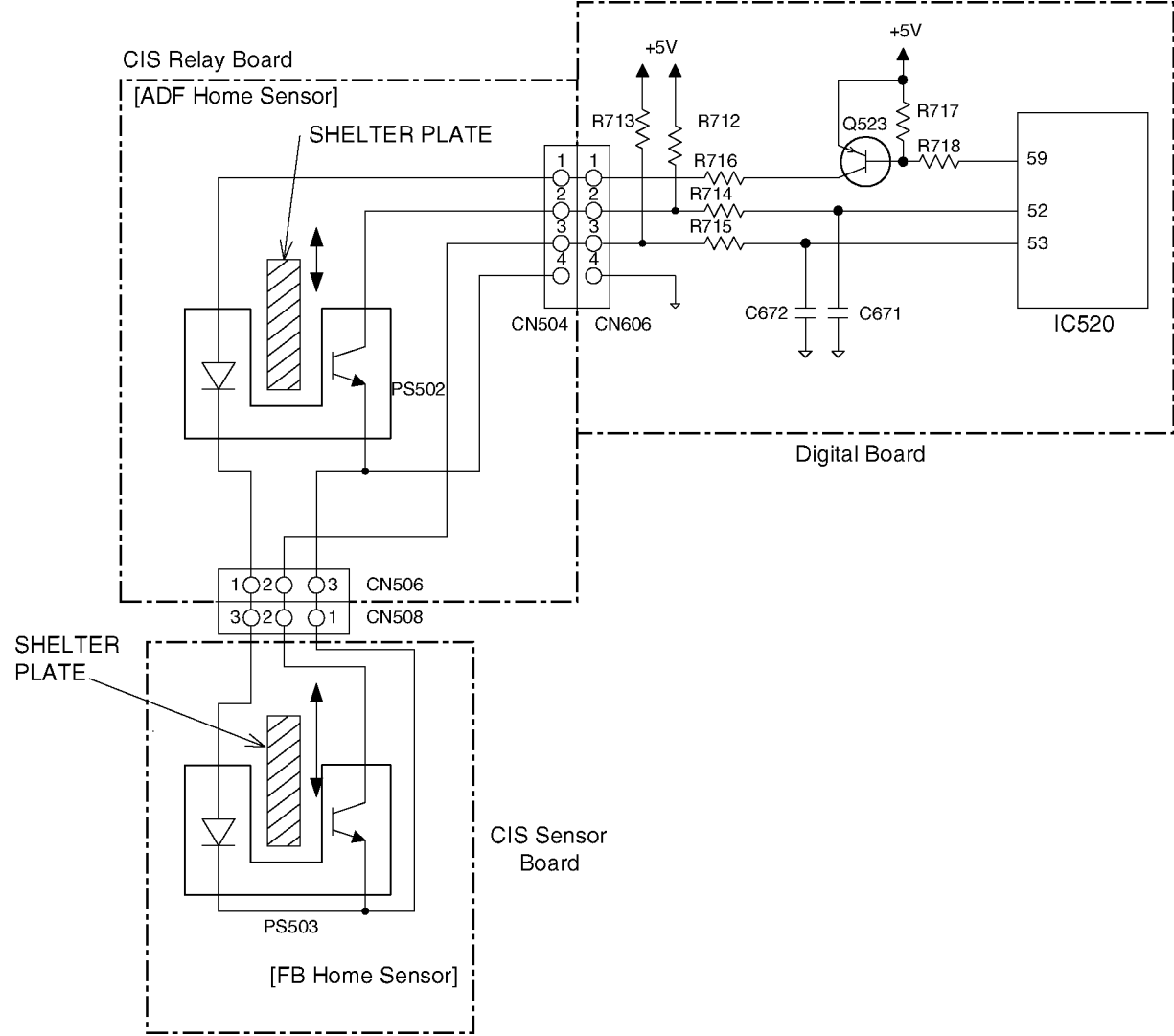
	光电晶体管	信号 (IC501-22 管脚)
文稿放置	OFF	高电平
无文稿	ON	低电平

纸送传感器

	光电晶体管	信号 (IC501-23 管脚)
非读出位置	OFF	高电平
读出位置	ON	低电平

7. 6. 3. CIS 位置传感器

这些传感器检测 CIS 是否在内部位置。
当 CIS 被发现，遮蔽板会遮住传感器光，光电晶体管断开，IC520-52 管脚 /IC520-53 管脚的输入信号变成高电平。
当没有 CIS 时，遮蔽板让传感器光通过，光电晶体管会接通， IC520-52 管脚 /IC520-53 管脚的输入信号变成低电平。



ADF 内部传感器

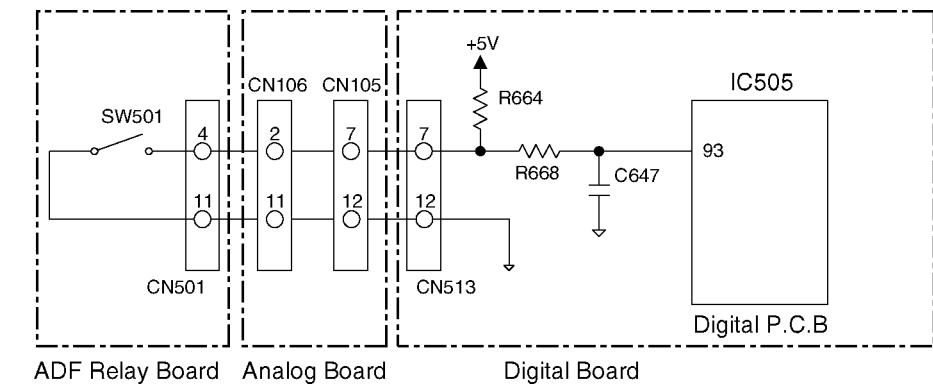
	光电晶体管	信号 (IC520-52 管脚)
内部位置	OFF	高电平
非内部位置	ON	低电平

FB 内部传感器

	光电晶体管	信号 (IC520-53 管脚)
内部位置	OFF	高电平
非内部位置	ON	低电平

7.6.4. ADF 盖开启开关

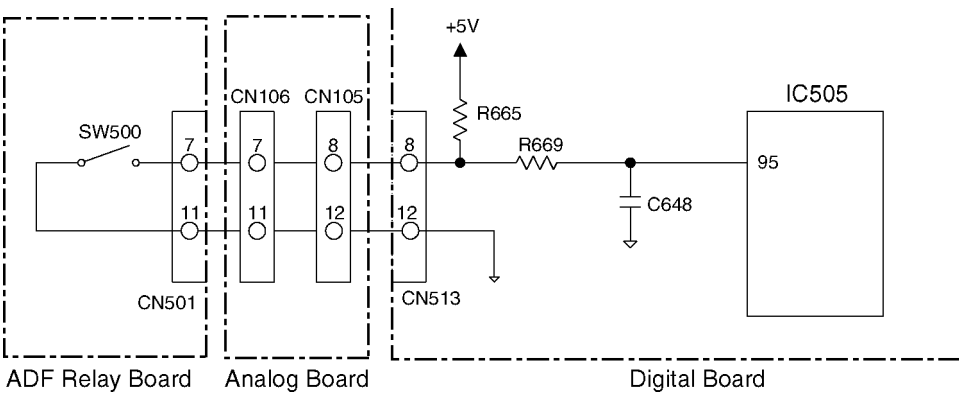
此开关检测 ADF 盖是打开还是关闭。
当 ADF 盖关闭时，开关接通，IC505-93 管脚的输入信号变成低电平。
当 ADF 盖打开时，开关断开，IC505-93 管脚的输入信号变成高电平。



	开关	信号（IC505-93 管脚）
打开	OFF	高电平
关闭	ON	低电平

7.6.5. FB 盖开启开关

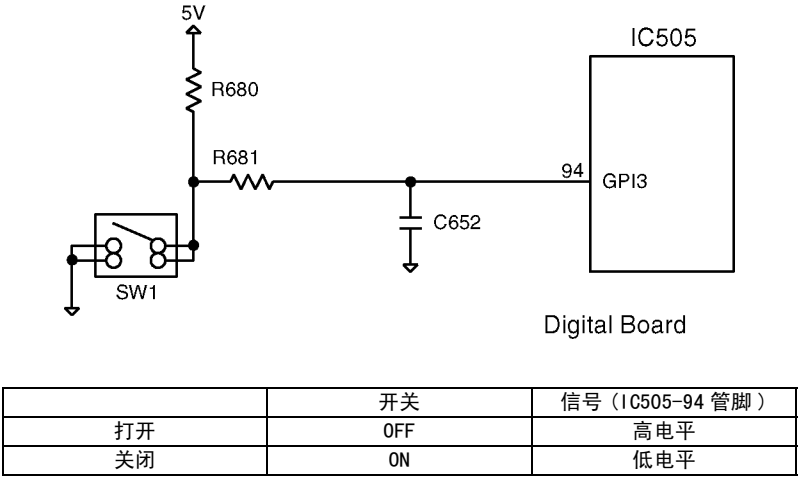
此开关检测平板是打开还是关闭。
当 FB 盖关闭时，开关接通，IC505-95 管脚的输入信号变成低电平。
当 FB 盖打开时，开关断开，IC505-95 管脚的输入信号变成高电平。



	开关	信号（IC505-95 管脚）
打开	OFF	高电平
关闭	ON	低电平

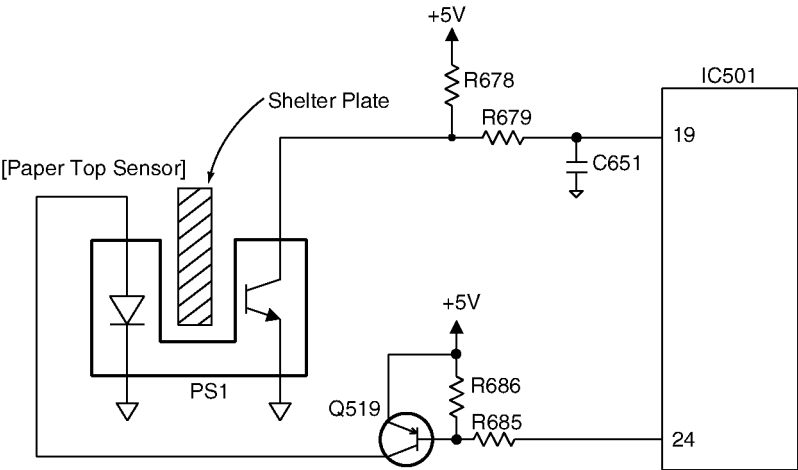
7. 6. 6. 打开盖开关… “COVER OPEN”

这些开关检测打印机的盖是打开还是关上。
当打印机盖关上时，开关接通， IC505-94 管脚的输入信号变为高电平。
当打印机盖打开时，开关断开， IC505-94 管脚的输入信号变为低电平。



7. 6. 7. 纸张顶部传感器 —— “PAPER JAMMED”

传感器检测记录纸是否退出。
当传感器位置没有记录纸时，遮蔽板遮蔽传感器的光， 光电晶体管断开， IC501-19 管脚的输入信号变为高电平。
当记录纸达到退出传感器时， 遮蔽板让传感器的光通过。光电晶体管接通， IC501-19 管脚的输入信号变为低电平。

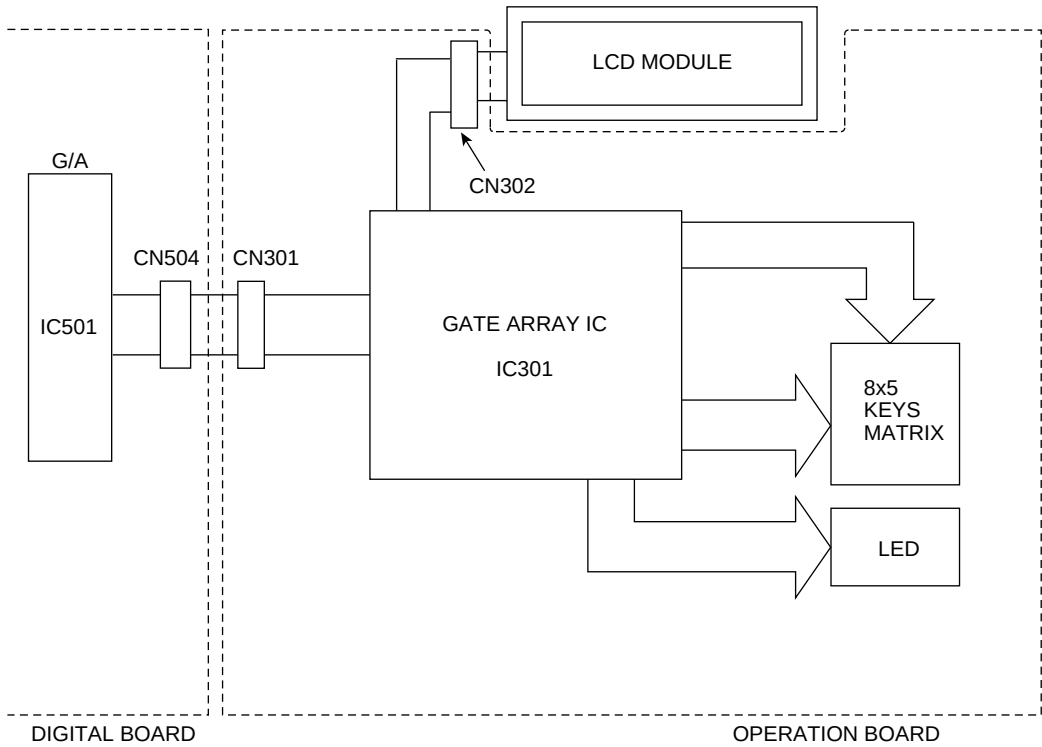


[纸张顶部传感器]

	光电晶体管	信号（IC501-19 管脚）
无纸	OFF	高电平
纸退出	ON	低电平

7.7. 操作板部分

本机由LCD（液晶显示器）、键和LED（发光二极管）组成。它们由门阵列（IC301）和ASIC（IC501：在数字板上）的控制。键矩阵表按如下所示。



KX-FB423CN : OPERATION BOARD BLOCK DIAGRAM

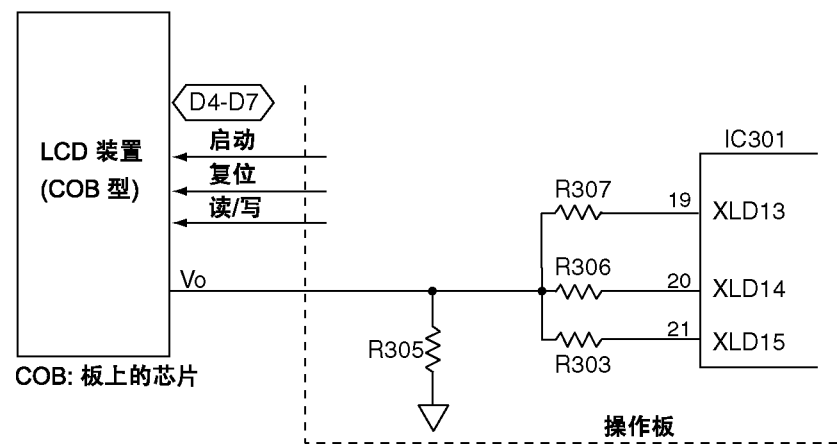
7.7.1. 键矩阵（仅硬件）

	KIN0	KIN1	KIN2	KIN3	KIN4	KIN5	KIN6	KIN7
KS0	2 (SW301)	1 (SW306)	PRINT REPORT (SW311)	MENU (SW316)	-----	-----	-----	-----
KS1	HANDSET MUTE (SW302)	6 (SW307)	5 (SW312)	-----	S1 (SW322)	S2 (SW327)	S4 (SW332)	-----
KS2	REDIAL (SW303)	3 (SW308)	# (SW313)	✖ (SW318)	START (SW323)	COPY (SW328)	S3 (SW333)	RESOLUTION (SW338)
KS3	4 (SW304)	7 (SW309)	NEXT (SW314)	VOL+ (SW319)	VOL- (SW324)	RECEIVE MODE (SW329)	PREV (SW334)	-----
KS4	FLASH (SW305)	9 (SW310)	8 (SW315)	0 (SW320)	MONITOR (SW325)	-----	HELP (SW335)	STOP (SW340)

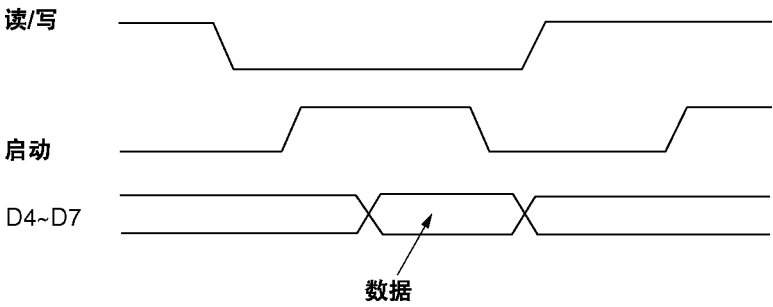
7.8. LCD 部分

门阵列（IC301）只起到从数据总线（D4-D7）写入 ASCII 代码的作用。V0 为晶体驱动提供。R303，R306 和 R307 为密度控制电阻器。因此在，本机中定时（正时钟）由门阵列（IC301）中的 LCD 接口电路产生。

电路图

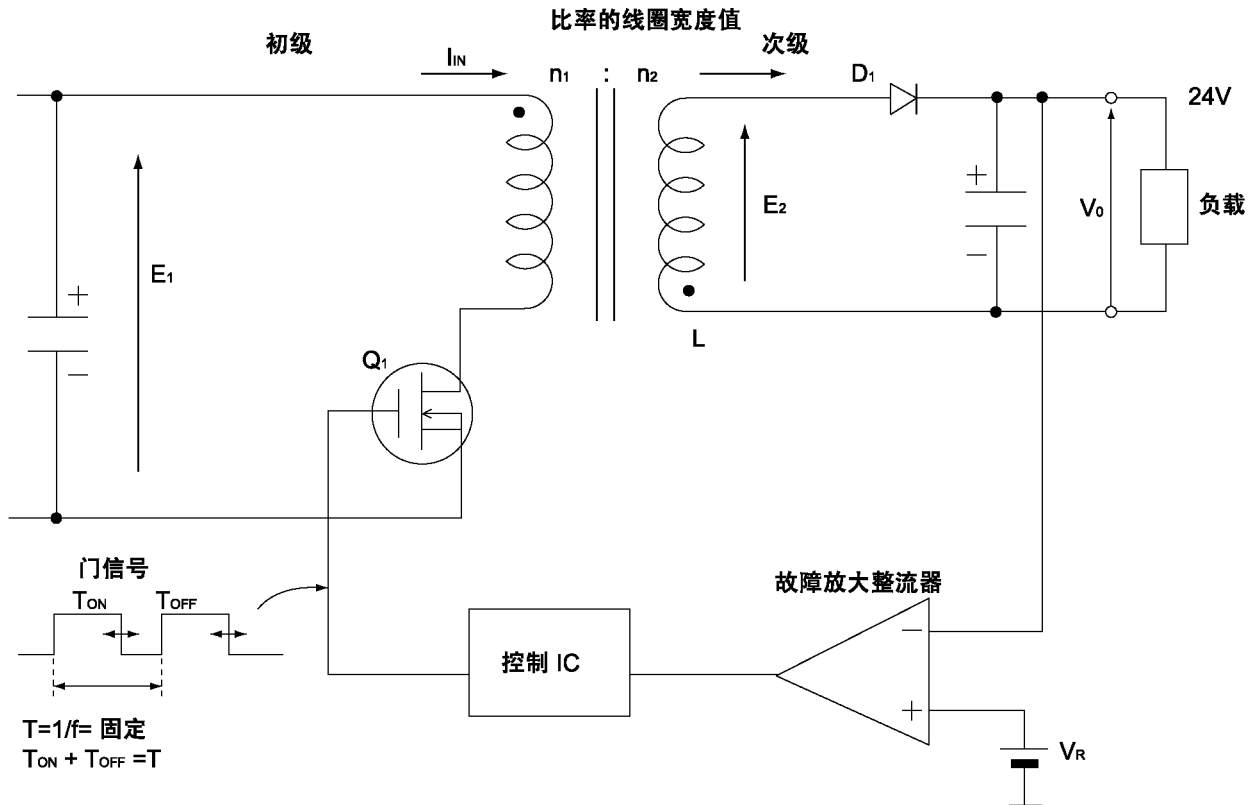


定时图



（浓度）

显示方式	用户设置	XLD15	XLD14	XLD13
2 线	标准	H	L	输入设定
	较深	L	L	L
大容量	标准	H	输入设定	输入设定
	较深	H	L	输入设定



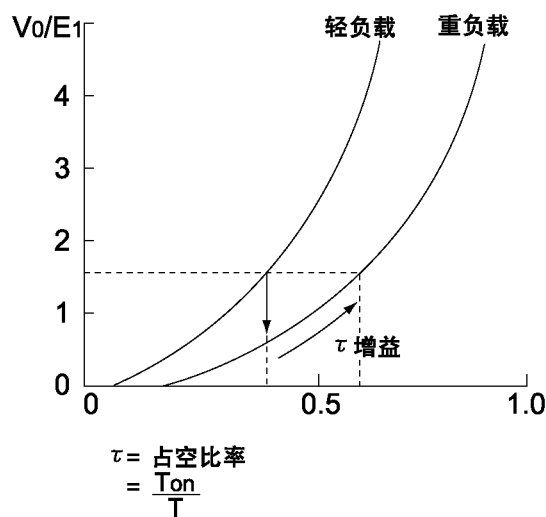
以下是概述电源组件如何被控制。
此电源组件的控制方法是脉冲宽度调制。

当 Q_1 接通时，按照 E_1 在传送初级线圈中得到补充能源。当 Q_1 断开时，能量由次级传送中输出。

$L \rightarrow D_1 \rightarrow \text{负载} \rightarrow L$

然后，给负载提供电源。当 Q_1 接通时，电源不从次级侧输出。根据故障放大整流器的作用，输出电压在控制 IC 中反馈，然后取决于 T_{ON} 如何被控，产生稳定。此外，当电流负载过大时，为了降低电压输出，以 τ 表示的增益受到控制，输出电压得以稳定。因此，基本计时为： Q_1 的 T_{on}/T_{off} 控制输出电压。

比率的输出/输入电压值



[电涌吸收电路]

此电路用于吸收由变压器产生的电涌电压。

[控制电路和检测电路]

控制电路随着在故障检测电路检测到增加电压，将输出放大。然后，它驱动主晶体管。

在此电源中，占空比率通过改变主晶体管的 ON 而确定。现介绍如下：

当 24V 电路的输出电压增加时，光电耦合器 PC101 的电流增加。输出控制 IC 的脉冲宽度变窄，Q101 的 ON 阶段变短。

[过载电流限制 (O.C.L.)]

最高漏电流 24V 受的限制器电路 (IC101) 的限制。24V 输出受此电路限制。

[过载电压电路]

由于故障检测电路或者控制电路断路，如果 24V 输出增加，IC101 就会识别此信号，而输出变为 0V。

假负载方法 (用于快速检查电源输出)

参考 6.5.15. 电源板部分 (P.121)。

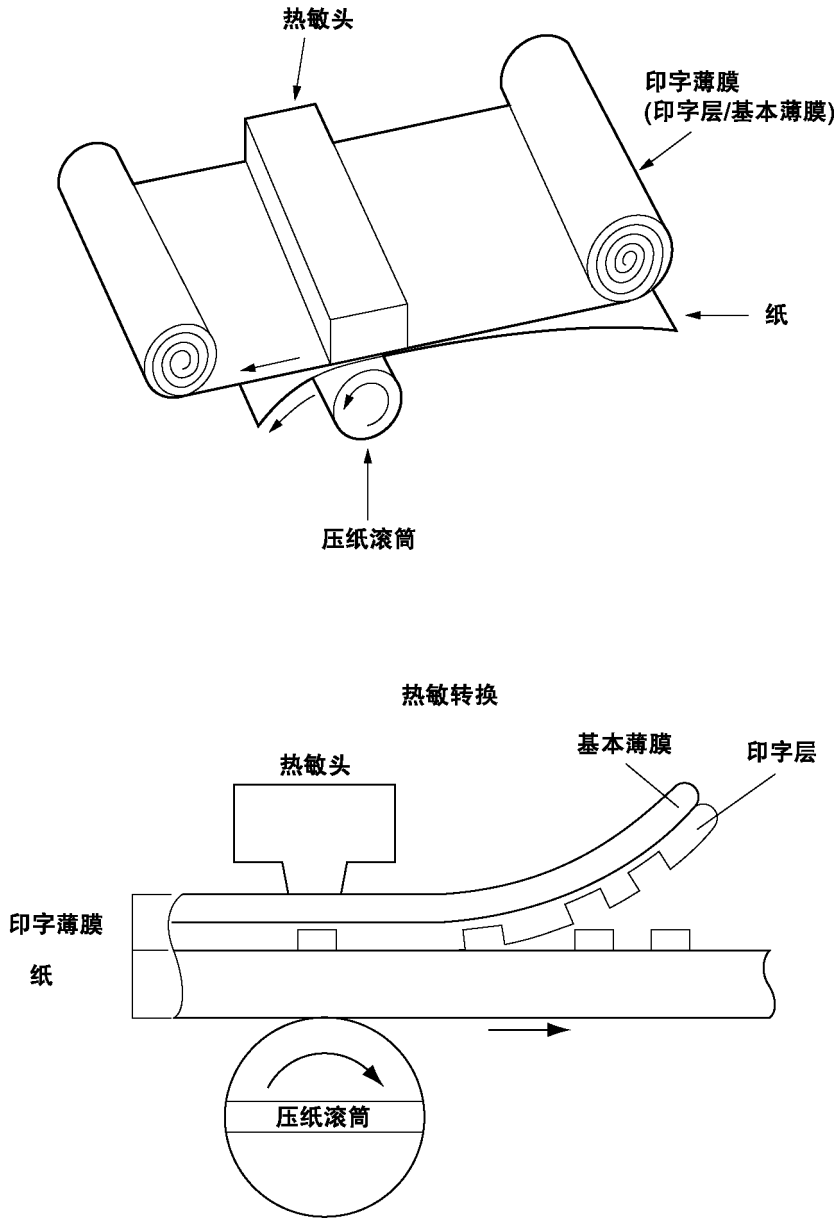
7.10. 热敏头

1. 功能

本机采用热敏打印机技术的最新工艺。

印字薄膜经化学处理。印字薄膜由两部分组成：印字层和基本薄膜。当热敏头接触此印字薄膜时，它会瞬时释放热量，使印字薄膜熔化而转移到纸上。如果此现象持续进行，便显现文字和 / 或图形，能够复制原件。

接收记录部分的结构 (热敏记录格式)



2. 电路操作

参考方框图和下页的计时图。

在热敏头上有 9 个水平排列的驱动 IC，每个 IC 都能驱动 192 个热量释放寄存器。这表示每行的密度为 $192 \times 9 = 1728$ 点 = (8 点 / mm)。

在一行增量中的黑 / 白 (白 = 0, 黑 = 1) 数据在 IC501 的管脚 117 (THLCK) 上取得同步，并从 IC501 的管脚 116 (THDAT) 传送到 IC 的移位寄存器。9 个 IC 的移位寄存器按顺序连接，并且在 1728 点增量移位时，移位寄存器装满数据，门控脉冲从 IC501 的管脚 118 (THLAT) 被释放至各个 IC。

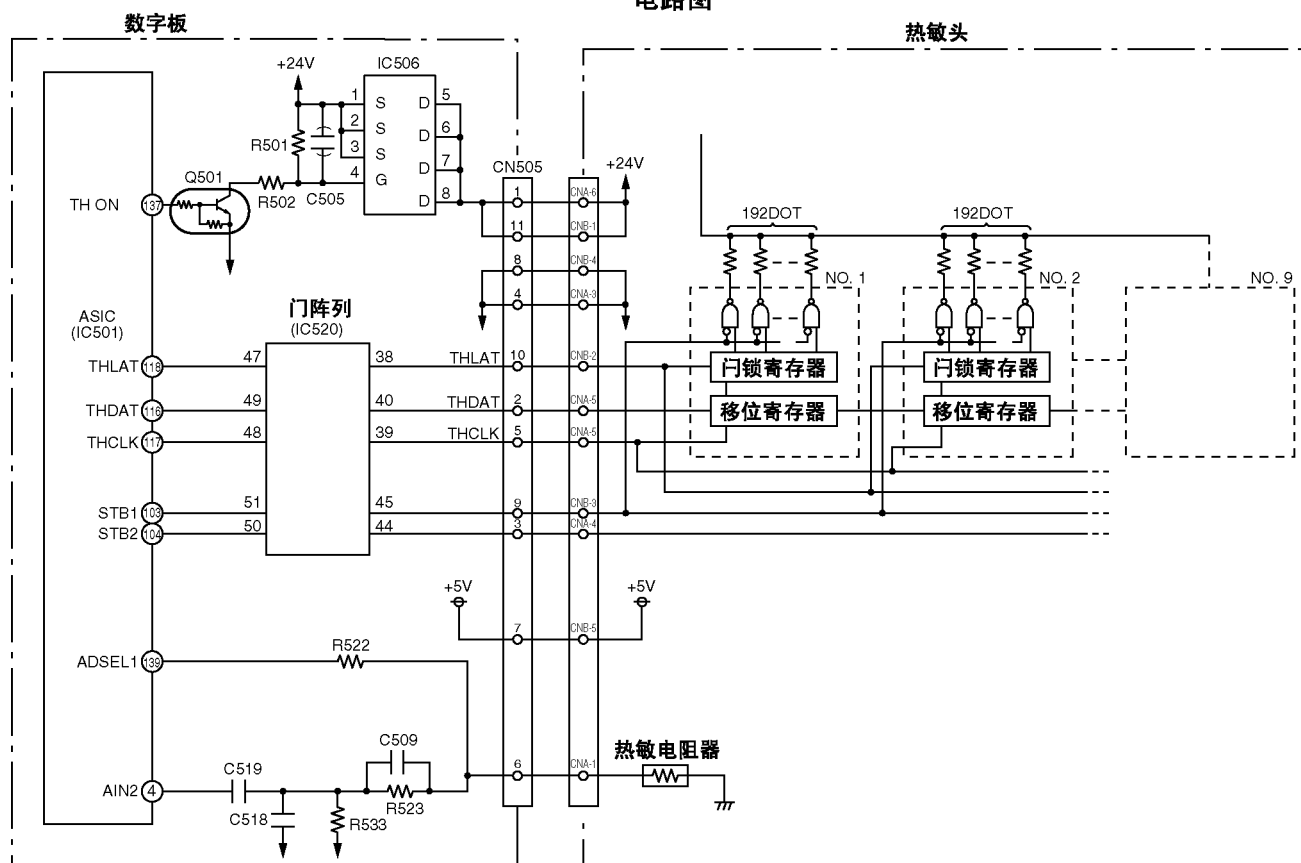
用此门控脉冲将移位寄存器的全部内容都锁入门控寄存器。此后，通过从 IC501 管脚 (103, 104) 增加选通脉冲，只有门控数据中的黑点位置 (= 1) 才启动驱动器，而电流通过，将发射体加热以造成热量释放。

至此，根据逐行打印的要求，这两条选通脉冲—STB1 和 STB2—每隔 9.216msec 压印一次。

在下页上展示了此顺序。[此外，关于选通脉冲宽度，根据 IC501 管脚 4 检测热敏头内的热敏电阻值。依靠该数值，将选通脉冲宽度记录在快速 ROM (IC502) 内，从而确定选通脉冲宽度]。

当不用热敏头时，IC501 (137, THON) 上的电压变低，Q501 关闭，IC506 也关闭，而热敏头驱动器的 +24V 电源被中断以保护 IC。

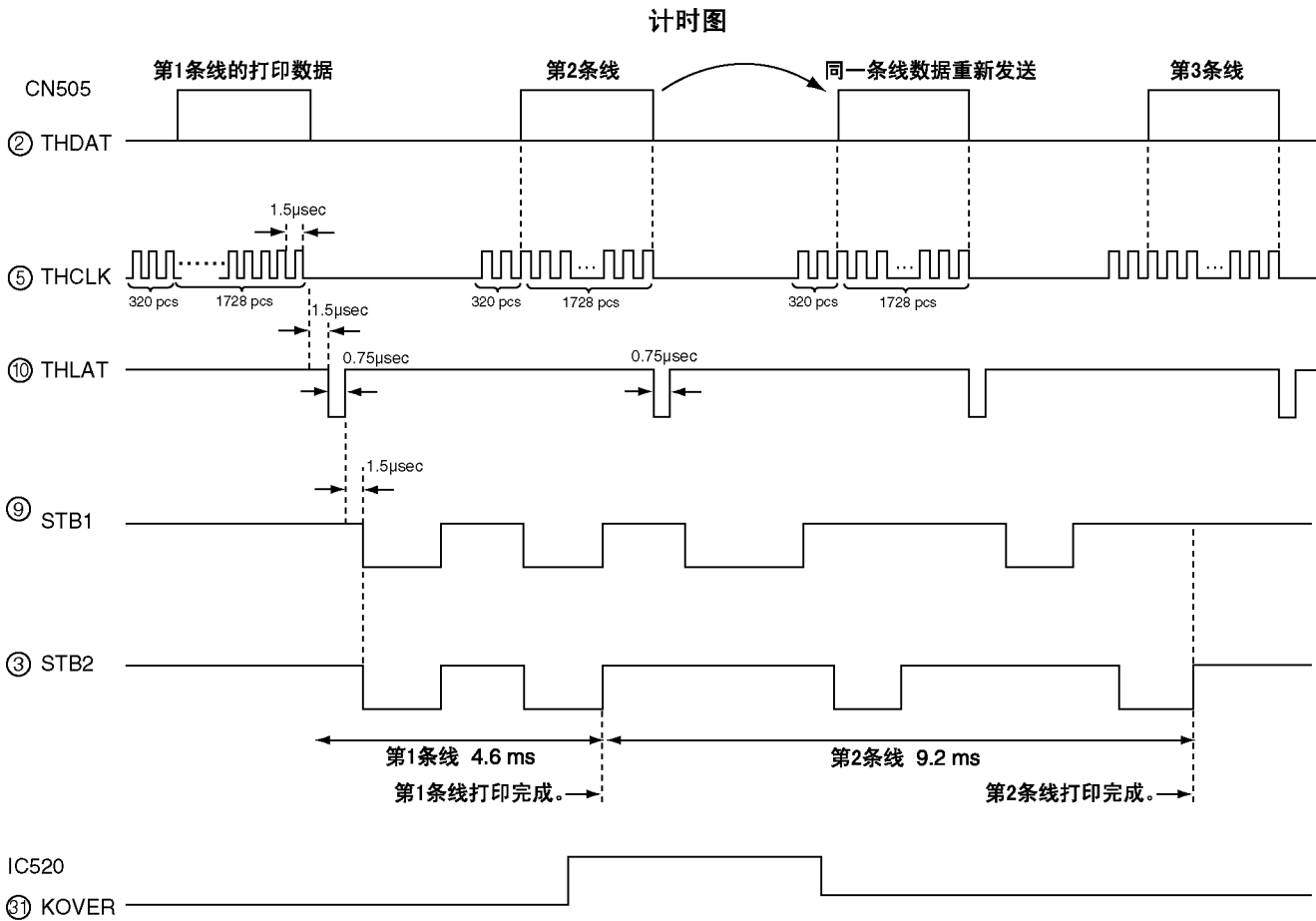
电路图



限于 ASF 复印（方式：精细）

打印速度随文件上黑色部分的比率而变化。

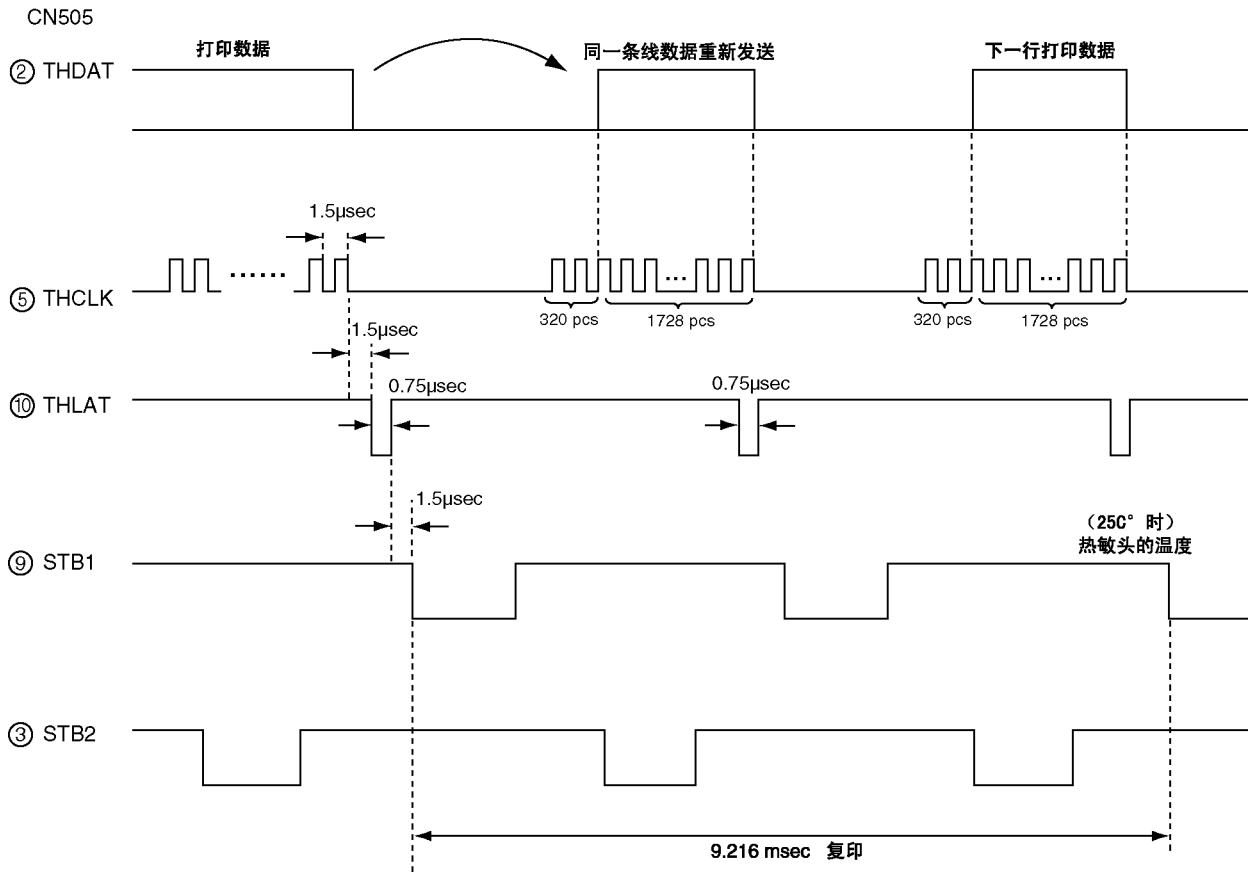
示例：第 1 条线的黑色部分为 50% 或更少，第 2 条线的黑色部分为 50% 或更多。



- 如果 50% 以上的打印区是黑色的，则KOVER将从L变为H，打印时间会从4.6ms变为9.2ms。
- 在接收空白较多的文件时，每条线打印时间持续 4.6 ms，速度比较快。

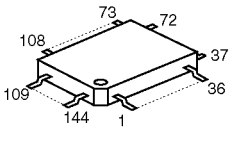
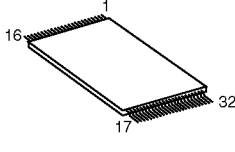
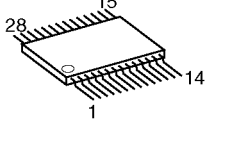
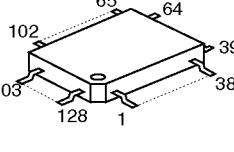
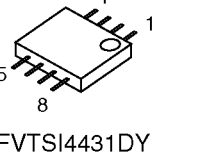
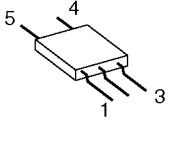
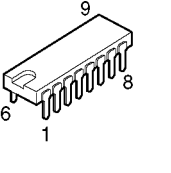
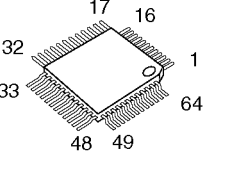
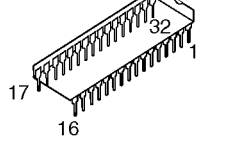
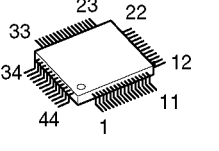
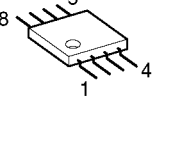
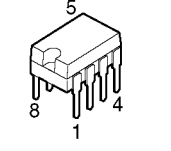
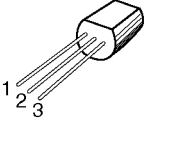
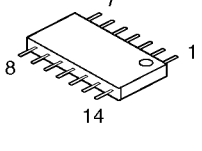
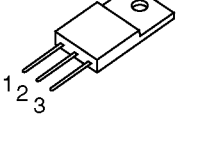
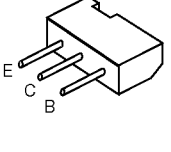
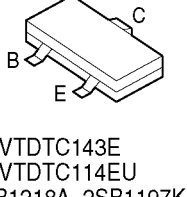
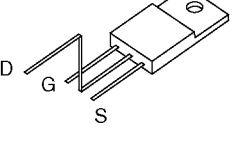
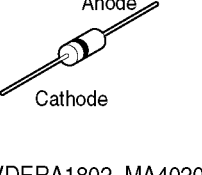
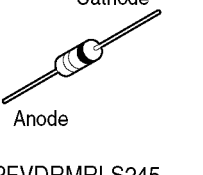
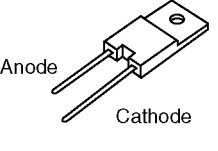
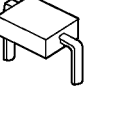
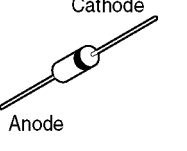
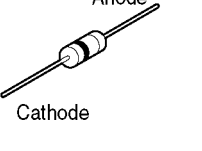
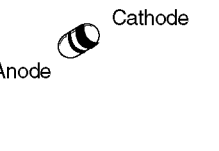
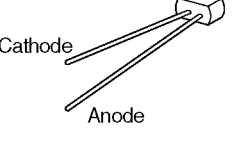
书籍复印 /ASF 复印（精细方式除外）：接收打印

计时图



8 基准资料数据

8.1 IC 的晶体管和二极管的终端指南

				 PFVTSI4431DY PQVIMC34119M PFVINJM4558M
				 MN7D032Z9J
				 AN7805F
	 PQVTDTC143E PQVTDTC114EU 2SB1218A, 2SB1197K UN5113		 PQVDERA1802, MA4020 PFVDAG01A, MA165	 PFVDRMRLS245 MA4056
			 MA7160, PFVD1N4005 MA4220, PFVDD1NL20U	 RLS71
				

8.2. 如何更换扁平插件 IC

即使您没有特殊工具（例如点加热器）卸下扁平 IC，只要您有焊料（大量），一把烙铁和一把小刀，您就可以容易地卸下多达 100 多个管脚的 IC。

8.2.1. 准备

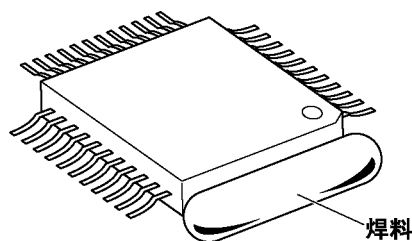
- 焊料
火花焊料 115A-1, 115B-1 或铝钎焊料 KR-19, KR-19RMA
- 烙铁
建议电耗应在 30 至 40W 之间。
铜杆温度：662 ± 50 °C（350 ± 10 °C）
（熟练者可以使用 60-80W 的烙铁，但初学者可能因过热而损坏薄片）。
- 焊剂
HI115A 比重 0.863
（原焊剂应每天更换。）

8.2.2. 扁平插件 IC 拆卸工序

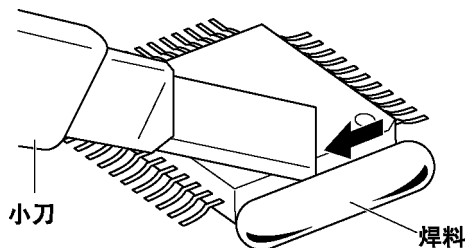
1. 在 IC 管脚上放大量焊料，使焊料将管脚全部盖上。

注：

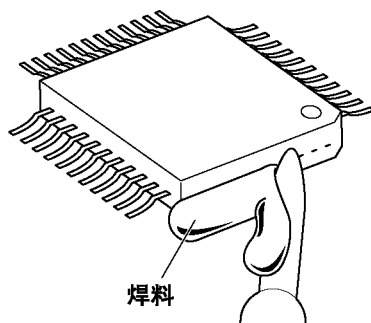
如果 IC 管脚焊接不充分，您可在用小刀切管脚时，往 P.C. 板上施压。



2. 首先在 IC 及其管脚之间的接点内切些小口，然后彻底切掉管脚。



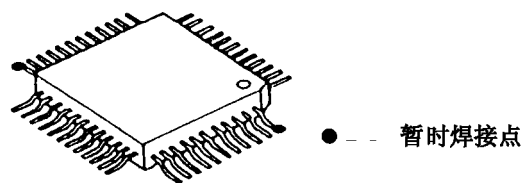
3. 当焊料熔化时，将它与 IC 管脚一起卸下。



当您往板上安新的 IC 时，可用例如焊线之类的工具除去所有遗留在焊接区上的焊料。如果在板上的接点处留有焊料，就不能正确地安放新的 IC。

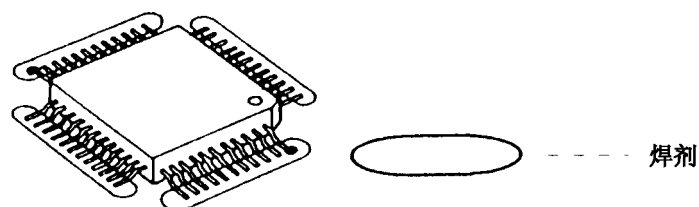
8.2.3. 扁平插件 IC 安装工序

1. 通过焊接 2 个做标记的管脚而暂时固定扁平插件 IC。

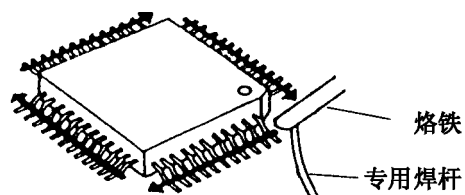


* 用相应的焊箔片检查 IC 安放的精度。

2. 将焊剂涂在扁平插件 IC 的全部管脚上。

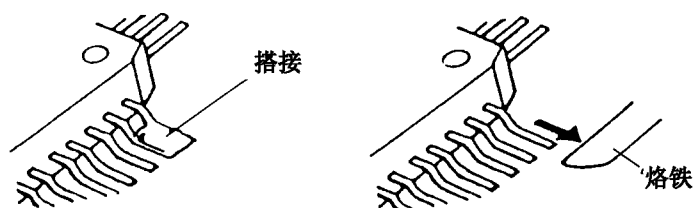


3. 按箭头方向滑动烙铁，焊接各管脚。



8.2.4. 搭接修改工序

1. 轻轻地重焊搭接部分。
2. 如下图所示，用烙铁沿着管脚去除残留的焊料。

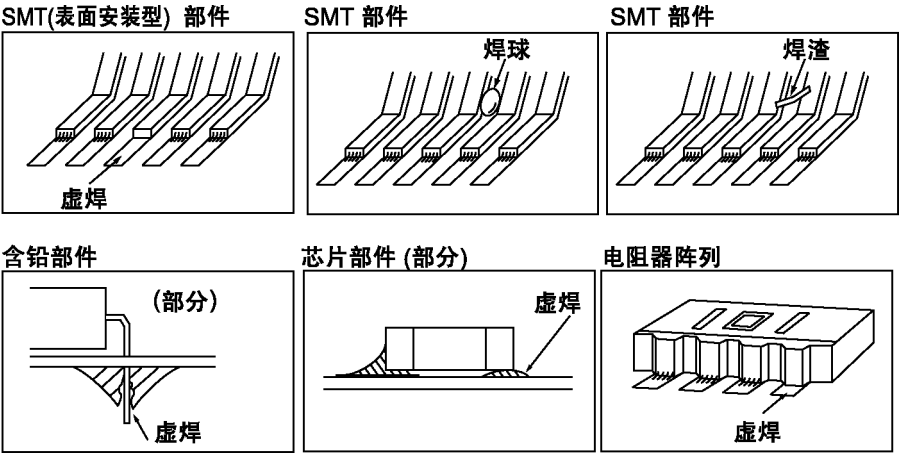


8.3. 数字板部分

当本机不能启动本系统时，小心地按故障检修工序进行检修。很可能有严重问题。

症状：接通电源时无反应。（LCD 不显示，键失灵）。

首先应检查电源，如果电源装置无问题，则可能是数字组件有问题（主板）。
 由于在此情况下（ASIC，DRAM 等）有许多潜在原因，可能难以规定首先应检查哪一项。
 如果在检查顺序中出差错，可能将正常部件当成故障部件，既浪费时间也浪费金钱，尽管一般趋势是将问题看得很严重（IC 故障等），实际上多数原因由焊接不当而引起（由于焊接沟缝造成接触不良，由于焊渣造成信号短路）。



- 注意：**
1. 在出厂检查时可能存在供电的连续性，但在运输过程中，由于振动等发生接触不良。
 2. 在运输过程中，残留在板上的焊渣可能带到了 IC 底下，引起短路。

我们在开始成批生产前，在工厂生产了几百台试用机，进行了各种试验并分析了任何故障。（根据过去的经验，在产品安装后，很少出现数字式 IC（尤其是 SRAM、DRAM 和 ROM）故障）。

这可以通过更换 IC（DRAM 等）来修理。然而，真正的原因不可能是 IC 故障，而是焊接毛病。

一般用肉眼难以发现焊接毛病，尤其是 ASIC 和 RA（电阻器阵列）。但如果您有一台示波器，通过检查主要信号线，您就容易确认故障地点或 IC 故障。

即使您没有这种测量仪器，通过检查每条主要信号线并重新焊接它，在许多情况下，问题也会得到解决。

主要信号（用于本机）的说明如下。

在没有检查信号线前不更换 IC 或者停止修理。
 很少发生 IC 故障。（通过了解启动本机的必要信号，“Not Boot up”（未启动）显示并不是什么严重问题）。

什么是启动本机的主要信号？

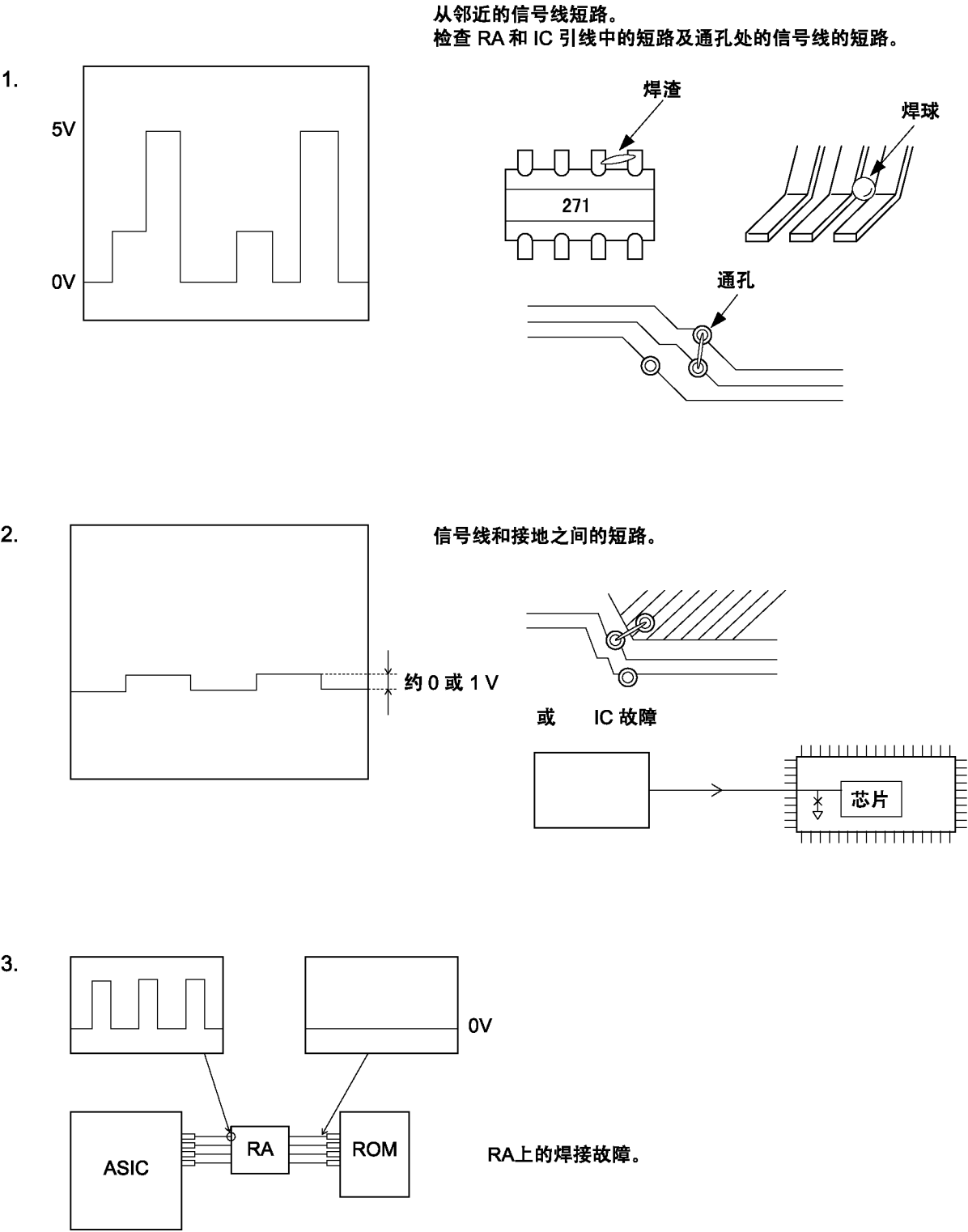
请参考 7.3.1.1. 数字方框图（P.128）。

ASIC（IC501）控制全部其他数字式 IC，当接通电源时，ASIC 就检索储存在 ROM（IC523）中的操作代码，然后遵守控制每个 IC 的指令。全部 IC 都有一些分配到某个地址的内部寄存器。

ASIC 正是通过地址总线来指定每个 IC 中的地址。而数据总线则读写数据，以便把指令从 ASIC 发送到 IC。

这些信号线路都受 5V（H）或者 0V（L）电压的控制。

8.3.1. 不正常例子



8. 4. 调制解调器部分

8. 4. 1. 功能

本机使用一个单片调制解调器（IC505），它在 FAX 传送和接收的控制部分及电话线之间起接口作用。在传送操作过程中，数字图像信号被调制并传送到电话线上。

在接收操作过程中，通过电话线接收的模拟图像信号被解调，并转换成数字图像信号。FAX 通信的格式和程序采用 ITU-T 标准。这种单片调制解调器（IC505）具有传送和检测所有的 FAX 通信所必需的信号的硬件。

它可以通过 CPU（IC501：在 ASIC 内）向调制解调器（IC505）的寄存器写入命令而控制。

此调制解调器（IC505）也发送 DTMF 信号，产生呼叫音频（从扬声器）检测忙音和拨号音。

传真通信程序的综述（ITU-T 建议）

1. 关于 CCITT（国际电报电话咨询委员会）

ITU-T 的第 14 组，国际电信联盟（ITU）的 4 个常设机构之一，对国际传真标准进行调查并提出建议。

2. 各组的定义

• 第一组（G1）

A4 尺寸的文件，在不使用格式的情况下，降低在电话线上传送信号的频带宽度。

1968 年确定

以 3.85 线/mm 的扫描线密度传送约 6 分钟。

• 第二组（G2）

在调制 / 解调格式上使用简化技术，以 3.85 线/mm 的正规扫描线密度传送一份 A4 尺寸的文件约 3 分钟。

不采用压缩冗余部分的方法。

1976 年确定。

• 第三组（G3）

采用在调制前压缩图像信号中冗余部分的方法。在约 1 分钟以内传送一份 A4 尺寸的文件。

1980 年确定。

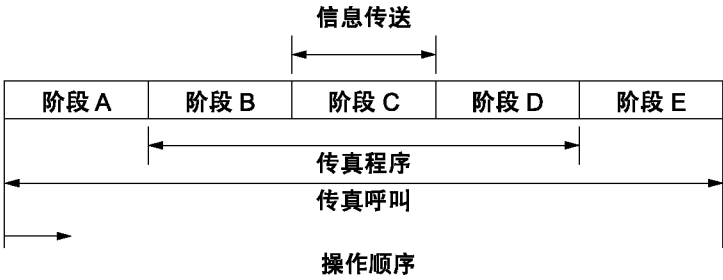
• 第四组（G4）

通过数据网络传送。采用在传送前压缩信号冗余部分的方法，并且能无差错接收传送。

这些传真的应用范围并不仅仅局限于传送书写报告。通过运用其他符号接通信号方法，预期可以将其扩展到包括综合服务。

3. 传真呼叫时间序列

如下图所示，传真呼叫时间序列分为 5 个阶段。



阶段 A：呼叫设定

呼叫设定可以是手动 / 自动。

阶段 B：预留信息程序

阶段 B 是一个预处理程序和顺序，它用于确认终端状态、传送路径等，并用于终端控制。它执行终端准备状态，确定和显示终端常数，确认同步状态等，并准备传真信息的传送。

阶段 C：信息传送

阶段 C 是传送传真信息的过程。

阶段 D：留言程序

阶段 D 是确认留言完成和已接收的过程。为了连续传送，不断重复阶段 B 和 C 的传送。

阶段 E：呼叫恢复

阶段 E 是呼叫恢复的过程，即断开电路的过程。

4. 关于传送时间

$$\text{传送时间} = \text{控制时间} + \text{图像传送时间} + \text{保持时间}$$

传送时间由以下部分组成：

控制时间：

这是当发送方与接收方的功能被确认时，传送开始的时间，建立传送方式，并使传送与接收同步。

图像传送时间：

这是传送文件内容（图像数据）所需要的时间。这个时间一般被记录在目录等之中。

保持时间：

这是在文件内容已被传送后，为确认文件事实上被传送，以及检查电话是否保留和 / 或是否存在连续传送所需要的时间。

5. 传真标准

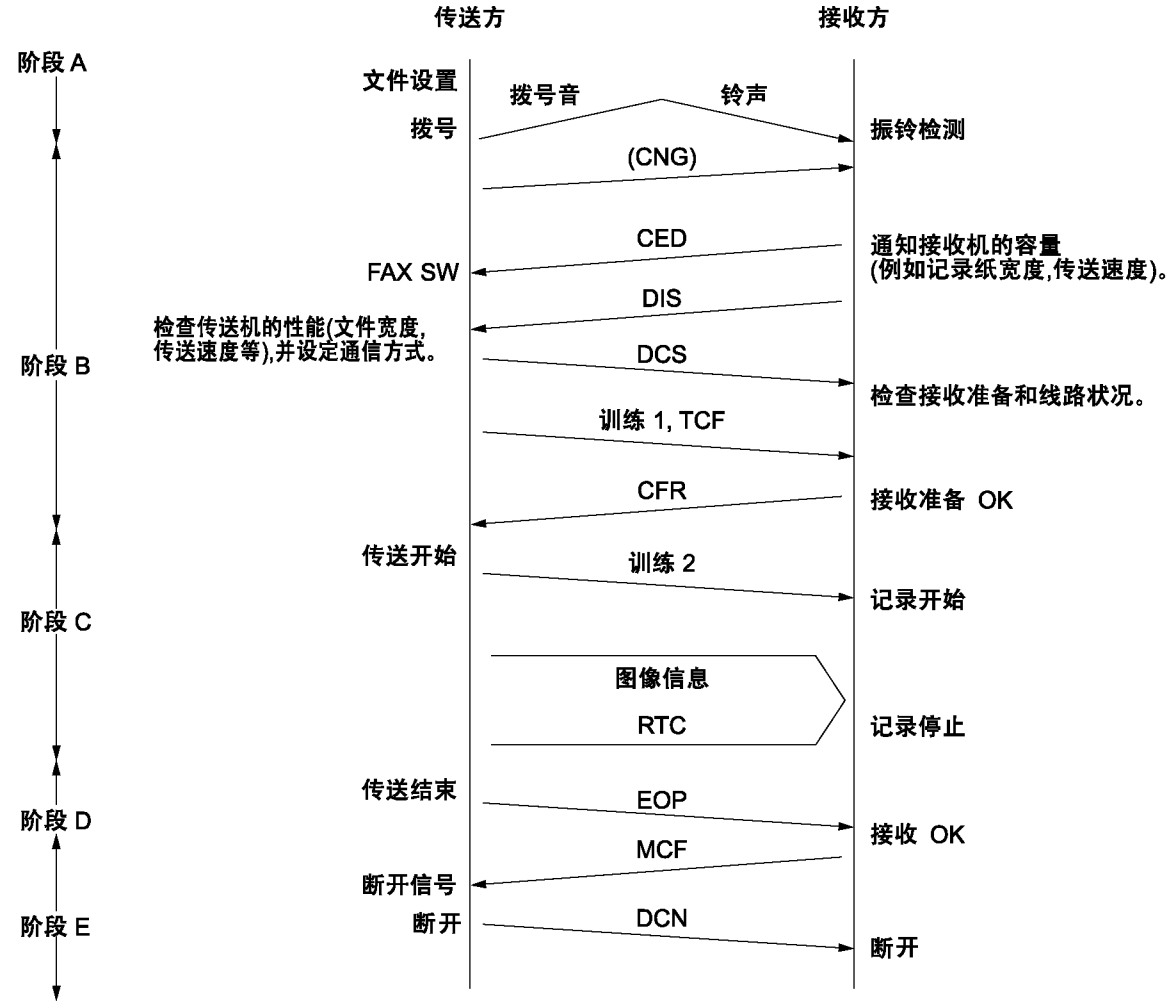
项目	电话网络传真
	G3 机
连接控制方式	电话网络信号方式
终端控制方式	T. 30 二进制
传真信号格式	数字式
调制方式	PSK (V. 27 ter) 或 QAM (V. 29)
传送速度	300 bps (控制信号) 2400, 4800, 7200, 9600, 12000, 14400 bps (FAX 信号)
冗余码压缩过程 (编码方式)	1 尺寸: MH 方式 2 尺寸: MR 方式 (K=2.4)
清晰度	主扫描: 8 像素 /mm 次扫描: 3.85, 7.71/mm
线路同步信号	EOL 信号
单线传送时间 [ms/ 线]	取决于数据简化的程度。 最小值: 10, 20 可在 40ms 中识别。

6. 通信和压缩技术的说明

a. G3 通信信号（T. 30 二进制过程）

在 G3 传真通信中，这是在图像信号的发送前后，在传送与接收机之间交换控制信号的过程。
在 300bps FSK 上的控制信号为：1850Hz…0，1650Hz…1。

G3 通信中的二进制过程的例子如下。



信号说明

控制信号主要由 8 比特识别信号和加给它们的数据信号组成。

数据信号被加到 DIS 和 DCS 信号上。

信号…DIS（数字识别信号）

识别信号格式……00000001

功能：

通知接收机的容量。增加的数据信号如下：

信号……DCS（数据指令信号）

识别信号格式……X1000001

例（某些机型不支持以下项目）

比特号	DIS/DTC	DCS
1	传送机 -----T. 2 工作	
2	接收机 -----T. 2 工作	接收机 -----T. 2 工作
3	T. 2 IOC = 176	T. 2 IOC = 176
4	传送机 -----T. 3 工作	
5	接收机 -----T. 3 工作	接收机 -----T. 3 工作
6	为将来 T. 3 工作特点备用	
7	为将来 T. 3 工作特点备用	
8	为将来 T. 3 工作特点备用	
9	传送机 -----T. 4 工作	
10	接收机 -----T. 4 工作	接收机 -----T. 4 工作

比特号	DIS/DTC	DCS
11, 12, 13, 14 0, 0, 0, 0 0, 1, 0, 0 1, 0, 0, 0 1, 1, 0, 0 0, 0, 1, 0 0, 1, 1, 0 1, 0, 1, 0 1, 1, 1, 0 0, 0, 0, 1 0, 1, 0, 1 1, 0, 0, 1 1, 1, 0, 1 0, 0, 1, 1 0, 1, 1, 1 1, 0, 1, 1 1, 1, 1, 1	数据信号发送速率 V. 27 ter 回落方式 V. 27 ter V. 29 V. 27 ter 和 V. 29 不用 预备 不用 V. 27 ter 和 V. 29 和 V. 33 不用 预备 不用 V. 27 ter 和 V. 29 和 V. 33 和 V. 17 不用 预备 不用 预备	数据信号发送速率 2400 比特 /s, V. 27 ter 4800 比特 /s, V. 27 ter 9600 比特 /s, V. 29 7200 比特 /s, V. 29 14400 比特 /s, V. 33 12000 比特 /s, V. 33 预备 预备 14400 比特 /s, V. 17 12000 比特 /s, V. 17 9600 比特 /s, V. 17 7200 比特 /s, V. 17 预备 预备 预备 预备
15	R8 × 7.7 线 /mm 与 / 或 200 × 200pels/25.4mm	R8 × 7.7 线 /mm 与 / 或 200 × 200pels/25.4mm
16	二维编码能力	二维编码能力
17, 18 (0, 0) (0, 1) (1, 0) (1, 1)	记录宽度能力 沿扫描线 1728 个像素 长度为 215mm ± 1% 沿扫描线 1728 个像素 长度为 215mm ± 1% 沿扫描线 2048 个像素 长度为 255mm ± 1% 沿扫描线 2432 个像素 长度为 303mm ± 1% 沿扫描线 1728 个像素 长度为 215mm ± 1% 沿扫描线 2048 个像素 长度为 255mm ± 1% 无效	记录宽度 沿扫描线 1728 个像素 长度为 215mm ± 1% 沿扫描线 2432 个像素 长度为 303mm ± 1% 沿扫描线 2048 个像素 长度为 255mm ± 1% 无效
19, 20 (0, 0) (0, 1) (1, 0) (1, 1)	最大记录长度能力 A4 (297 mm) 无限 A4 (297 mm) 和 B4 (364 mm) 无效	最大记录长度 A4 (297 mm) 无限 B4 (364 mm) 无效
21, 22, 23 (0, 0, 0) (0, 0, 1) (0, 1, 0) (1, 0, 0) (0, 1, 1) (1, 1, 0) (1, 0, 1) (1, 1, 1)	接收机最短的扫描线时间 在 3.85 l/mm 时为 20ms: T7.7 = T3.85 在 3.85 l/mm 时为 40ms: T7.7 = T3.85 在 3.85 l/mm 时为 10ms: T7.7 = T3.85 在 3.85 l/mm 时为 5ms: T7.7 = T3.85 在 3.85 l/mm 时为 10ms: T7.7 = 1/2 T3.85 在 3.85 l/mm 时为 20ms: T7.7 = 1/2 T3.85 在 3.85 l/mm 时为 40ms: T7.7 = 1/2 T3.85 在 3.85 l/mm 时为 0ms: T7.7 = T3.85	最短扫描线时间 20 ms 40 ms 10 ms 5 ms 0 ms
24	延伸区域	延伸区域
25	信号交换 2400 比特	信号交换 2400 比特
26	不压缩方式	不压缩方式
27	纠错方式	纠错方式
28	设定到 “0”	帧尺寸 0=256 八位字节 1=64 八位字节
29	限制方式	限制方式
30	为 PSTN 上 G4 能力预备	为 PSTN 上 G4 能力预备
31	T. 6 编码能力	T. 6 编码能力
32	延伸区域	延伸区域
33 (0) (1)	比特 17, 18 的有效性 比特 17, 18 有效 比特 17, 18 无效	记录宽度 记录宽度由比特 17, 18 位指示 记录宽度由此字段比特信息指示
34	沿扫描线 1216 个像素的记录宽度能力, 长度为 151mm ± 1%	1728 个像素的中间 1216 像素
35	沿扫描线 864 个像素的记录宽度能力, 长度为 107mm ± 1%	1728 个像素的中间 864 像素
36	沿扫描线 1728 个像素的记录宽度能力, 长度为 151mm ± 1%	无效
37	沿扫描线 1728 个像素的记录宽度能力, 长度为 107mm ± 1%	无效
38	为将来记录宽度能力预备	
39	为将来记录宽度能力预备	
40	延伸区域	延伸区域
41	R8 × 15.4 线 /mm	R8 × 15.4 线 /mm
42	300 × 300 像素 /25.4mm	300 × 300 像素 /25.4mm
43	R16 × 15.4 线 /mm 和 400 × 400 像素 /25.4mm	R16 × 15.4 线 /mm 和 / 或 400 × 400 像素 /25.4mm
44	建议基于英制的清晰度	清晰度类型选择 “0”: 基于公制的清晰度 “1”: 基于英制的清晰度
45	建议基于公制的清晰度	不管

比特号	DIS/DTC	DCS
46	较高清晰度的最短扫描线时间能力。 “0” : $T_{15.4} = T_{7.7}$ “1” : $T_{15.4} = 1/2T_{7.7}$	不管
47	选择的查询能力	设定到 “0”
48	延伸区域	延伸区域

注 1: 符合 T. 2 的标准传真机必须有以下能力: 合作系数 (IOC) =264。

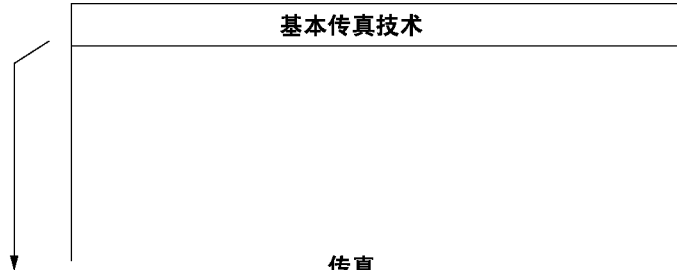
注 2: 符合 T. 3 的标准传真机必须有以下能力: 合作系数 (IOC) =264。

注 3: 符合 T. 4 的标准传真机必须有以下能力: 纸长度 =297。

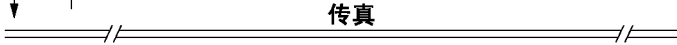
信号	识别信号格式	功能
训练 1	_____	将一个固定图形以 DCS 指定的速度 (2400 至 9,600bps) 传送给接收方。接收方根据此信号使自动均衡器等处于最佳状态。
TCF (训练检查)	_____	将 0 作为训练信号以同样的速度连续传送 1.5 秒钟。
CFR (确认接收)	X0100001	通知传送方 TCF 已正确收到。若 TCF 未被正确接收, FIT (训练失败) X0100010 就被传给传送方。于是, 传送方将传送速度降低一级, 然后再次开始训练。
训练 2	_____	用于再次确认接收方和训练 1 一样。
图像信号	参考下一页	_____
RTC (返回至控制)	_____	以与图像信号相同的速度将 12 比特 (0.....01 × 6 次) 传送给接收方, 并通知已完成第一页的传送。
EOP (过程结束)	X1110100	结束一次通信。
MCF (信息确认)	X0110001	接收结束一页。
DCN (断开)	X1011111	阶段 E 开始。
MPS (多页信号)	X1110010	完成一页传送。如果仍有文件要传送, 它们就被输出, 而非 EOP。在收到 MCF 后, 传送方传送第二页的图像信号。
PRI-EOP (过程中断)	X1111100	如果有来自传送方的操作员呼叫, 它在 RTC 后输出。
PIP (过程中断确认)	X0110101	这是在收到操作员呼叫时的输出。

b. 冗余压缩过程编码方式
本机使用一维 MH 格式。

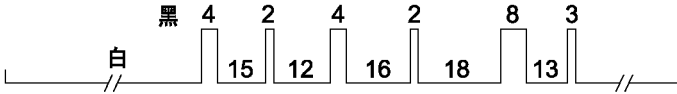
(a) 文件



(b) 部分文件



(c) 运行长度和图像信号等于(b)



(d) 根据MH公式编
(c) 码

001101111101010 (白 400) 011 (黑 4) 110101 (白 15) 11 (黑 2) 001000 (白 12) 011 (黑 4) 101010 (白 16)

11 (黑 2) 0100111 (白 18) 000101 (黑 8) 000011 (白 13) 10 (黑 3)

(c) 在MH 编码前的总比特数 (497 比特)
(d) 在MH 编码后的总比特数 (63 比特)

改进的霍夫曼 (MH) 代码		
运行长度	白线代码	黑线代码
0	00110101	000011011
1	000111	010
2	0111	11
3	1000	10
4	1011	011
5	1100	0011
6	1110	0010
7	1111	00011
8	10011	000101
9	10100	000100
10	00111	0000100
11	01000	0000101
12	001000	0000111
13	000011	00000100
14	110100	00000111
15	110101	000011000
16	101010	0000010111
17	101011	0000011000
18	0100111	0000001000

8. 5. NCU 部分

8. 5. 1. 总则

本部分是电话线和外线电话之间的接口。它由一个分机电话线继电器 (RLY101)，振铃检测电路，脉冲拨号电路，电话应答机接口电路，线路放大器和侧音电路以及多路复用器组成。

8. 5. 2. 分机电话线继电器 (RLY101)

1. 电路操作

通常在摘机时，此继电器可切换开关至外部电话方（断）和切换开关至敞开方（通）。

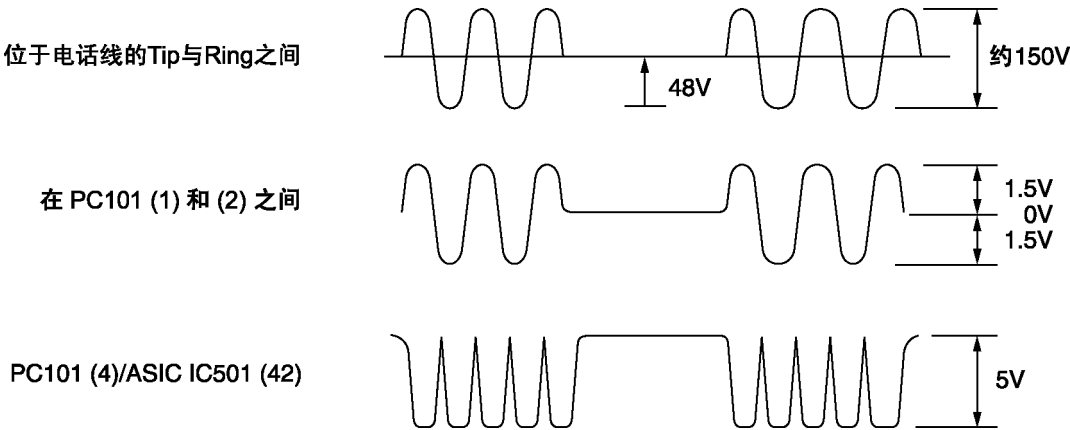
{IC501 (138) 高电平→CN511 (9) 高电平}→CN101 (9) 高电平→Q102 接通→RLY101 (通)

8. 5. 3. 铃声检测电路

1. 电路操作

各部分的信号波形表示如下。输入 ASIC IC501（数字板上）的管脚 42 的信号由 ASIC 读取，并识别为响铃。

电话线→PC101 (1, 2-4)→IC501 (42)



8. 5. 4. TAM 接口电路

此电路可在传真接收和外部 TAM 的留言录制之间进行自动切换。它由一台监听变压器，倍增器和放大器电路组成。详情请参考 8. 6. 1. 4. TAM 接口部分 (P. 173)。

8. 5. 5. 脉冲拨号电路和挂机 / 摘机电路

当摘机时，RLY101 接通，Q102 也由 IC501 的管脚 138 接通。另一方面，在挂机时，Q102 被 IC501 的管脚 138 断开，然后线路断开。用 IC501 的管脚 138 控制的挂机 / 摘机能够使脉冲拨号操作。

IC501 (138) LINE RLY 低电平 → CN511 (9) → CN101 (9) → Q102 OFF → RLY101 OFF : DC Loop OFF

IC501 (138) LINE RLY 高电平 → CN511 (9) → CN101 (9) → Q102 ON → RLY101 ON : DC Loop ON

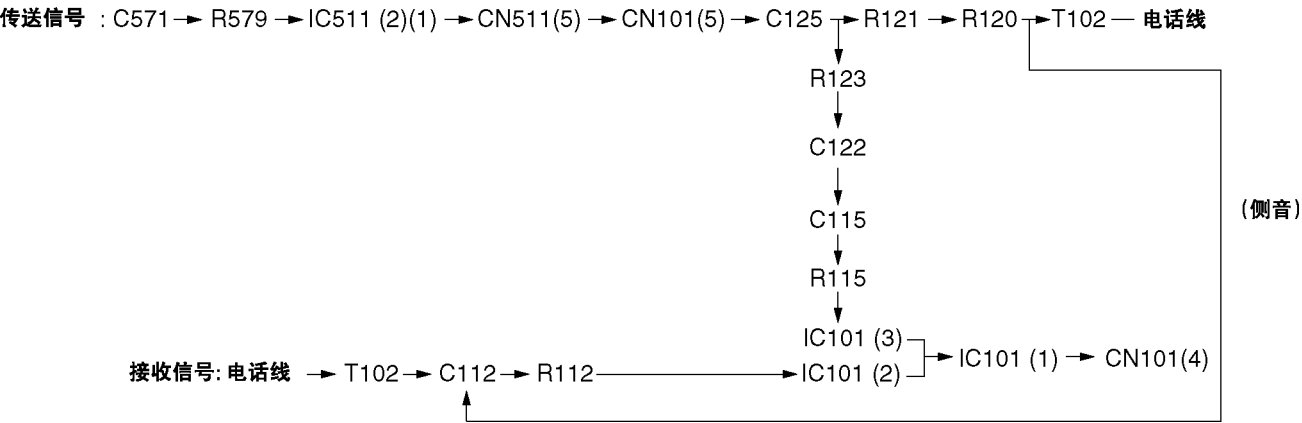
8.5.6. 线路放大器和侧音电路

1. 电路操作

从线路变压器 T102 输出的接收信号通过 C112 和 R112 输入至 IC101 的管脚 (2)，然后该信号在 11.6dB 的放大 IC101 的管脚 (1) 和接收系统。

传送信号通过 C571 和 R579 并输入 IC511 的管脚 (2)，信号在那里被放大到约 24.8dB。然后，它从 IC101 的管脚 (1) 输出，通过 C125, R120 和 R121 传送至 T102。如果不采用侧音电路，传送信号将通过 C112 和 R112 返回至接收放大器。当启动侧音电路时，由 IC101 的管脚 (1) 输出的信号通过 C125, R123, C122, C115 和 R115，并进入放大器 IC101 的管脚 (3)。此电路用于取消传送返回信号。

侧音电路



8.6. ITS（综合电话系统）和监听器部分

8.6.1. 总则

在监视器工作时，扬声器输出将通过电源放大器（IC519）[模拟板]。

DTMF 信号从调制解调器输出（IC505：数字板）。警示音频、按键音频、响铃音频及嘟嘟声均从门阵列 IC501 输出（数字板）。在脉冲拨号工作时，监视器音频从门阵列 IC501 输出。

8.6.1.1. 电话监视器

1. 功能

此功能可让您在手机挂机时，从线路中听到呼叫方的语音。

2. 信号通路

参考 6.5.9.1. 检查表 (P. 110)。

8.6.1.2. 话筒电路

1. 功能

此电路控制通过话筒的通话，即来往于话筒的传送和接收的语音。

2. 信号通路（传送信号）

参考 6.5.9.1. 检查表 (P. 110)。

3. 信号通路（接收信号）

参考 6.5.9.1. 检查表 (P. 110)。

8.6.1.3. 监听器电路

1. 功能

此电路监听各种音频，例如 1 DTMF 音 2，报警 / 嘟嘟声 / 键音 / 铃声。

2. 信号通路

a. DTMF 监视器

（扬声器工作）

参考 6.5.9.1. 检查表 (P. 110)。

（手机工作）

参考 6.5.9.1. 检查表 (P. 110)。

b. 警告 / 嘟嘟声 / 按键音频 / 响铃

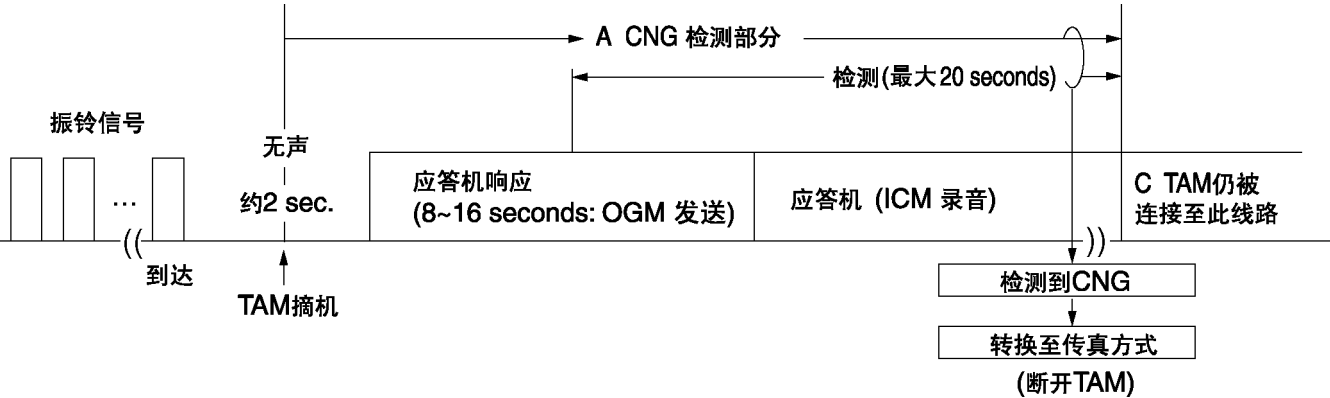
参考 6.5.9.1. 检查表 (P. 110)。

8. 6. 1. 4. TAM 接口部分

1. 功能
- 接收方式中的 EXT. TAM 选择时，本机接收传真呼叫的文件或外部 TAM 自动录制语音留言。

在 EXT. TAM 方式时，在应答机和传真机方式之间转换。

#	外接电话应答机操作	本机操作
1	当振铃信号的振铃次数与被存储在连接的应答机 (TAM) 中的次数相同时，应答机就与此线连接而且应答留言就被发送到线路上。(OGM 输出约 8 ~ 16 秒)	应答留言的长度必须为 8 ~ 16 秒。 在播放留言时，本机开始检测 CNG 信号。(A) 如果本机检测到 CNG 信号，它将转换到传真接收并且自动断开外接的 TAM。
2	在发送 OGM 后，应答机开始录制对方的留言 (ICM 录音)。	在外部 TAM 的 OGM 完成后。 如果本机历时约 30 秒钟无法检测到 CNG 信号，则本机将断线。(C)



- 注意事项 1:
- 在应答机收到来电后 20 秒内没有检测到任何声音。本机切换到传真。
- 注意事项 2:
- 如果应答机因断线或录音磁带满载而无法对来电作出应答，则本机在 5 声振铃后拾取来电 (#006 功能)。然后本机切换到传真。

8. 6. 1. 4. 1. 电路操作

TAM 接口电路由来自对方的 CNG 信息检测电路和 RLY101 (用于分离外部 TAM) 组成。

1. CNG 信号检测电路
- 来自对方传真机的 CNG 在调制解调器 (IC505) 内被检测。(数字板)
- (信号通路)
- 参考 6. 5. 9. 1. 检查表 (P. 110).
2. 遥控接收
- 这是 T 和 R 之间的 TEL 或 EXT. TEL 方式的并行或串联连接 DTMF 信号。当对方为传真机时，本机转换到传真接收。
- (信号通路)
- 检测 DTMF 内的调制解调器信号。

8. 7. 测试图表

8. 7. 1. ITU-T 1 号测试图



THE SLEREXE COMPANY LIMITED

SAPORS LANE - BOOLE - DORSET - BH 25 8 ER

TELEPHONE BOOLE (945 13) 51617 - TELEX 123456

Our Ref. 350/PJC/EAC

18th January, 1972.

Dr. P.N. Cundall,
Mining Surveys Ltd.,
Holroyd Road,
Reading,
Berks.

Dear Pete,

Permit me to introduce you to the facility of facsimile transmission.

In facsimile a photocell is caused to perform a raster scan over the subject copy. The variations of print density on the document cause the photocell to generate an analogous electrical video signal. This signal is used to modulate a carrier, which is transmitted to a remote destination over a radio or cable communications link.

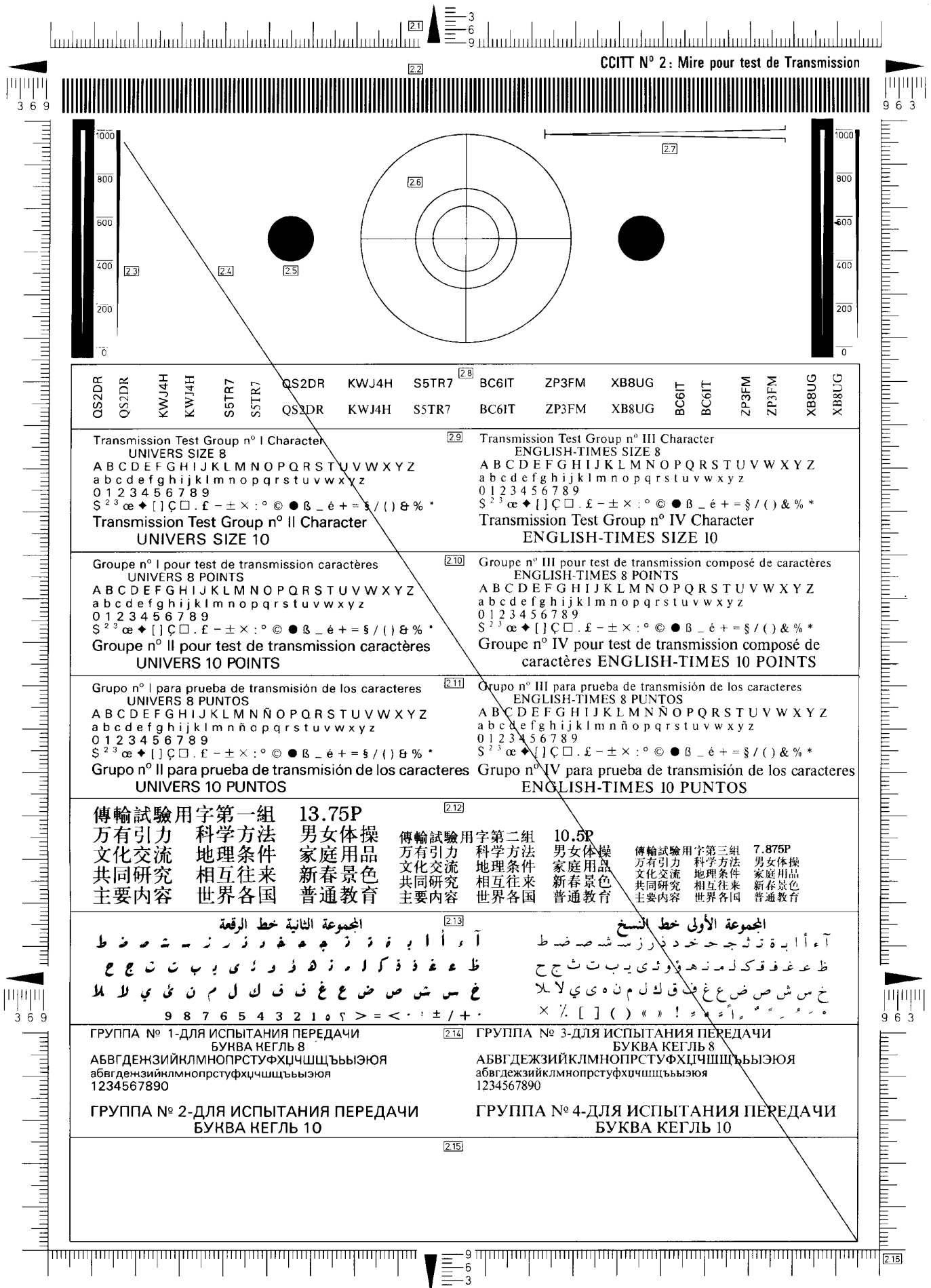
At the remote terminal, demodulation reconstructs the video signal, which is used to modulate the density of print produced by a printing device. This device is scanning in a raster scan synchronised with that at the transmitting terminal. As a result, a facsimile copy of the subject document is produced.

Probably you have uses for this facility in your organisation.

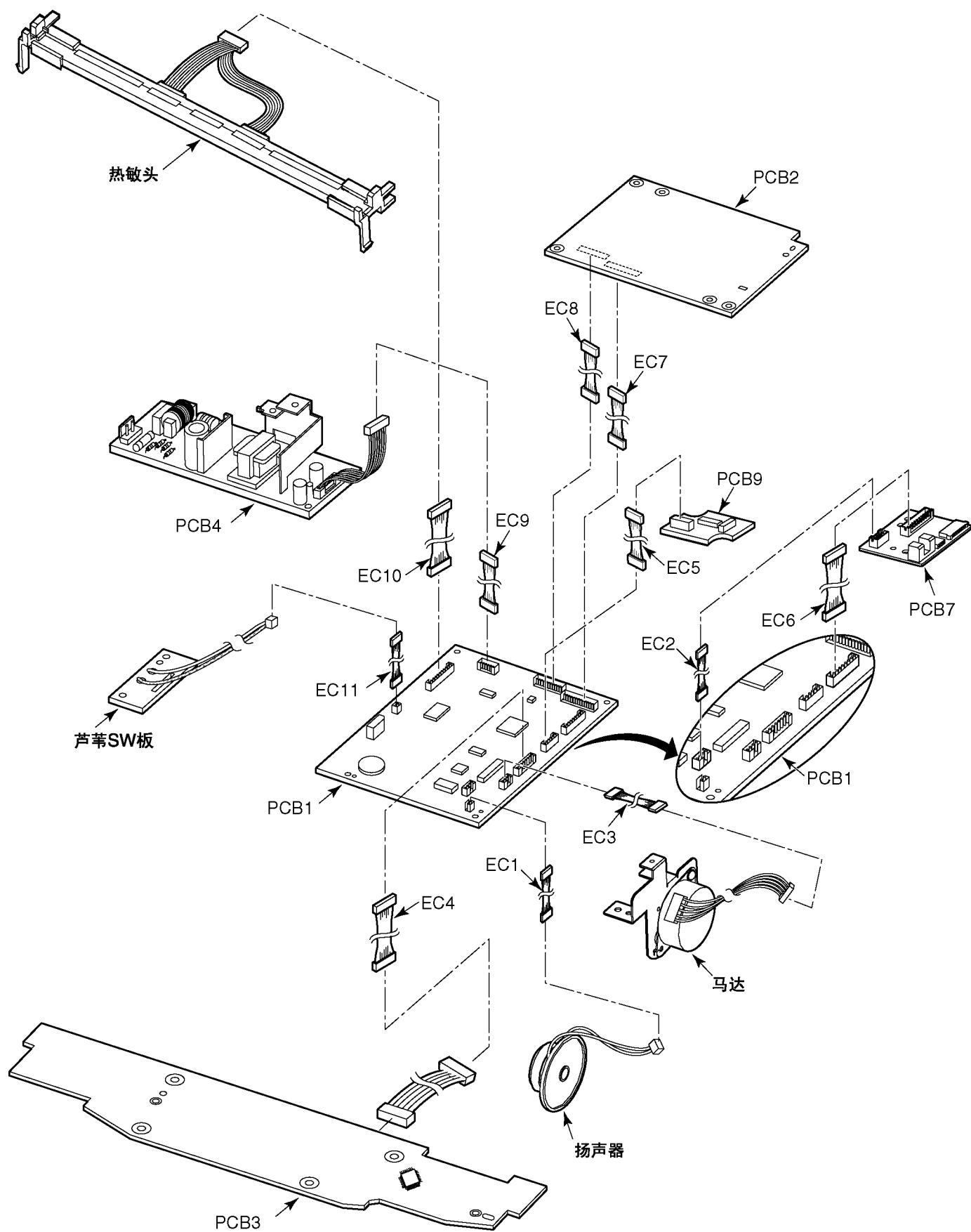
Yours sincerely,

P.J. CROSS
Group Leader - Facsimile Research

8.7.2. ITU-T 2 号测试图

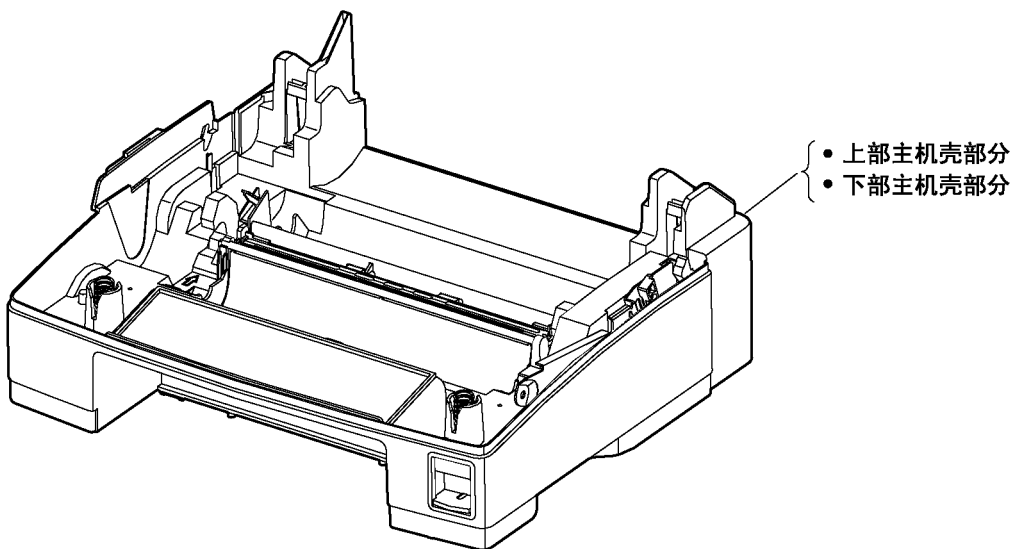
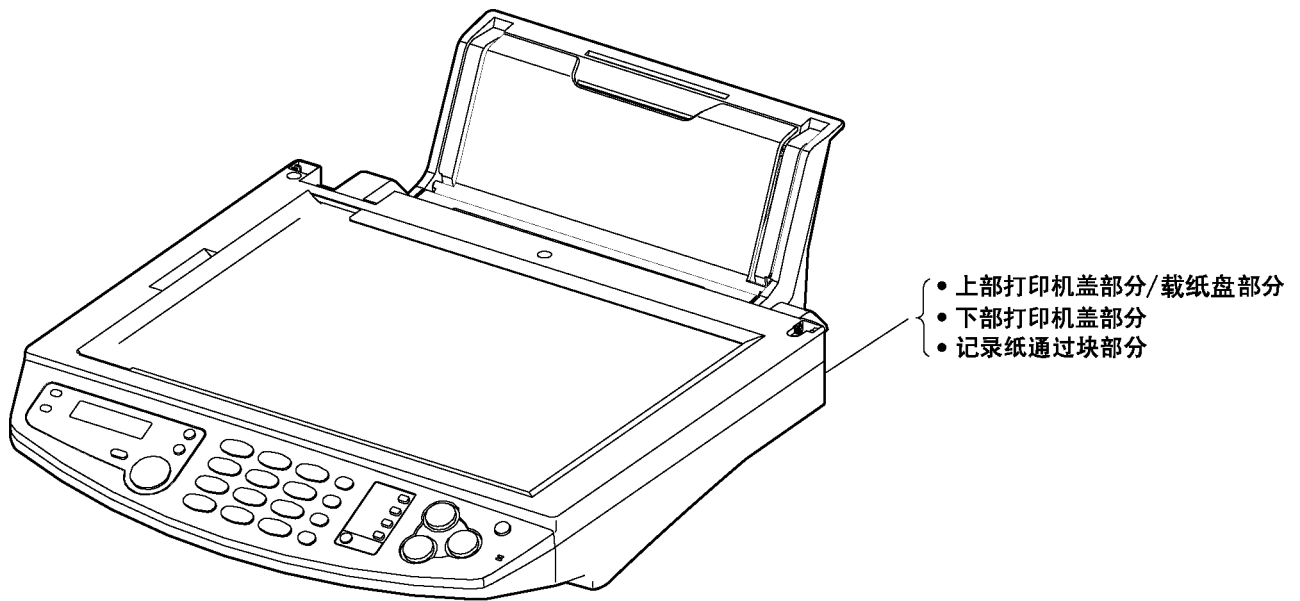
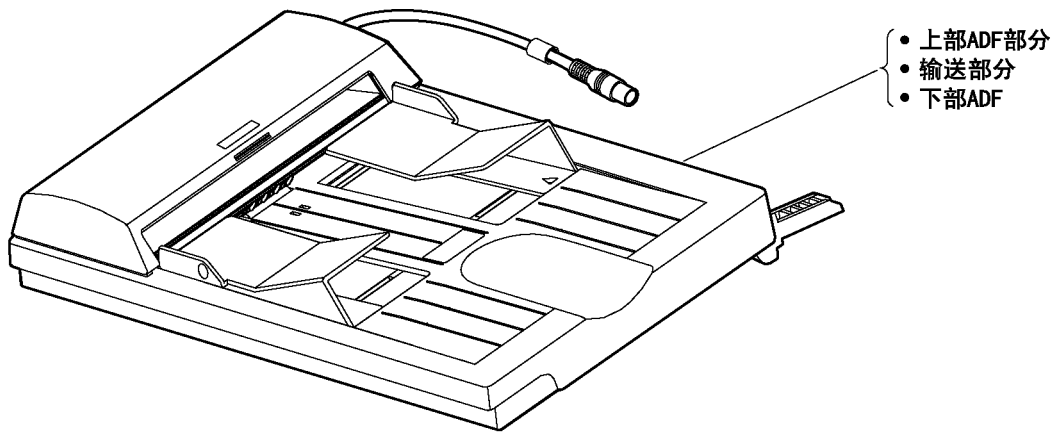


9 夹具和工具

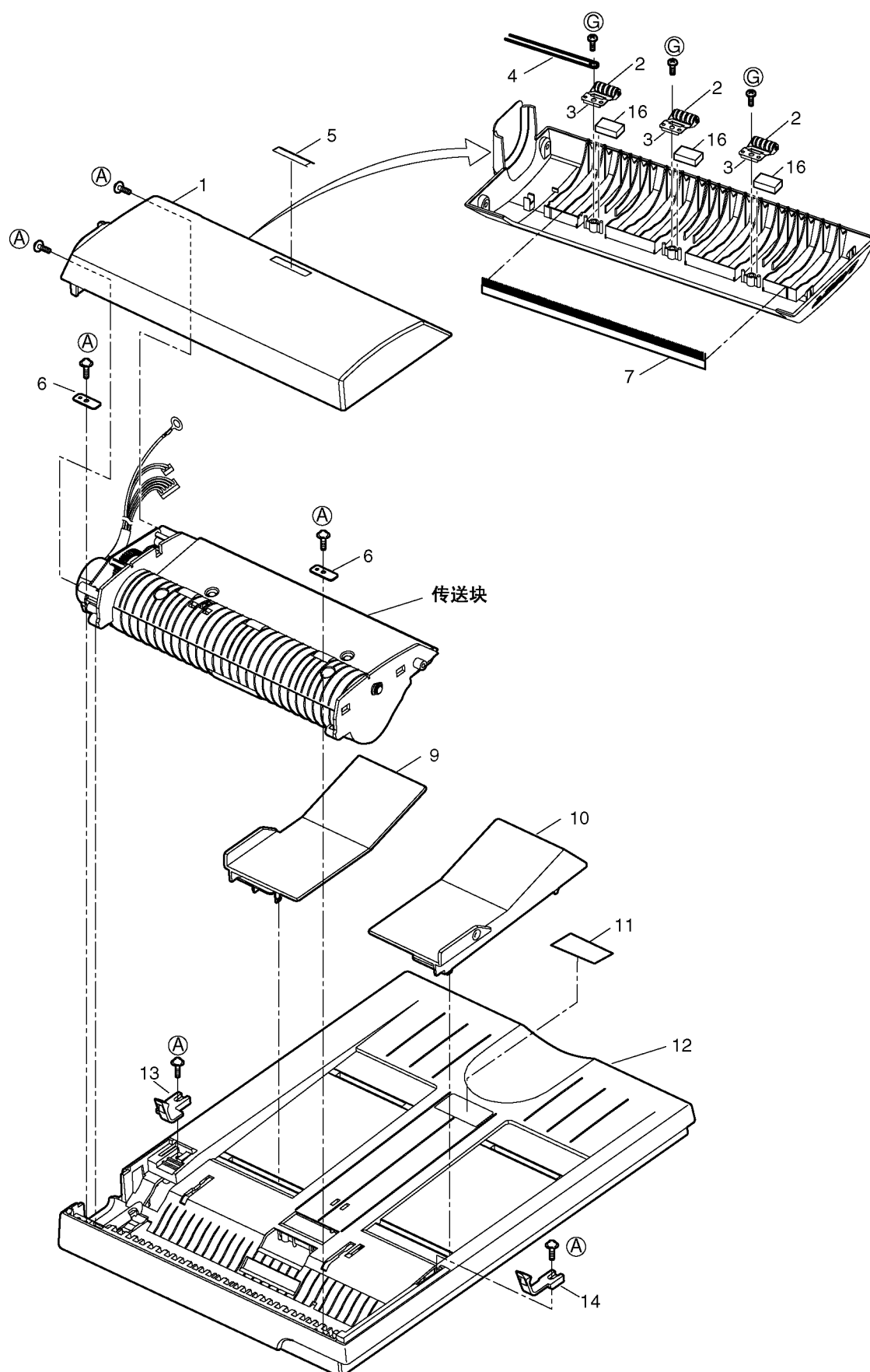


10 机壳、机械零件和电气元件位置

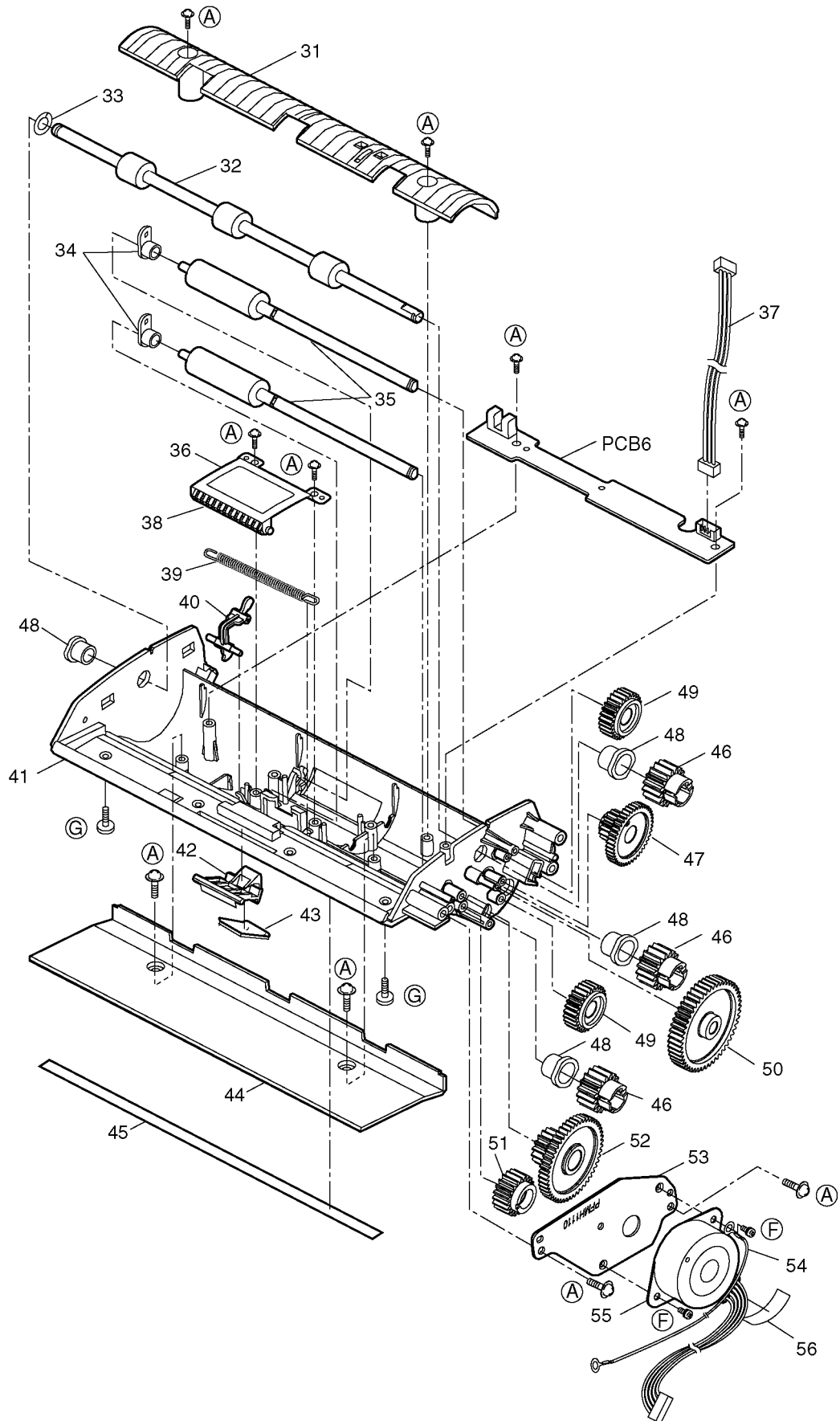
10.1. 综合部分



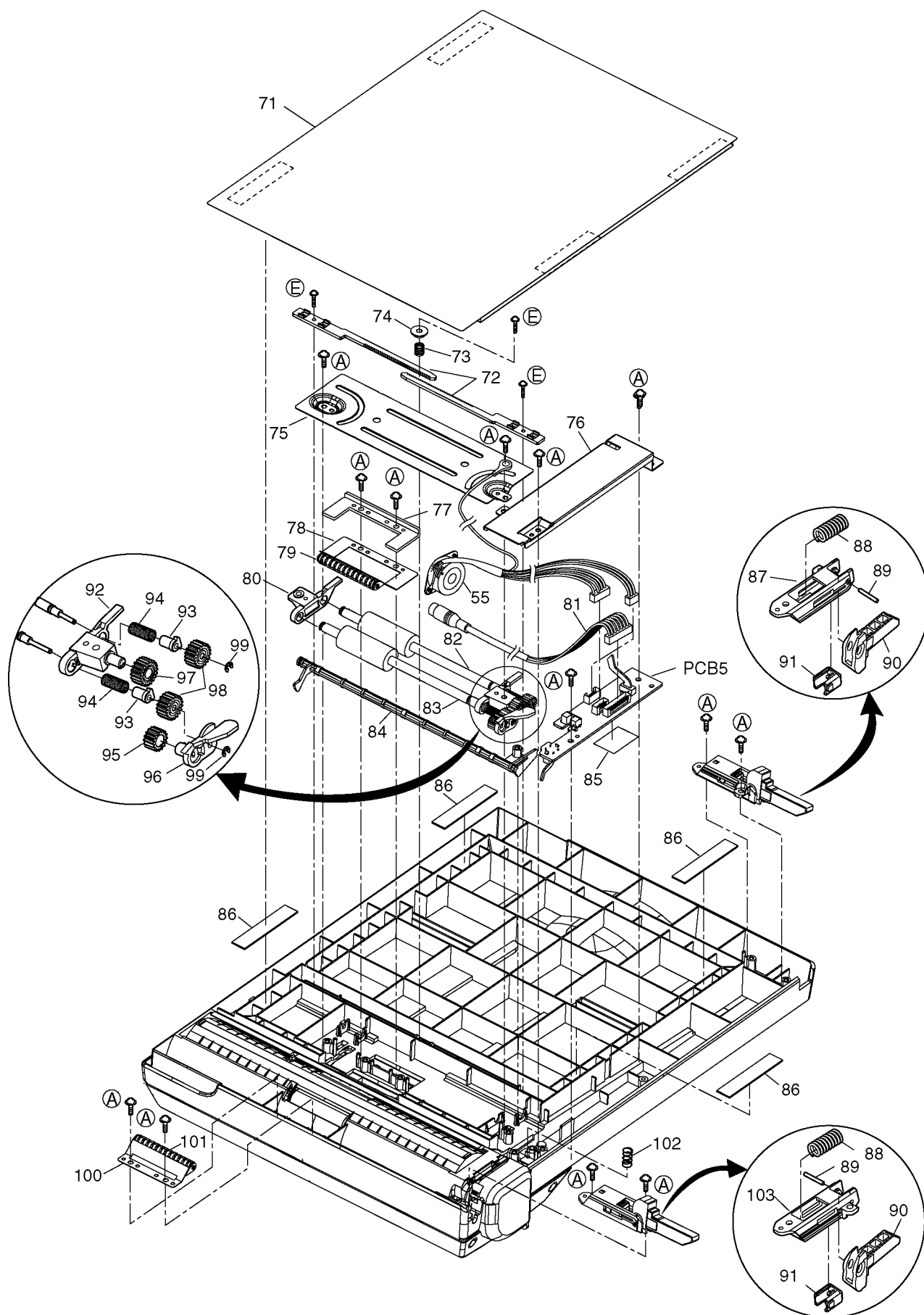
10. 2. 上部 ADF 部分



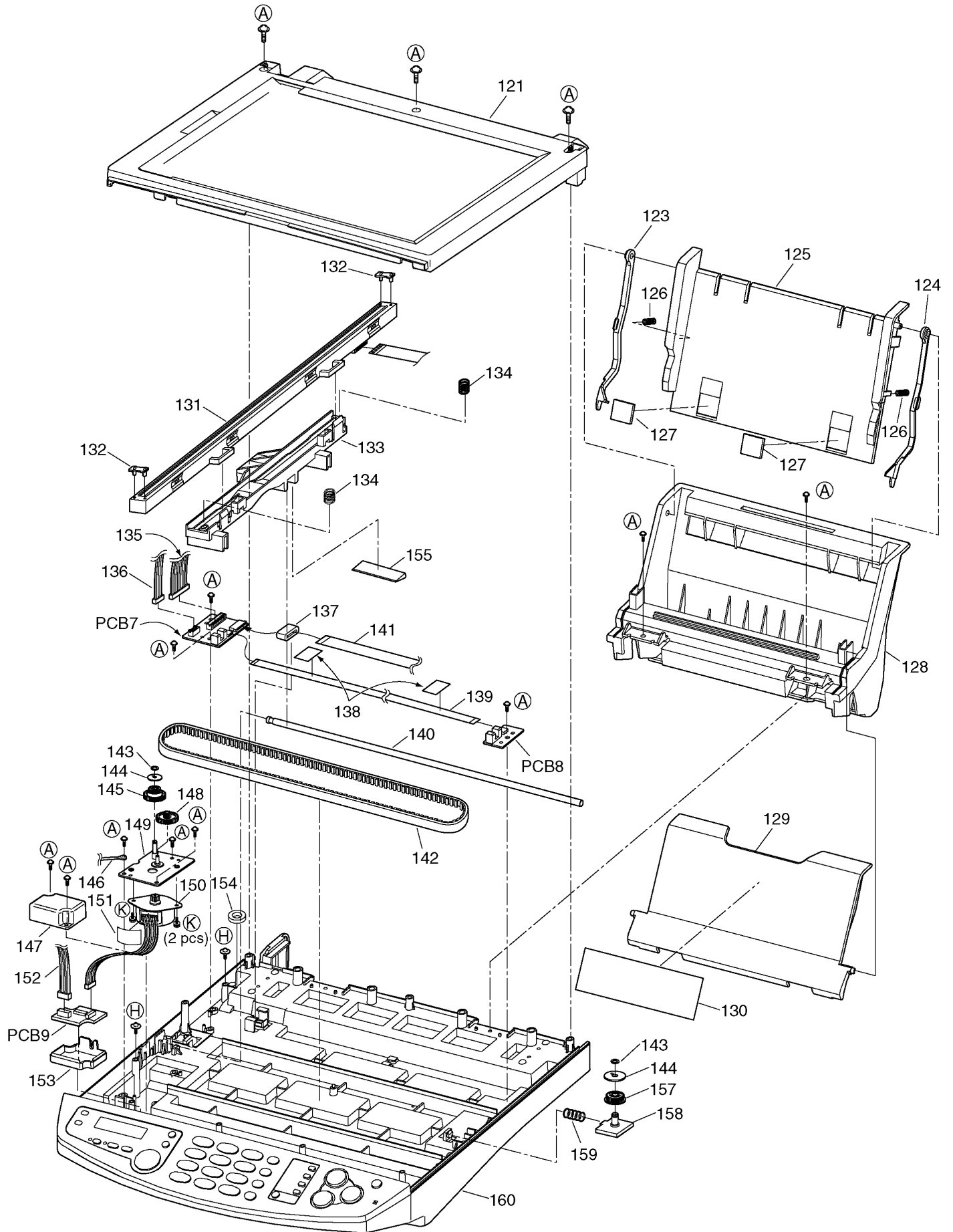
10.3. 传送块部分



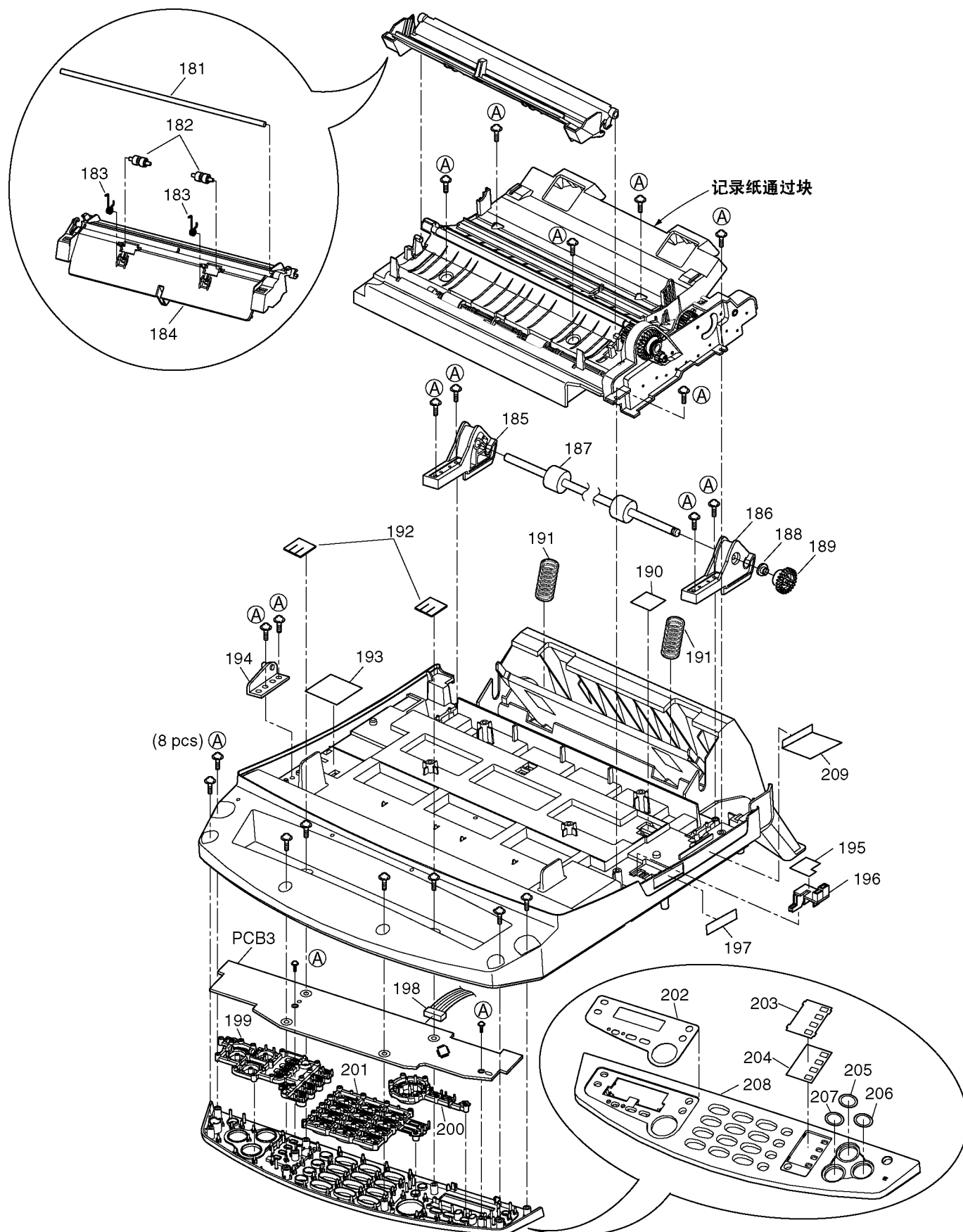
10.4. 下部 ADF 部分



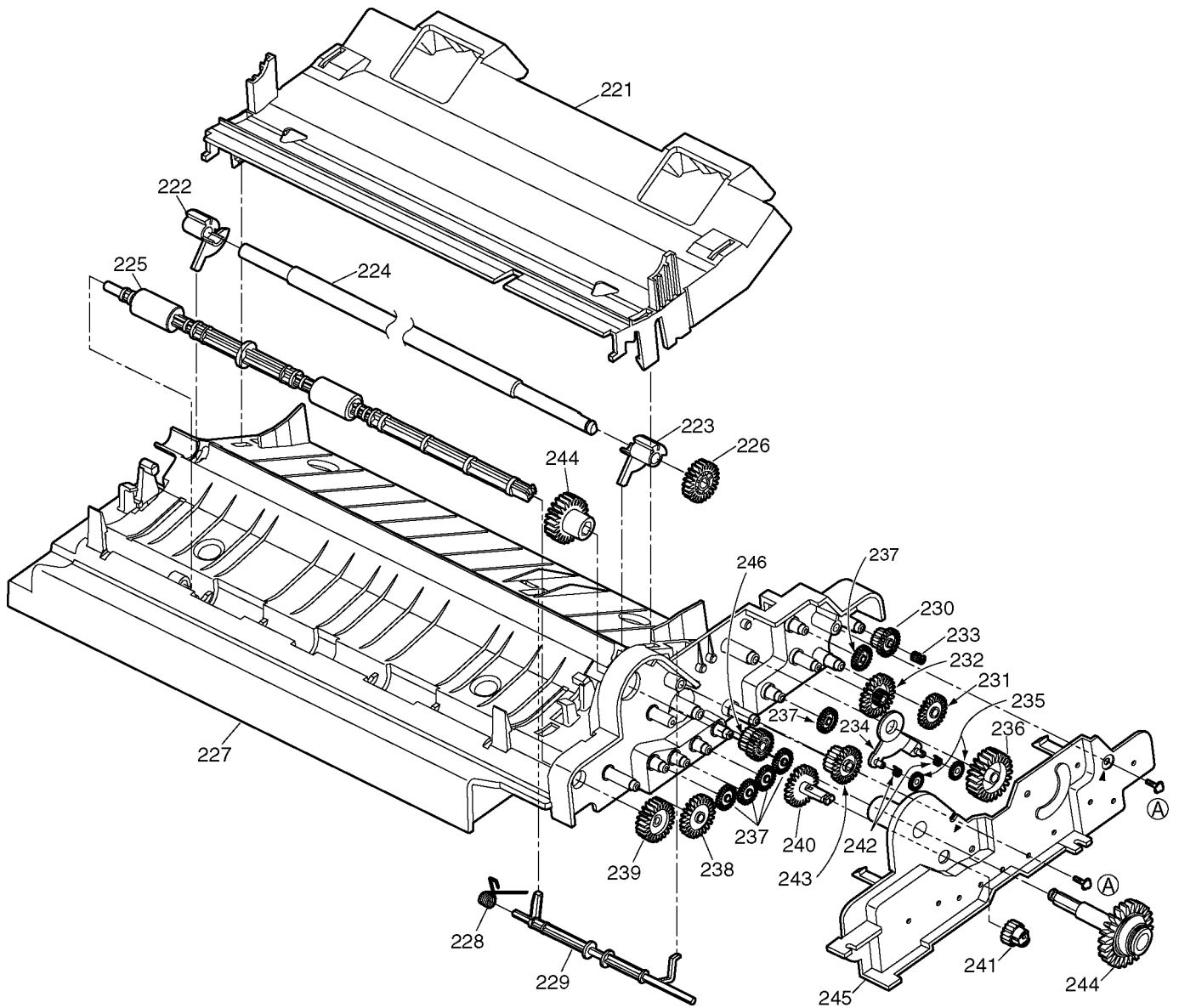
10.5. 上部打印机盖和载纸盘部分



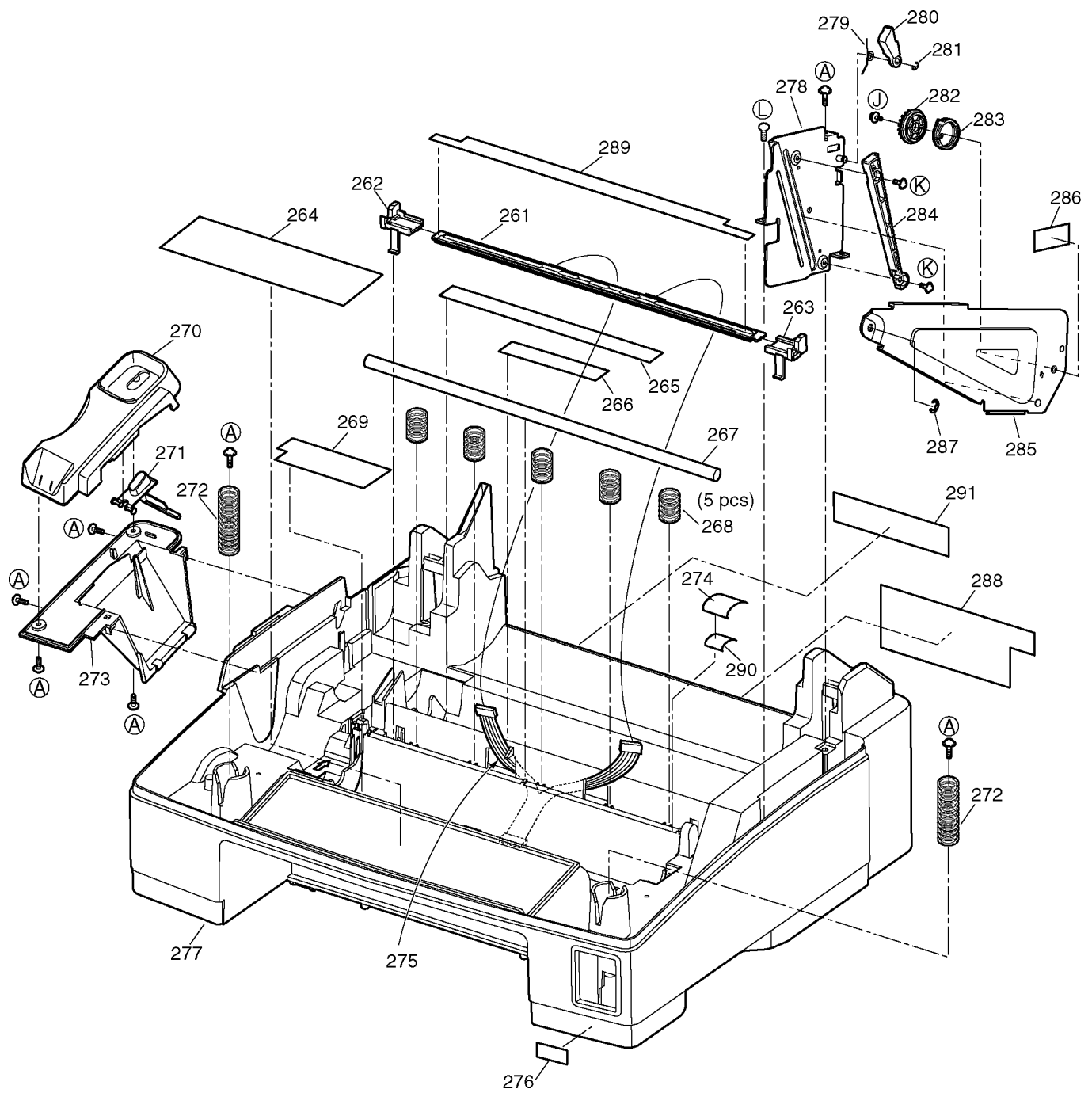
10. 6. 下部打印机盖部分



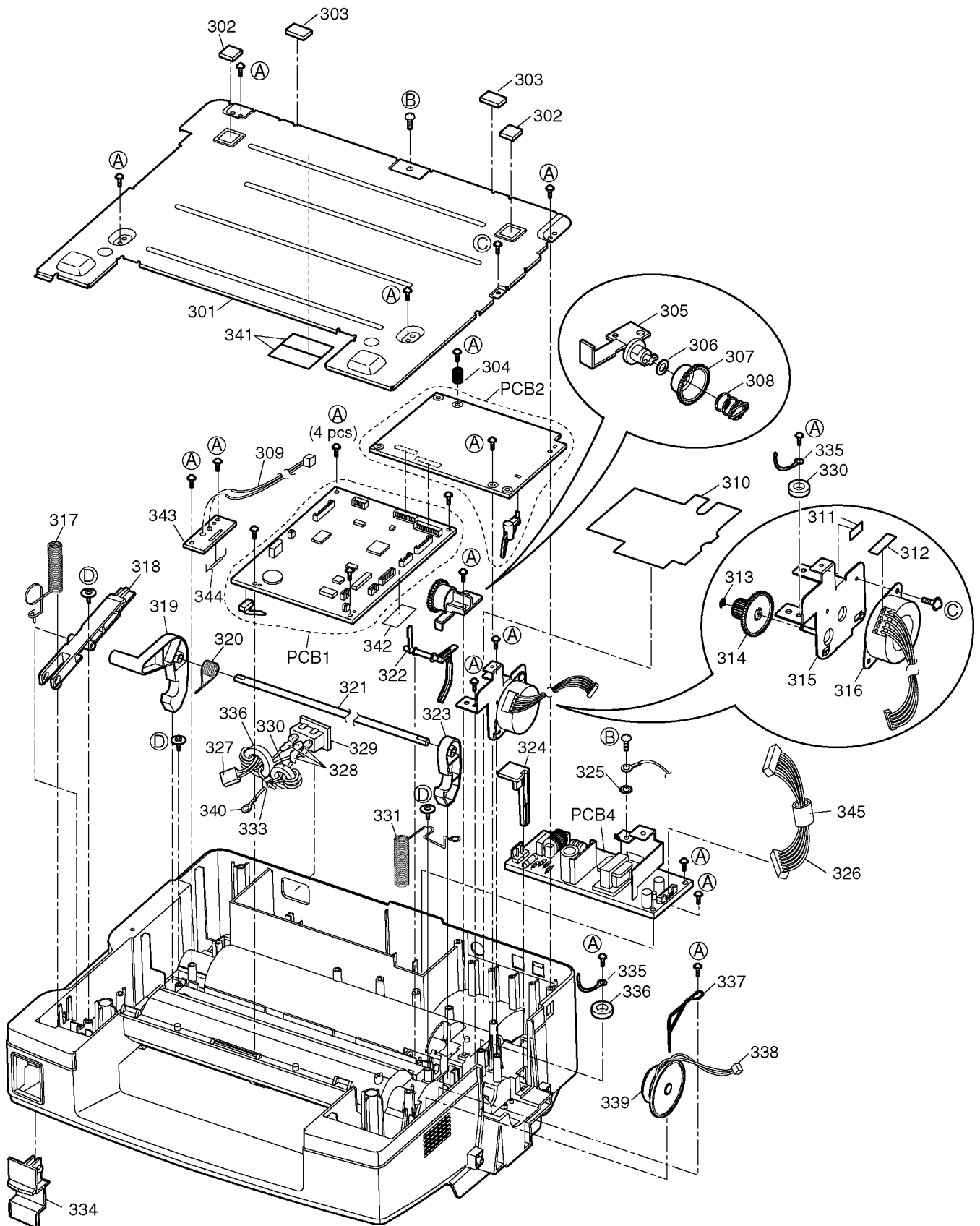
10.7. 记录纸通过部分



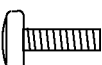
10. 8. 上部主机壳部分



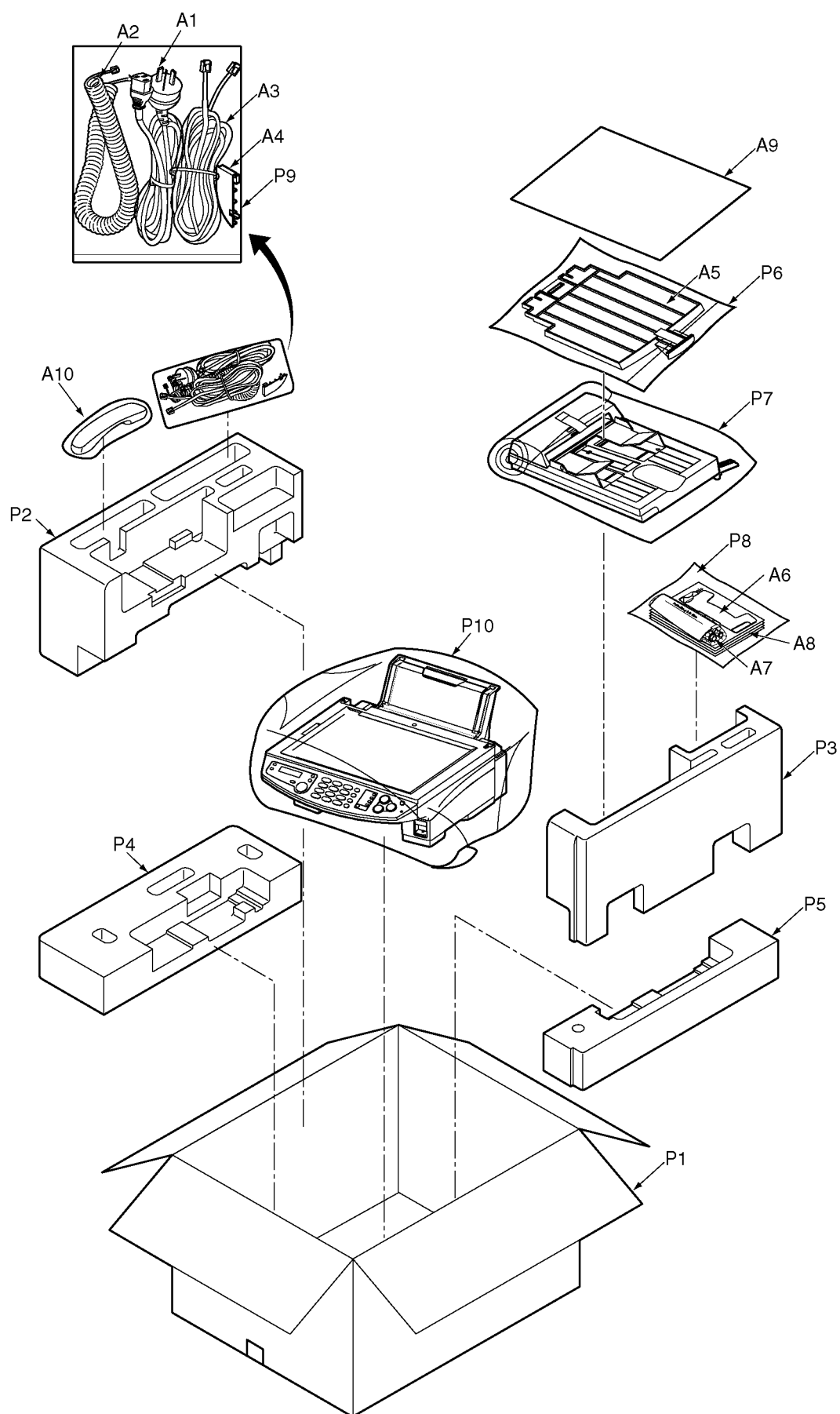
10.9. 下部主机壳部分



10. 10. 螺丝和垫圈的实际尺寸

	零件号	插图
Ⓐ	XTW3+S10P	
Ⓑ	XSB4+6	
Ⓒ	XTW3+U6L	
Ⓓ	PJHE5065Z	
Ⓔ	XTW2+R8PFN	
Ⓕ	XYN3+C6	
Ⓖ	XTB3+8G	
Ⓗ	XTW3+W8P	
Ⓙ	XYN3+F6	
Ⓚ	XTW3+6L	
Ⓛ	XTB4+10G	

11 附件和包装材料



12 更换零件表

1. RTL (保有时间限制)
注：
标记 (RTL) 表示此项目受保有时间限制。
在中断生产该组件后，仍可在一定期间继续买到该项目的部件。保有期间取决于组件的类型，并按照管理部件和产品保有法律而定。
在该期间之后，便不能再买到该组件。
2. 重要安全事项
标有 Δ 的元件的一些特性对安全至关重要，更换这些元件时，只能使用制造厂商规定的部件。
3. S 标记表示该部件是同一部件。因此，可能与安装好的部件不同。
4. 注意事项栏目中的 ISO 编码 (例：ABS-HB)，表示原材料的质量，有关塑料的质量标准说明是耐火材料。
5. 电阻器和电容器
如果没有其他特别指定的话；
所有电阻器为欧姆 (Ω) $k=1000\Omega$, $M=1000K\Omega$
所有电容器为微法拉 (μF) $P=\mu\mu F$
* 电阻器的类型和瓦数

Type

ERC:Solid ERD:Carbon PQ4R:Chip	ERX:Metal Film ERG:Metal Oxide ERO:Metal Film	PQRD:Carbon PQRQ:Fuse ERF:Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W

ECFD:Semi-Conductor ECQS:Styrol PQCBX,ECUV:Chip ECMS:Mica	ECCD,ECKD,PQCBC,PQVP : Ceramic ECQM,ECQV,ECQE,ECQU,ECQB : Polyester ECEA,ECSZ,ECOS : Electrolytic ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H : 50V 2A : 100V 2E : 250V 2H : 500V	05 : 50V 1 : 100V 2 : 200V	OF : 3.15V 1A : 10V 1V : 35V OJ : 6.3V	OJ : 6.3V 1A : 10V 1C : 16V 1E,25 : 25V	1V : 35V 50,1H : 50V 1J : 63V 2A : 100V

12. 1. 机壳和电气元件

12. 1. 1. 上部 ADF 部分

Ref. No.	Part No.	Part Name & Description	Remarks
1	PFKV1051Y1	COVER, TOP	PS-HB
2	PFDR1030Z	ROLLER, EXIT PINCH	POM-HB
3	PFUS1343Z	LEAF SPRING, EXIT PINCH ROLLER	
4	PFUS1351Z	TORSION SPRING, EXIT EARTH	
5	PFQT1899Z	INDICATION LABEL, PULL TO OPEN	
6	PFMH1111Z	METAL PARTS, ADF PIVOT	
7	PFJV1002Z	HOLDER, DISCHARGE BRUSH	
8	Not used		
9	PFKR1021Y1	GUIDE, DOCUMENT (RIGHT)	ABS-HB
10	PFKR1022Y1	GUIDE, DOCUMENT (LEFT)	ABS-HB
11	PFQT1891Z	INDICATION LABEL, FACE DOWN	
12	PFKV1050V1	COVER	PS-HB
13	PFDE1177Z	LEVER, LOCK ADF	POM-HB
14	PFDE1178Z	LEVER, LOCK ADF	POM-HB
15	Not used		
16	PFHE1019Z	INSULATOR, IMASEN FORM	

12. 1. 2. 传送块部分

Ref. No.	Part No.	Part Name & Description	Remarks
31	PFUE1012Z1	COVER, CONVEYOR EXIT	PS-HB
32	PFDN1056Z	ROLLER, EXIT	
33	PFNPD052080	WASHER	

Ref. No.	Part No.	Part Name & Description	Remarks
34	PFDJ1056Z	SPACER, DRIVE ROLLER BUSH	POM-HB
35	PFDN1055Z	ROLLER, DRIVE	
36	PFUS1340Z	LEAF SPRING, FEED PINCH ROLLER	
37	PFJS03Q28Z	CONNECTOR, 3 PIN	
38	PFDR1029Z	ROLLER, FEED PINCH	POM-HB
39	PFUS1348Z	COIL SPRING	
40	PFDE1175Y	LEVER, DOCUMENT TOP	POM-HB
41	PFUE1014Z1	COVER, CONVEYOR MAIN	S
42	PFHR1297Z	GUIDE, SEPARATION RUBBER	ABS-HB
43	PFHG1128Z	RUBBER PARTS, SEPARATION	
44	PFKV1052Z1	COVER, DOCUMENT FEED	PS-HB
45	PFHX1512Z	METAL PARTS, WHITE STANDARD SHEET	
46	PFDG1249Z	GEAR	POM-HB
47	PFDG1266Z	GEAR	POM-HB
48	PFDJ1055Z	SPACER, DRIVE ROLLER BUSH	POM-HB
49	PFDG1250Z	GEAR	POM-HB
50	PFDG1265Z	GEAR	POM-HB
51	PFDG1251Z	GEAR	POM-HB
52	PFDG1267Z	GEAR	POM-HB
53	PFMH1110Z	METAL PARTS, ADF MOTOR PLATE	
54	WLK22TG17M3M	LEAD WIRE	
55	35S1S15DGNE	DC MOTOR	
56	PFHX1399Z	COVER, MOTOR SHEET	

12. 1. 3. 下部 ADF 部分

Ref. No.	Part No.	Part Name & Description	Remarks
71	PFHX1511Y	COVER, WHITE PLATE	
72	PFHR1298Z	RACK, GUIDE DOCUMENT	ABS-HB
73	PFUS1222Z	COIL SPRING	
74	PFDG1015Y	GEAR	POM-HB
75	PFUV1044Z	COVER, FEED MODULE	
76	PFUV1043Z	COVER, GEAR	
77	PFMH1117Z	METAL PARTS, SPRING SUPPORT	
78	PFUS1341Z	LEAF SPRING, DRIVE PINCH ROLLER	
79	PFDR1029Z	ROLLER, FEED PINCH	
80	PFDJ1054Z	SPACER, FEED MODULE BUSH	POM-HB
81	PFJS11P20Z	CONNECTOR, 11 PIN	
82	PFDN1053Z	ROLLER, FEED	
83	PFDN1054Z	ROLLER, SEPARATION	
84	PFDE1174Z	LEVER, DOCUMENT	POM-HB
85	PFHX1519Z	COVER, PCB RELAY ADF	
86	PFHE1068Z	TAPE, MAGIC	
87	PFHR1289Z	CHASSIS, HINGE	POM-HB
88	PFUS1350Z	COIL SPRING	
89	XPJ2A14VW	KEY-PIN	
90	PFHR1291Z	CAM, HINGE	POM-HB
91	PFHR1292Z	PLASTIC PARTS, HINGE SLIDER	POM-HB
92	PFDJ1053Z	SPACER, FEED MODULE BUSH	POM-HB
93	PFDE1163Z	SPACER, DELAY	POM-HB
94	PQUS10038Z	COIL SPRING	
95	PFDG1245Z	GEAR	POM-HB
96	PFDE1173Z	ARM, SWING	POM-HB
97	PFDG1244Z	GEAR	POM-HB
98	PFDG1243Z	GEAR	POM-HB
99	XUC2FY	RETAINING RING	
100	PFUS1342Y	SPRING	
101	PFDR1029Z	ROLLER, FEED PINCH	
102	PFUS1349Z	COIL SPRING	
103	PFHR1290Z	CHASSIS, HINGE	POM-HB

12. 1. 4. 上部打印机盖和载纸盘部分

Ref. No.	Part No.	Part Name & Description	Remarks
121	PFYCFB421M	COVER, SCANNER GLASS ASS'Y	PS-HB
122	Not used		
123	PFHR1343Y	ARM, CORNER FLAP (LEFT)	POM-HB
124	PFHR1344Y	ARM, CORNER FLAP (RIGHT)	POM-HB
125	PFKE1025W1	TRAY, PAPER CASSETTE	PS-HB
126	PFUS1391Z	COIL SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
127	PFHG1088Z	RUBBER PARTS, PICK UP	
128	PFKV1070X1	COVER, CASSETTE	PS-HB
129	PFKS1071Y1	TRAY, PAPER CASSETTE LEVER	PS-HB
130	PFQT2128Z	INDICATION LABEL, PAPER SET	
131	N2GZBE000003	IMAGE SENSOR (CIS)	
132	PFHR1293Z	SPACER, CIS	POM-HB
133	PFDC1002Z	GUIDE, CARRIAGE BASE	POM-HB
134	PFUS1415Z	COIL SPRING	
135	PFJS10Q31Z	CONNECTOR, 10 PIN	
136	PFJS04Q42Z	CONNECTOR, 4 PIN	
137	PFLB1K00Z	INSULATOR	
138	PFHX1566Z	COVER, FFC SHEET	
139	PFJE1026Z	LEAD WIRE	
140	PFDF1072Z	SHAFT, CARRIAGE	
141	PFJE1025Z	LEAD WIRE	
142	PFDV1001Z	FLAT BELT	
143	PFNP031054C	WASHER	
144	PFDE1170Z	PULLEY, FLANGE	POM-HB
145	PFDE1168Z	PULLEY, TIMING	POM-HB
146	WLL20YB53M3M	LEAD WIRE	
147	PFUV1045Z	COVER, DRIVER	PS-V0
148	PFDG1281Z	GEAR	POM-HB
149	PFMH1121Z	CHASSIS, CARRIAGE MOTOR	
150	35S1S15DGNE	DC MOTOR	
151	PFHX1399Z	COVER, MOTOR SHEET	
152	PFJS06Q30Y	CONNECTOR, 6 PIN	
153	PFUV1046Z	COVER, DRIVER	PS-V0
154	PQLB1E1	INSULATOR	
155	PFHX1589Z	SPACER, CARRIAGE CIS SHEET	
156	Not Used		
157	PFDE1169Z	PULLEY, TENSION	POM-HB
158	PFMH1104Z	METAL PARTS, TENSION PULLEY	
159	PFUS1345Z	COIL SPRING	
160	PFKM1101Y1	CABINET BODY	PS-HB

12. 1. 5. 下部打印机盖部分

Ref. No.	Part No.	Part Name & Description	Remarks
181	PFDF1083Z	SHAFT, RIBBON GUIDE	
182	PFDR1012Z	ROLLER, SUPPORT	POM-HB
183	PFUS1394Z	COIL SPRING	
184	PFUG1013Y	COVER, EXIT GUIDE	PS-HB
185	PFHR1342Z	ARM	PS-HB
186	PFHR1341Z	ARM	PS-HB
187	PFDN1058Z	ROLLER, PICK UP	
188	PFDE1187Z	GUIDE, DELAY	POM-HB
189	PFDG1276Z	GEAR	POM-HB
190	PFHX1577Z	COVER, PROTECTION CORE SHEET	PET-UL
191	PFUS1390Z	COIL SPRING	
192	PFHX1246Z	COVER, SCREW	
193	PFHX1539Z	COVER, PROTECTION TONER SHEET	PET-UL
194	PFMH1105Z	METAL PARTS, PIVOT DOOR LOCK	
195	PFHX1585Z	COVER, PROTECTION LOCK SHEET	PET-UL
196	PFHR1345Y1	KNOB, STOPPER	ABS-HB
197	PFQT1959Z	INDICATION LABEL, CARRIAGE STOPPER	
198	PFJS08Q41Z	CONNECTOR, 8 PIN	
199	PFBX1174Y1	PUSH BUTTON, COPY KEY	ABS-HB
200	PFBX1176X1	PUSH BUTTON, NAVIGATOR KEY	ABS-HB
201	PFBX1175Z1	PUSH BUTTON, DIAL KEY	ABS-HB
202	PFGP1215W	PANEL, LCD	
203	PFGV1013Z	TRANSPARENT PLATE	
204	PFGD1048X	CARD, TEL	
205	PFGX1013Y	ORNAMENT, COPY KEY	
206	PFGX1014Y	ORNAMENT, FAX KEY	
207	PFGX1015Y	ORNAMENT, STOP KEY	
208	PFGG1176V1	GRILLE, OPERATION PANEL	PS-HB
209	PFHP1117Z	PAPER, CARRIAGE STOPPER SHEET	

12. 1. 6. 记录纸通过部分

Ref. No.	Part No.	Part Name & Description	Remarks
221	PFUG1014W	COVER, PAPER GUIDE	PS-HB
222	PFDJ1062Y	SPACER, PLATEN SUPPORT	POM-HB
223	PFDJ1061Z	SPACER, PLATEN SUPPORT	POM-HB

Ref. No.	Part No.	Part Name & Description	Remarks
224	PFDN1057Z	ROLLER, PLATEN	
225	PFDN1059Z	ROLLER, EXIT	
226	PFDG1277Z	GEAR	POM-HB
227	PFUA1039V	CHASSIS, RECORDING PAPER PASS	PS-HB
228	PFUS1393Z	COIL SPRING	
229	PFDE1185Y	LEVER, P. TOP	POM-HB
230	PFDG1280Z	GEAR	POM-HB
231	PFDG1275Z	GEAR	POM-HB
232	PFDG1274Z	GEAR	POM-HB
233	PFUS1410Z	COIL SPRING	
234	PFHR1346Y	ARM, GEAR	POM-HB
235	PFDG1159Z	GEAR	
236	PFDG1270Z	GEAR	POM-HB
237	PFDG1268Z	GEAR	POM-HB
238	PFDG1272Z	GEAR	POM-HB
239	PFDG1269Z	GEAR	POM-HB
240	PFDG1279Y	GEAR	POM-HB
241	PFDG1154Z	GEAR	
242	PFUS1231Y	COIL SPRING	
243	PFDG1271Z	GEAR	POM-HB
244	PFDX1032Z	GEAR, TORQUE LIMITTER	
245	PFUV1053X	COVER, GEAR BLOCK	PS-HB
246	PFDG1273Z	GEAR	POM-HB

12. 1. 7. 上部主机壳部分

Ref. No.	Part No.	Part Name & Description	Remarks
261	PFJHS026Z	PRINTER UNITS, THERMAL HEAD	S
262	PFHR1338Y	GUIDE, HOLDER (LEFT)	POM-HB
263	PFHR1339Y	GUIDE, HOLDER (RIGHT)	POM-HB
264	PFQT1916Z	INDICATION LABEL, INK FILM	
265	PFHX1580Z	SPACER, SUPPLY BAR SHEET	
266	PFHX1579Z	SPACER, SUPPLY BAR SHEET	
267	PFDF1083Z	SHAFT, RIBBON GUIDE	
268	PFUS1388X	COIL SPRING	
269	PFQT1958W	INDICATION LABEL, BLUE GEAR	
270	PFKM1066Z1	CABINET BODY, HANDSET CRADLE	PS-HB
271	PFBH1015Z1	PUSH BUTTON, HOOK	ABS-HB
272	PFUS1402Z	COIL SPRING	
273	PFKF1047Y2	CABINET, HANDSET CRADLE	PS-HB
274	PFHX1615Z	SPACER, SHAFT SHEET (LONG)	
275	PFJS11Q69Y	CONNECTOR, 11 PIN	
276	PFQT1944Z	INDICATION LABEL, OPEN	
277	PFKM1100V1	CABINET BODY, BASE	PS-V0
278	PFMH1120Y	COVER, DOOR LOCK	
279	PFUS1416Z	COIL SPRING	
280	PFHR1356Y	SPACER, DOOR LOCK STOPPER	
281	XUC3FY	RETAINING RING	
282	PFDG1273X	GEAR	POM-HB
283	PFUS1346Y	COIL SPRING	
284	PFHR1288Y	DAMPER, RACK	
285	PFMH1119Z	DOOR-LID, ARM DOOR LOCK	
286	PFHX1583Z	SPACER, DAMPER ARM SHEET	
287	XUC4FY	RETAINING RING	
288	PFGT2264Z-M	NAME PLATE, AL	S
289	PFHX1586Y	COVER, HEAD MOLD SHEET	
290	PFHX1614Z	SPACER, SHAFT SHEET (SHORT)	
291	PFQT1885Z	LABEL, USER CAUTION	

12. 1. 8. 下部主机壳部分

Ref. No.	Part No.	Part Name & Description	Remarks
301	PFMD1060Z	FRAME, BOTTOM	
302	PFHA1005Z	RUBBER PARTS	
303	PFHX1382Z	SPACER, SENSOR SHEET	PVC
304	PFUS1358Z	COIL SPRING	
305	PFUA1040Z	CHASSIS, BACK TENSION	PS-HB
306	PFHS1029Z	COVER, BACK TENSION SHEET	
307	PFDG1160Z	GEAR	POM-HB
308	PFUS1232Z	COIL SPRING	
309	PFJS02Q39Y	CONNECTOR, 2 PIN	
310	PFHX1575Z	COVER, ROOF SHEET	PC-V0
311	PFHX1350Z	SPACER, HEAD SHEET	
312	PFHX1399Z	COVER, MOTOR SHEET	
313	XUC2FY	RETAINING RING	

Ref. No.	Part No.	Part Name & Description	Remarks
314	PFDG1278Y	GEAR	POM-HB
315	PFMH1118Y	CHASSIS, MOTOR	
316	42S1S15D7NC	DC MOTOR	
317	PFUS1398Z	COIL SPRING	
318	PFDE1184Z	LEVER, OPEN	PS-HB
319	PFDE1183Z	ARM, LOCK LEVER (RIGHT)	POM-HB
320	PFUS1389Z	COIL SPRING	
321	PFDF1084Z	SHAFT, LOCK LEVER	
322	PFDE1186Z	LEVER, PEPER TOP SENSOR	POM-HB
323	PFDE1182Z	ARM, LOCK LEVER (LEFT)	POM-HB
324	PFHR1340Y	SPACER, HOOK SW CONNECTOR	POM-HB
325	XWC4B	WASHER	
326	PFJS07Q43Z	CONNECTOR, 7 PIN	
327	PFJS02R19Y	CONNECTOR, 2 PIN	
328	PQMX10010Z	COVER, SUMI TUBE	
329	PFJP03S04Z	CONNECTOR, 3 PIN	S △
330	PQLB1E1	INSULATOR	
331	PFUS1413Z	COIL SPRING	
332	Not used		
333	PQHR945Z	BAND	
334	PFBC1095Z1	PUSH BUTTON, OPEN	ABS-HB
335	PQHM112Z	CLAMPER	
336	KR06TT251508	INSULATOR	
337	PFUS1338Y	TORSION SPRING	
338	PFJS02Q40Z	CONNECTOR, 2 PIN	
339	PFAS0P003Z	SPEAKER	S
340	WLR18YK26CM4	LEAD WIRE	S
341	PFHX1367Z	COVER	
342	PFHX1367Z	COVER, DIGITAL BOARD SHEET	
343	PFUP1279Z-B	REED SW BOARD	
344	K0MA11000030	REED SWITCH	
345	J0KG00000001	INSULATOR, FERRITE CORE	

12. 2. 附件和包装材料

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PFJA03A006X	POWER CORD	△
A2	PQJA10126Z	CORD, HANDSET	
A3	PQJA10075Z	CORD, TELEPHONE	
A4	PFKS1074Z1	TRAY, A4 SPACER	PS-HB
A5	PFKS1078Z1	TRAY, PAPER	PS-HB
A6	PFKS1072Y1	TRAY, REC PAPER STACKER	PS-HB
A7	PFPE1251Z	INK FILM	
A8	PFQX1915Z	INSTRUCTION BOOK	
A9	PFQW2059Z	LEAFLET, QUICK START SHEET	
A10	PFJXE0805Z	HANDSET	
P1	PFPK2430Z-M	GIFT BOX	S
P2	PFPN1279Z	CUSHION	
P3	PFPN1280Z	CUSHION	
P4	PFPN1281Z	CUSHION	
P5	PFPN1282Z	CUSHION	
P6	PFPH1046Z	PROTECTION COVER	
P7	PFPH1041Z	PROTECTION COVER	
P8	XZB32X45A04	PROTECTION COVER	
P9	XZB20X35A04	PROTECTION COVER	
P10	PFPH1040Y	PROTECTION COVER	

12. 3. 数字板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PFWP1FB423CN	DIGITAL BOARD ASS'Y (RTL)	
		(IC)	
IC501	C1ZBZ0001896	IC	
IC503	PFVIMS5148EF	IC	S
IC505	PFVIR676811	IC	
IC507	PFVII5510011	IC	
IC509	PQVITC4066BF	IC	S
IC511	PFVINJM4558M	IC	S
IC519	PQVIMC34119M	IC	S
IC520	C1ZBZ0002029	IC	
IC523	PFWIFB423CN	IC	
IC525	C0GAF0000008	IC	
		(TRANSISTORS)	

Ref. No.	Part No.	Part Name & Description	Remarks
IC506	PFVTSI4431DY	TRANSISTOR(SI)	S
Q501	PQVTDTC143E	TRANSISTOR(SI)	S
Q502	2SB1322	TRANSISTOR(SI)	S
Q503	PQVTDTC143E	TRANSISTOR(SI)	S
Q504	2SB1322	TRANSISTOR(SI)	S
Q505	2SD1819A	TRANSISTOR(SI)	S
Q506	2SD1819A	TRANSISTOR(SI)	S
Q507	PQVTDTC143E	TRANSISTOR(SI)	S
Q508	2SD1819A	TRANSISTOR(SI)	S
Q509	2SD1819A	TRANSISTOR(SI)	S
Q510	PQVTDTC114EU	TRANSISTOR(SI)	S
Q511	2SD1819A	TRANSISTOR(SI)	S
Q514	2SB1218ARL	TRANSISTOR(SI)	
Q515	2SB1197K	TRANSISTOR(SI)	S
Q516	2SB1197K	TRANSISTOR(SI)	S
Q518	2SD1820A	TRANSISTOR(SI)	
Q519	2SB1197K	TRANSISTOR(SI)	S
Q523	2SB1197K	TRANSISTOR(SI)	S
Q524	PQVTDTC114EU	TRANSISTOR(SI)	S
Q525	UN5113	TRANSISTOR(SI)	S
Q526	PQVTDTC143E	TRANSISTOR(SI)	S
Q527	PQVTDTC143E	TRANSISTOR(SI)	S
Q528	PQVTDTC143E	TRANSISTOR(SI)	S
Q529	PQVTDTC143E	TRANSISTOR(SI)	S
Q531	PQVTDTC143E	TRANSISTOR(SI)	S
Q532	PQVTDTC143E	TRANSISTOR(SI)	S
Q533	PQVTDTC143E	TRANSISTOR(SI)	S
		(DIODES)	
D501	PFVDRMRLS245	DIODE(SI)	S
D502	PFVDRMRLS245	DIODE(SI)	S
D503	PQVDRLS73T	DIODE(SI)	S
D505	PQVDNCD56DT	DIODE(SI)	S
		(BATTERY)	
BAT501	PFSU1004Z	BATTERY	S
		(CAPACITORS)	
C502	ECUV1H104ZFV	0.1	S
C503	ECEA1CK101	100	S
C504	PQCUV1C105ZF	1	S
C506	PQCUV1C105ZF	1	
C509	ECUV1H102KBV	0.001	S
C510	ECUV1H104ZFV	0.1	S
C513	ECUV1H104ZFV	0.1	S
C514	ECUV1H104ZFV	0.1	S
C515	ECUV1H104ZFV	0.1	S
C516	ECUV1H104ZFV	0.1	S
C518	ECUV1H222KBV	0.0022	S
C519	ECUV1C104KBV	0.1	S
C522	ECUV1C104KBV	0.1	S
C523	ECUV1H150JCV	15p	S
C524	ECUV1H104ZFV	0.1	S
C525	ECUV1H120JCV	12p	S
C526	ECUV1H102KBV	0.001	S
C527	ECUV1H104ZFV	0.1	S
C529	ECUV1H104ZFV	0.1	S
C531	ECUV1H104ZFV	0.1	S
C533	ECUV1H104ZFV	0.1	S
C534	ECEA1CK101	100	S
C535	ECUV1H104ZFV	0.1	S
C536	ECUV1H104ZFV	0.1	S
C537	ECUV1H104ZFV	0.1	S
C539	ECUV1H101JCV	100p	S
C540	ECJ1VC1H100D	10p	
C541	ECJ1VC1H100D	10p	
C542	ECUV1H104ZFV	0.1	S
C544	ECUV1H104ZFV	0.1	S
C545	ECUV1H104ZFV	0.1	S
C546	ECUV1H104ZFV	0.1	S
C547	ECUV1H104ZFV	0.1	S
C548	ECEA1CK101	100	S
C549	ECUV1C104KBV	0.1	S
C550	ECUV1H330JCV	33p	S
C551	ECEA1CK101	100	S
C553	ECUV1H472KBV	0.0047	S
C554	ECUV1H472KBV	0.0047	S
C559	ECUV1H104ZFV	0.1	S
C560	ECUV1H104ZFV	0.1	S

Ref. No.	Part No.	Part Name & Description	Remarks
C564	ECEA1CKA100	10	S
C565	ECEA1CKA100	10	S
C566	ECUV1H104ZFV	0.1	S
C567	ECUV1H102KBV	0.001	S
C568	ECUV1H102KBV	0.001	S
C569	ECUV1H104ZFV	0.1	S
C570	ECUV1C273KBV	0.027	S
C571	ECUV1C104KBV	0.1	S
C572	ECUV1H103KBV	0.01	S
C573	ECUV1C104KBV	0.1	S
C574	ECEA1CK101	100	S
C575	ECUV1H104ZFV	0.1	S
C576	ECUV1C104KBV	0.1	S
C577	ECUV1C104KBV	0.1	S
C578	ECUV1H104ZFV	0.1	S
C579	ECUV1C104KBV	0.1	S
C580	ECUV1H560JCV	56p	S
C581	ECUV1H223KBV	0.022	S
C582	pQCUV1H104ZF	0.1	S
C583	ECUV1H104ZFV	0.1	S
C584	ECUV1H151JCV	150p	S
C585	ECUV1H104ZFV	0.1	S
C586	ECUV1C104KBV	0.1	S
C588	ECEA1HKS100	10	S
C598	ECJ1VC1H100D	10p	
C599	ECJ1VC1H100D	10p	
C600	ECUV1H560JCV	56p	S
C601	ECUV1C104KBV	0.1	S
C605	ECUV1H104ZFV	0.1	S
C608	ECUV1H104ZFV	0.1	S
C609	ECUV1H104ZFV	0.1	S
C611	ECUV1H104ZFV	0.1	S
C614	ECUV1H104ZFV	0.1	S
C618	ECUV1H102KBV	0.001	S
C619	ECUV1H104ZFV	0.1	S
C620	ECUV1H104ZFV	0.1	S
C621	ECUV1H104ZFV	0.1	S
C622	ECEA0JKA221	220	S
C623	ECEA1CK101	100	S
C625	ECEA1CK101	100	S
C626	ECUV1H104ZFV	0.1	S
C628	ECUV1H104ZFV	0.1	S
C634	ECUV1H104ZFV	0.1	S
C635	ECUV1H104ZFV	0.1	S
C639	ECEA1HKA4R7	4.7	S
C640	ECEA1HKA4R7	4.7	S
C641	ECUV1H102KBV	0.001	S
C642	ECUV1C104KBV	0.1	S
C643	ECUV1H681KBV	680p	S
C644	ECUV1H681KBV	680p	S
C645	ECEA1CK101	100	S
C646	ECUV1C104KBV	0.1	S
C647	ECUV1H102KBV	0.001	S
C648	ECUV1H102KBV	0.001	S
C649	ECUV1H102KBV	0.001	S
C650	ECUV1H102KBV	0.001	S
C651	ECUV1H102KBV	0.001	S
C652	ECUV1H102KBV	0.001	S
C654	ECUV1H104ZFV	0.1	S
C655	ECUV1H104ZFV	0.1	S
C657	ECUV1H472KBV	0.0047	S
C658	ECUV1H472KBV	0.0047	S
C671	ECUV1H102KBV	0.001	S
C672	ECUV1H102KBV	0.001	S
C674	ECUV1H104ZFV	0.1	S
C675	ECUV1H391JCV	390p	
C676	ECEA1HKA4R7	4.7	S
C679	ECUV1H104ZFV	0.1	S
C680	ECUV1H104ZFV	0.1	S
C681	ECUV1H104ZFV	0.1	S
C682	ECUV1H104ZFV	0.1	S
		(CONNECTORS)	
CN503	PQJP10G30Z	CONNECTOR, 10P	S
CN504	PQJP8G30Z	CONNECTOR, 8P	S
CN505	PQJP11G30Z	CONNECTOR, 11P	S
CN506	PQJP7G30Y	CONNECTOR, 7P	S

Ref. No.	Part No.	Part Name & Description	Remarks
CN508	K1MN08A00017	CONNECTOR, 8P	
CN510	PQJP02G100Z	CONNECTOR, 2P	
CN511	PQJP14A19Z	CONNECTOR, 14P	
CN512	PQJP2G30Z	CONNECTOR, 2P	S
CN513	PQJP12A19Z	CONNECTOR, 12P	
CN514	PQJP4G30Y	CONNECTOR, 4P	S
CN515	PQJP6G30Y	CONNECTOR, 6P	S
CN516	PFJP04A23Z	CONNECTOR, 4P	S
		(FUSES)	
F501	PFRB0031125T	FUSE	S
F502	PFRB0031125T	FUSE	S
F503	PFRB0031315T	FUSE	S
F504	PFRB0031025T	FUSE	
		(COILS)	
L506	J0JCC0000042	COIL	
L507	PQLQR2KA113	COIL	S
L509	PQLQR2KA20T	COIL	S
L510	PQLQR2KA113	COIL	S
L512	PQLQR2KA20T	COIL	S
L514	J0JCC0000042	COIL	
L515	PQLQR2KA113	COIL	S
L516	PQLQR2KA20T	COIL	S
L517	PQLQR2KA20T	COIL	S
L519	PQLQR2KA113	COIL	S
L520	PQLQR2KA20T	COIL	S
L522	PQLQR2KA20T	COIL	S
L523	PQLQR2KA20T	COIL	S
L524	PQLQR2KA20T	COIL	S
L525	PQLQR2KA20T	COIL	S
L526	PQLQR2KA20T	COIL	S
L533	PQLQR2KA20T	COIL	S
L534	PQLQR2KA20T	COIL	S
L535	PQLQR2KA20T	COIL	S
L536	PQLQR2KA20T	COIL	S
L537	PQLQR2KA20T	COIL	S
L538	PQLQR2KA20T	COIL	S
L539	PQLQR2KA20T	COIL	S
L540	PQLQR2KA20T	COIL	S
L541	PQLQR2KA20T	COIL	S
L542	PQLQR2KA20T	COIL	S
L543	PQLQR2KA20T	COIL	S
L544	PQLQR2KA20T	COIL	S
		(CERAMIC FILTERS)	
L527	J0JHC0000035	CERAMIC FILTER	
L528	J0JHC0000035	CERAMIC FILTER	
L529	J0JHC0000035	CERAMIC FILTER	
L530	J0JHC0000035	CERAMIC FILTER	
L531	J0JHC0000035	CERAMIC FILTER	
L532	J0JHC0000035	CERAMIC FILTER	
		(PHOTO ELECTRIC TRANSDUCER)	
PS1	PFVIRM574SL	PHOTO SENSOR	S
		(RESISTORS)	
L518	ERJ3GEY0R00	0	
L545	ERJ3GEY0R00	0	
L546	ERJ3GEY0R00	0	
L547	ERJ3GEY0R00	0	
L548	ERJ3GEY0R00	0	
L549	ERJ3GEY0R00	0	
L550	ERJ3GEY0R00	0	
L551	ERJ3GEY0R00	0	
L552	ERJ3GEY0R00	0	
L553	ERJ3GEY0R00	0	
L554	ERJ3GEY0R00	0	
L555	ERJ3GEY0R00	0	
L557	ERJ3GEY0R00	0	
L558	ERJ3GEY0R00	0	
L559	ERJ3GEY0R00	0	
R501	ERJ3GEYJ562	5.6k	
R502	ERJ3GEYJ472	4.7k	
R503	ERJ3GEYJ101	100	
R504	ERJ3GEYJ181	180	
R505	ERJ3GEYJ101	100	
R506	ERJ3GEYJ181	180	
R507	ERJ3GEYJ101	100	
R510	ERJ3GEYJ101	100	
R511	ERJ3GEYJ101	100	

Ref. No.	Part No.	Part Name & Description	Remarks
R512	ERJ3GEYJ101	100	
R513	ERJ3GEYJ102	1k	
R514	ERJ3GEYJ821	820	
R515	ERJ3GEYJ101	100	
R516	ERDS1VJ152	1.5k	S
R517	ERJ3GEYJ101	100	
R522	ERJ3GEYJ223	22k	
R523	ERJ3GEYJ433	43k	
R526	ERJ3EKF1101	1.1k	
R529	ERJ3EKF3602	36k	
R531	ERJ3GEYJ334	330k	
R532	ERJ3GEYJ475	4.7M	
R533	ERJ3GEYJ203	20k	
R534	ERJ3GEYJ821	820	
R536	ERDS1VJ152	1.5k	S
R538	ERJ3GEYJ101	100	
R539	ERJ3GEYJ101	100	
R540	ERJ3GEYJ101	100	
R541	ERJ3GEYJ101	100	
R542	ERJ3GEYJ101	100	
R543	ERJ3GEYJ101	100	
R544	ERJ3GEYJ222	2.2k	
R545	ERJ3GEYJ471	470	
R548	ERJ3GEYJ103	10k	
R549	ERJ3GEYJ101	100	
R550	ERJ3GEYJ103	10k	
R551	ERJ3GEYJ101	100	
R552	ERJ3GEYJ470	47	
R553	ERJ3GEYJ105	1M	
R554	ERJ3GEYJ472	4.7k	
R555	PQ4R18XJ220	22	S
R556	ERJ6GEYJ6R8	6.8	
R557	ERJ3GEYJ181	180	
R558	ERJ3GEYJ272	2.7k	
R559	ERJ3GEYJ103	10k	
R560	ERJ3GEYJ103	10k	
R561	ERJ3GEYJ472	4.7k	
R563	ERJ3GEYJ221	220	
R564	ERJ3GEYJ103	10k	
R565	ERJ3GEYJ222	2.2k	
R566	ERJ3GEYJ102	1k	
R567	ERJ3GEYJ102	1k	
R568	ERJ3GEYJ103	10k	
R569	ERJ3GEYJ683	68k	
R570	ERJ3GEYJ474	470k	
R571	ERJ3GEYJ105	1M	
R572	ERJ3GEYJ185	1.8M	
R573	ERJ3GEYJ222	2.2k	
R574	ERJ3GEYJ152	1.5k	
R575	ERJ3GEYJ103	10k	
R576	ERJ3GEYJ103	10k	
R577	ERJ3GEY0R00	0	
R579	ERJ3GEYJ333	33k	
R580	ERJ3GEYJ154	150k	
R581	ERJ3GEYJ103	10k	
R582	ERJ3GEYJ103	10k	
R583	ERJ3GEYJ333	33k	
R584	ERJ3GEYJ392	3.9k	
R585	ERJ3GEYJ564	560k	
R586	ERJ3GEYJ153	15k	
R587	ERJ3GEYJ473	47k	
R589	ERJ3GEYJ224	220k	
R590	ERJ3GEYJ224	220k	
R591	ERJ3GEYJ123	12k	
R592	ERJ3GEYJ472	4.7k	
R593	ERJ3GEYJ563	56k	
R594	ERJ3GEYJ682	6.8k	
R597	ERJ3GEYJ334	330k	
R600	ERJ3GEYJ473	47k	
R605	ERDS1VJ1R2	1.2	
R606	ERDS1VJ1R2	1.2	
R607	ERJ3GEYJ182	1.8k	
R609	ERJ3GEYJ222	2.2k	
R610	ERJ3GEYJ183	18k	
R611	ERJ3GEYJ472	4.7k	
R612	ERJ3GEYJ472	4.7k	

Ref. No.	Part No.	Part Name & Description	Remarks
R613	ERJ3GEYJ472	4.7k	
R614	ERJ3GEYJ472	4.7k	
R615	ERJ3GEYJ222	2.2k	
R616	ERJ3GEYJ472	4.7k	
R619	ERJ3GEYJ104	100k	
R620	ERJ8GEYJ2R2	2.2	
R621	ERJ3GEYJ4R7	4.7	
R622	PQ4R10XJ331	330	S
R625	ERJ3GEYJ101	100	
R626	ERJ3GEYJ101	100	
R629	ERJ3GEYJ181	180	
R644	ERJ3GEYJ472	4.7k	
R645	ERJ3GEYJ222	2.2k	
R646	PQ4R18XJ000	0	S
R647	ERJ3GEYJ103	10k	
R648	ERJ3GEYJ123	12k	
R649	ERJ3GEYJ103	10k	
R650	ERJ3GEYJ154	150k	
R651	ERJ3GEYJ114	110k	
R653	ERJ3GEYJ101	100	
R654	ERJ3GEYJ101	100	
R655	ERJ3GEYJ101	100	
R656	ERJ3GEYJ101	100	
R659	ERJ3GEYJ472	4.7k	
R660	ERJ3GEYJ472	4.7k	
R661	ERJ3GEYJ222	2.2k	
R662	ERJ3GEYJ472	4.7k	
R663	ERJ3GEYJ472	4.7k	
R664	ERJ3GEYJ332	3.3k	
R665	ERJ3GEYJ332	3.3k	
R666	ERJ3GEYJ563	56k	
R667	ERJ3GEYJ563	56k	
R668	ERJ3GEYJ331	330	
R669	ERJ3GEYJ331	330	
R670	ERJ3GEYJ562	5.6k	
R671	ERJ3GEYJ562	5.6k	
R672	ERJ3GEYJ103	10k	
R673	ERJ3GEYJ101	100	
R674	ERJ3GEYJ101	100	
R675	ERJ3GEYJ101	100	
R676	ERJ3GEYJ101	100	
R678	ERJ3GEYJ563	56k	
R679	ERJ3GEYJ562	5.6k	
R680	ERJ3GEYJ472	4.7k	
R681	ERJ3GEYJ101	100	
R682	ERJ3GEYJ222	2.2k	
R683	ERJ3GEYJ472	4.7k	
R684	ERJ3GEYJ472	4.7k	
R685	ERJ3GEYJ222	2.2k	
R686	ERJ3GEYJ472	4.7k	
R687	ERJ3GEYJ101	100	
R699	ERJ3GEY0R00	0	
R700	ERJ3GEY0R00	0	
R701	ERJ3GEY0R00	0	
R702	ERJ3GEYJ102	1k	
R703	ERJ3GEYJ102	1k	
R704	ERJ3GEYJ102	1k	
R705	ERJ3GEYJ103	10k	
R712	ERJ3GEYJ563	56k	
R713	ERJ3GEYJ563	56k	
R714	ERJ3GEYJ562	5.6k	
R715	ERJ3GEYJ562	5.6k	
R716	ERJ3GEYJ221	220	
R717	ERJ3GEYJ472	4.7k	
R718	ERJ3GEYJ222	2.2k	
R719	ERJ3GEYJ472	4.7k	
R729	ERJ3GEYJ103	10k	
R730	ERJ3GEYJ103	10k	
R746	ERJ3GEYJ103	10k	
R747	ERJ3GEYJ103	10k	
R748	ERJ3GEYJ103	10k	
R749	ERJ3GEYJ103	10k	
R750	ERJ3GEYJ103	10k	
R751	ERJ3GEYJ103	10k	
R752	ERJ3GEYJ103	10k	
R753	ERJ3GEYJ103	10k	

Ref. No.	Part No.	Part Name & Description	Remarks
R757	ERJ3GEYJ181	180	
R758	ERJ3GEYJ181	180	
R759	ERJ3GEYJ181	180	
R760	ERJ3GEYJ181	180	
R762	ERJ3GEY0R00	0	
R763	ERJ3GEYJ101	100	
R764	ERJ3GEY0R00	0	
R765	ERJ3GEY0R00	0	
R766	ERJ3GEY0R00	0	
		(COMPONENTS PARTS)	
RA506	EXB38V101JV	RESISTOR ARRAY	
RA509	EXB38V101JV	RESISTOR ARRAY	
RA510	EXB38V101JV	RESISTOR ARRAY	
RA511	EXB38V101JV	RESISTOR ARRAY	
RA513	EXB38V103JV	RESISTOR ARRAY	
RA514	EXB38V101JV	RESISTOR ARRAY	
RA515	EXB38V101JV	RESISTOR ARRAY	
RA516	EXB38V101JV	RESISTOR ARRAY	
RA517	EXB38V101JV	RESISTOR ARRAY	
		(SWITCH)	
SW1	PFSH1A02Z	SWITCH	
		(CRYSTAL OSCILLATOR)	
X501	PFVCCFS32Z	CRYSTAL OSCILLATOR	S
X502	PFVBK240ZAT	CRYSTAL OSCILLATOR	S
X503	PFVC32256ZAT	CRYSTAL OSCILLATOR	S

12.4. 模拟板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PFWP2FB423CN	ANALOG BOARD ASS'Y (RTL)	△
		(ICs)	
IC101	PQVINJM2904F	IC	S
IC102	PQVIBA12003	IC	S
		(TRANSISTORS)	
Q101	2SD1819A	TRANSISTOR(SI)	S
Q102	PQVTDTC143E	TRANSISTOR(SI)	S
Q103	2SD1819A	TRANSISTOR(SI)	S
Q104	PQVTDTC114EU	TRANSISTOR(SI)	S
Q105	PQVTDTC114EU	TRANSISTOR(SI)	S
Q107	2SC2235	TRANSISTOR(SI)	S
Q108	2SB1218ARL	TRANSISTOR(SI)	
		(DIODES)	
D101	MA4056	DIODE(SI)	S
D102	MA4056	DIODE(SI)	S
D103	1SS119	DIODE(SI)	S
D105	1SS119	DIODE(SI)	S
D106	1SS119	DIODE(SI)	S
D107	PQVDS1ZB60F1	DIODE(SI)	S
D112	MA7160	DIODE(SI)	S
		(CAPACITORS)	
C102	ECEA0JKA470	47	S
C108	ECQE2E105KZ	1	S
C111	ECUV1H102KBV	0.001	S
C112	ECUV1H153KBV	0.015	S
C113	ECUV1C104KBV	0.1	S
C114	ECUV1C473KBV	0.047	S
C115	ECUV1H153KBV	0.015	S
C116	ECUV1H820JCV	82p	S
C118	ECUV1H104ZFV	0.1	S
C121	ECUV1C473KBV	0.047	S
C122	ECUV1H472KBV	0.0047	S
C124	ECUV1H153KBV	0.015	S
C125	ECEA1HKS100	10	S
C131	ECUV1H103KBV	0.01	S
C132	ECEA1CKA100	10	S
C133	ECEA0JKA470	47	S
C134	ECUV1H472KBV	0.0047	S
C135	ECUV1C473KBV	0.047	S
C136	ECEA0JKA470	47	S
C137	ECUV1H103KBV	0.01	S
C138	ECUV1H103KBV	0.01	S
C139	ECUV1C473KBV	0.047	S
C140	ECUV1C473KBV	0.047	S
C142	ECUV1H221JCV	220p	S
C143	ECUV1C104KBV	0.1	S

Ref. No.	Part No.	Part Name & Description	Remarks
C145	ECUV1C104KBV	0.1	S
C151	ECKD2H681KB	680p	S
C152	ECKD2H681KB	680p	S
C153	ECEA1HKS100	10	S
C154	ECUV1H103KBV	0.01	S
C155	ECEA1CKA100	10	S
C159	ECUV1H103KBV	0.01	S
		(CONNECTORS & JACKS)	
CN101	PQJS14A10Z	CONNECTOR	S
CN102	PFJJ1T01Z	JACK	S
CN103	PFJJ1T01Z	JACK	S
CN104	PQJJ1TB18Z	JACK	S
CN105	PQJS12A10Z	CONNECTOR	S
CN106	K1CB110B0001	CONNECTOR	
		(COMPONENTS PART)	
J121	EXCELD35	COMPONENTS PART	
		(COILS)	
L101	PFLE003	COIL	S
L102	PQLQR2KA213	COIL	S
L103	PQLQR2KA213	COIL	S
L104	PQLQR3T102S	COIL	S
L105	PQLQR3T102S	COIL	S
L107	PQLQR2KA113	COIL	S
L108	PQLQR2KA113	COIL	S
L109	PQLQR2KA113	COIL	S
L110	PQLQR2KA113	COIL	S
		(PHOTO ELECTRIC TRANSDUCERS)	
PC101	0N3181	PHOTO COUPLER	△ S
PC104	PQVIPC817CD	PHOTO COUPLER	△ S
		(THERMISTOR)	
POS101	PFRT002	THERMISTOR	△ S
		(RESISTORS)	
J117	ERDS1TJ102	1k	S
J125	ERJ3GEY0R00	0	
R101	ERJ3GEYJ123	12k	
R102	ERJ3GEYJ682	6.8k	
R103	ERJ3GEYJ222	2.2k	
R104	ERDS2TJ220	22	S
R105	ECEA1HKN3R3	3.3	
R106	ERDS1VJ103	10k	S
R107	ERDS1TJ473	47k	S
R108	ERJ3GEYJ393	39k	
R111	ERJ3GEYJ104	100k	
R112	ERJ3GEYJ124	120k	
R114	ERJ3GEYJ183	18k	
R115	ERJ3GEYJ124	120k	
R116	ERJ3GEYJ124	120k	
R117	ERJ3GEYJ683	68k	
R118	ERJ3GEYJ222	2.2k	
R119	ERJ3GEYJ334	330k	
R120	ERDS2TJ680	68	S
R121	ERDS2TJ561	560	S
R122	ERJ3GEYJ562	5.6k	
R123	ERJ3GEYJ681	680	
R124	ERJ3GEYJ682	6.8k	
R125	ERJ3GEYJ222	2.2k	
R131	ERJ3GEYJ101	100	
R132	ERJ3GEYJ473	47k	
R133	ERJ3GEYJ331	330	
R134	ERJ3GEYJ562	5.6k	
R135	ERJ3GEYJ105	1M	
R136	ERJ3GEYJ152	1.5k	
R137	ERJ3GEYJ331	330	
R138	ERJ3GEYJ152	1.5k	
R139	ERJ3GEYJ562	5.6k	
R140	ERJ3GEYJ562	5.6k	
R141	ERJ3GEYJ394	390k	
R142	ERJ3GEYJ394	390k	
R143	ERJ3GEYJ222	2.2k	
R144	ERJ3GEYJ103	10k	
R145	ERJ3GEYJ105	1M	
R146	ERJ3GEYJ822	8.2k	
R147	ERJ3GEYJ822	8.2k	
R148	ERJ3GEYJ822	8.2k	
R149	ERJ3GEYJ680	68	
R151	ERJ3GEYJ472	4.7k	

Ref. No.	Part No.	Part Name & Description	Remarks
R152	ERJ3GEYJ153	15k	
R153	ERJ3GEYJ472	4.7k	
R154	ERDS2TJ220	22	S
R155	ERJ3GEYJ103	10k	
R156	ERJ3GEYJ103	10k	
R157	ERJ3GEYJ103	10k	
R158	ERJ3GEYJ152	1.5k	
R159	ERJ3GEYJ103	10k	
R164	ERJ3GEYJ101	100	
R165	ERJ3GEYJ472	4.7k	
R167	ERJ3GEYJ224	220k	
R168	ERJ3GEYJ472	4.7k	
R169	ERJ3GEY0R00	0	
		(RELAY)	
RLY101	PFSL003Z	RELAY	⚠ S
		(VARISTORS)	
SA101	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	S
SA102	PFRZ001Z	VARISTOR (SURGE ABSORBER)	⚠ S
ZNR101	ERZVA7D121	VARISTOR	
		(SWITCH)	
SW101	PFSH1A011Z	SWITCH	
		(TRANSFORMER)	
T102	PFLT8E003	TRANSFORMER	⚠ S

12.5. 操作板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB3	PFLP1410CX-A	OPERATION BOARD ASS'Y (RTL)	
		(ICs)	
IC301	MN7D032Z9J	IC	
		(CONNECTOR)	
CN301	PQJP8G43Y	CONNECTOR, 8 PIN	S
		(LIQUID CRYSTAL DISPLAY)	
CN302	L5DAAF000001	LIQUID CRYSTAL DISPLAY	
		(COIL)	
R315	PQLQR2KA20T	COIL	S
		(SWITCHES)	
SW301	PQSH1A105Z	PUSH SWITCH	S
SW302	PQSH1A105Z	PUSH SWITCH	S
SW303	PQSH1A105Z	PUSH SWITCH	S
SW304	PQSH1A105Z	PUSH SWITCH	S
SW305	PQSH1A105Z	PUSH SWITCH	S
SW306	PQSH1A105Z	PUSH SWITCH	S
SW307	PQSH1A105Z	PUSH SWITCH	S
SW308	PQSH1A105Z	PUSH SWITCH	S
SW309	PQSH1A105Z	PUSH SWITCH	S
SW310	PQSH1A105Z	PUSH SWITCH	S
SW311	PQSH1A105Z	PUSH SWITCH	S
SW312	PQSH1A105Z	PUSH SWITCH	S
SW313	PQSH1A105Z	PUSH SWITCH	S
SW314	PQSH1A105Z	PUSH SWITCH	S
SW315	PQSH1A105Z	PUSH SWITCH	S
SW316	PQSH1A105Z	PUSH SWITCH	S
SW318	PQSH1A105Z	PUSH SWITCH	S
SW319	PQSH1A105Z	PUSH SWITCH	S
SW320	PQSH1A105Z	PUSH SWITCH	S
SW322	PQSH1A105Z	PUSH SWITCH	S
SW323	PQSH1A105Z	PUSH SWITCH	S
SW324	PQSH1A105Z	PUSH SWITCH	S
SW325	PQSH1A105Z	PUSH SWITCH	S
SW326	Not used		
SW327	PQSH1A105Z	PUSH SWITCH	S
SW328	PQSH1A105Z	PUSH SWITCH	S
SW329	PQSH1A105Z	PUSH SWITCH	S
SW332	PQSH1A105Z	PUSH SWITCH	S
SW333	PQSH1A105Z	PUSH SWITCH	S
SW334	PQSH1A105Z	PUSH SWITCH	S
SW335	PQSH1A105Z	PUSH SWITCH	S
SW338	PQSH1A105Z	PUSH SWITCH	S
SW340	PQSH1A105Z	PUSH SWITCH	S

Ref. No.	Part No.	Part Name & Description	Remarks
		(RESISTORS)	
J321	ERJ3GEY0R00	0	
J322	ERJ3GEY0R00	0	
R301	ERJ3GEYJ101	100	
R302	ERJ3GEYJ101	100	
R303	ERJ3GEYJ183	18k	
R305	ERJ3GEYJ222	2.2k	
R306	ERJ3GEYJ222	2.2k	
R307	ERJ3GEYJ821	820	
R312	Not used	270	
R313	ERJ3GEYJ101	100	
R314	ERJ3GEYJ101	100	
R316	ERJ3GEYJ101	100	
R318	ERJ3GEYJ4R7	4.7	
		(CAPACITORS)	
C301	ECUV1C104KBV	0.1	S
C303	ECEA0JKS101	100	
C304	ECUV1H331JCV	330P	S
C305	ECUV1H101JCV	100P	S
C306	ECUV1H100JCV	10P	S
C308	ECUV1C104KBV	0.1	S
C309	ECUV1H331JCV	330P	S
C310	ECUV1C224ZFV	0.22	S
C314	ECUV1C224ZFV	0.22	S
C321	ECUV1C224ZFV	0.22	S

12.6. 电源板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB4	N0AC2GJ00001	POWER SUPPLY BOARDS ASS'Y (RTL)	
		(ICs)	
IC101	PFVIFA5317P	IC	
IC201	AN1431T	IC	
IC202	AN7805F	IC	
		(TRANSISTORS)	
Q101	2SK2651	TRANSISTOR(SI)	⚠
		(DIODES)	
D101	PFVD1N4005	DIODE(SI)	⚠
D102	PFVD1N4005	DIODE(SI)	⚠
D103	PFVD1N4005	DIODE(SI)	⚠
D104	PFVD1N4005	DIODE(SI)	⚠
D105	PFVDEG01C	DIODE(SI)	S
D106	MA165	DIODE(SI)	S
D107	MA4220	DIODE(SI)	S
D108	PQVDERA1802	DIODE(SI)	S
D201	PFVDSF5LC20U	DIODE(SI)	S
D202	PFVD11DQ10	DIODE(SI)	S
		(CAPACITORS)	
C101	ECQU2A224MG	0.22	⚠
C102	ECQU2A104MG	0.1	⚠
C103	PFKD2E3KH102	1000p	S
C105	PFKDE2GA222M	2200p	⚠
C106	PFCEA450AX68	68	S
C108	ECKD3A102KBP	0.001	
C109	ECA1VHG470	47p	
C110	PFKDD2GA222M	2200p	S
C119	ECKD3A470KBP	47p	
C121	ECUV1H472KBV	0.0047	S
C122	ECUV1A224KBV	0.22	S
C123	ECUV1H561JCV	560p	S
C124	ECUV1E104KBV	0.1	S
C201	PFCEA35F471	470p	S
C202	ECKN3A102KBP	0.001	
C203	PFCEA16B470	47p	S
C204	PFCEA35A47M	47	S
C205	PFCEA50A47M	1	S
C206	ECKN3A102KBP	0.001	
C221	ECUV1E104KBV	0.1	
C222	ECUV1H104ZFV	0.1	S
		(CONNECTORS)	
CN301	PQJP7G30Z	CONNECTOR	⚠ S

Ref. No.	Part No.	Part Name & Description	Remarks
CN31	PQJP2D98Z	CONNECTOR	△ S
		(FUSE)	
F101	PFBA2153-15	FUSE	△ S
		(COIL)	
L101	ELF15N005A	COIL	
		(COMPONENTS PART)	
L103	EXCELD35	COMPONENTS PART	
		PHOTO ELECTRIC TRANSDUCER	
PC101	PFVIPC123	PHOTO COUPLER	△ S
		(RESISTORS)	
R101	ERDS1J105	1M	
R102	ERDS2TJ334	330k	
R103	ERDS2TJ334	330k	
R104	ERG2SJ304	300k	
R105	ERX2SJR22	0.22	
R106	ERG2SJ470	47	
R107	ERG2SJ304	300k	
R108	ERDS2FJ150	15	
R109	ERDS2TJ100	10	
R121	ERJ3GEYJ103	10k	
R122	ERJ3GEYJ331	330	
R124	ERJ3GEYJ181	180	
R125	ERJ3GEYJ103	10k	
R126	ERJ3GEYF562	5.6k	
R127	ERJ3GEYJ182	1.8k	
R128	PQ4R10XJ101	100	S
R136	PQ4R10XJ104	100k	S
R137	PQ4R10XJ104	100k	S
R202	ERG2SJ152	1.5k	
R203	PQ4R10XJ000	0	
R221	PQ4R10XJ222	2.2k	S
R222	PQ4R10XJ222	2.2k	S
R223	PQ4R10XJ101	100	S
R224	PQ4R10XJ273	27k	S
R225	PQ4R10XJ332	3.3k	S
		(TRANSFORMER)	
T101	PFLTSRW226V	TRANSFORMER	S
		(THERMISTOR)	
TH101	PFRT57235S00	THERMISTOR	S
		(VARIABLE RESISTOR)	
VR201	EVNDJAA03B53	VARIABLE RESISTOR	
		(VARISTOR)	
ZNR1	ERZV10DK751U	VARISTOR	△

12. 7. ADF 继电器板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB5	PFLP1448MZ-A	ADF RELAY BOARD ASS'Y (RTL)	
		(CONNECTORS)	
CN500	PQJP5G30Y	CONNECTOR, 5 PIN	S
CN501	K1KA11A00032	CONNECTOR, 11 PIN	
CN502	PQJP3G30Z	CONNECTOR, 3 PIN	S
		(OTHERS)	
SW500	PFSH1A003Z	SWITCH	S
SW501	PFSH1A008Z	SWITCH	S
PS500	CNA1006N	PHOTO ELECTRIC TRANSDUCER	
R503	PQ4R18XJ223	RESISTOR, 22k	

12. 8. PF 传感器板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB6	PFLP1448MZ-B	PF SENSOR BOARD ASS'Y (RTL)	
		(CONNECTOR)	
CN503	PQJP3G30Z	CONNECTOR, 3P	S
		(PHOTO ELECTRIC TRANSDUCER)	
PS501	PQVIPS4506	PHOTO SENSOR	S

12. 9. CIS 继电器板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB7	PFLP1448MZ-C	CIS RELAY BOARD ASS'Y (RTL)	
		(CAPACITORS)	
C501	ECUV1H151JCV	150p	
C502	ECUV1H151JCV	150p	
		(CONNECTORS)	
CN504	PQJP4G30Y	CONNECTOR, 4P	S
CN505	PQJP10G30Y	CONNECTOR, 10P	S
CN506	K1MN03B00016	CONNECTOR, 3P	
CN507	K1MN10B00082	CONNECTOR, 10P	
		(PHOTO ELECTRIC TRANSDUCER)	
PS502	PQVIPS4506	PHOTO SENSOR	S
		(RESISTORS)	
R501	ERJ3GEY0R00	0	
R502	ERJ3GEY0R00	0	

12. 10. CIS 传感器板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB8	PFLP1448MZ-D	CIS SENSOR BOARD ASS'Y (RTL)	
		(CONNECTOR)	
CN508	K1MN03B00016	CONNECTOR, 3P	
		(PHOTO ELECTRIC TRANSDUCER)	
PS503	PQVIPS4506	PHOTO SENSOR	S

12. 11. 扫描仪马达驱动板部件

Ref. No.	Part No.	Part Name & Description	Remarks
PCB9	PFLP1448MZ-E	SCAN MOTOR DRIVER BOARD ASS'Y (RTL)	
		(IC)	
IC500	PFVIT2003APS	IC	S
		(DIODE)	
D500	MA7160	DIODE	
		(CONNECTORS)	
CN509	PQJP6G30Y	CONNECTOR, 6P	S
CN510	PQJP5G30Y	CONNECTOR, 5P	S

12. 12. 夹具和工具

Ref. No.	Part No.	Part Name & Description	Remarks
EC1	PQZZ2K12Z	EXTENSION CORD, 2 PIN	
EC2	PQZZ4K5Z	EXTENSION CORD, 4 PIN	
EC3	PQZZ4K5Z	EXTENSION CORD, 4 PIN	
EC4	PQZZ8K18Z	EXTENSION CORD, 8 PIN	
EC5	PQZZ6K7Z	EXTENSION CORD, 6 PIN	
EC6	PQZZ10K4Z	EXTENSION CORD, 10 PIN	
EC7	PFZZ14K4Z	EXTENSION CORD, 14 PIN	
EC8	PFZZ12K2Z	EXTENSION CORD, 12 PIN	
EC9	PQZZ7K5Z	EXTENSION CORD, 7 PIN	
EC10	PFZZ11K12Z	EXTENSION CORD, 11 PIN	
EC11	PQZZ2K6Z	EXTENSION CORD, 2 PIN	
	KM79811245C0	BASIC FACSIMILE TECHNIQUE (for training service technicians)	

注:

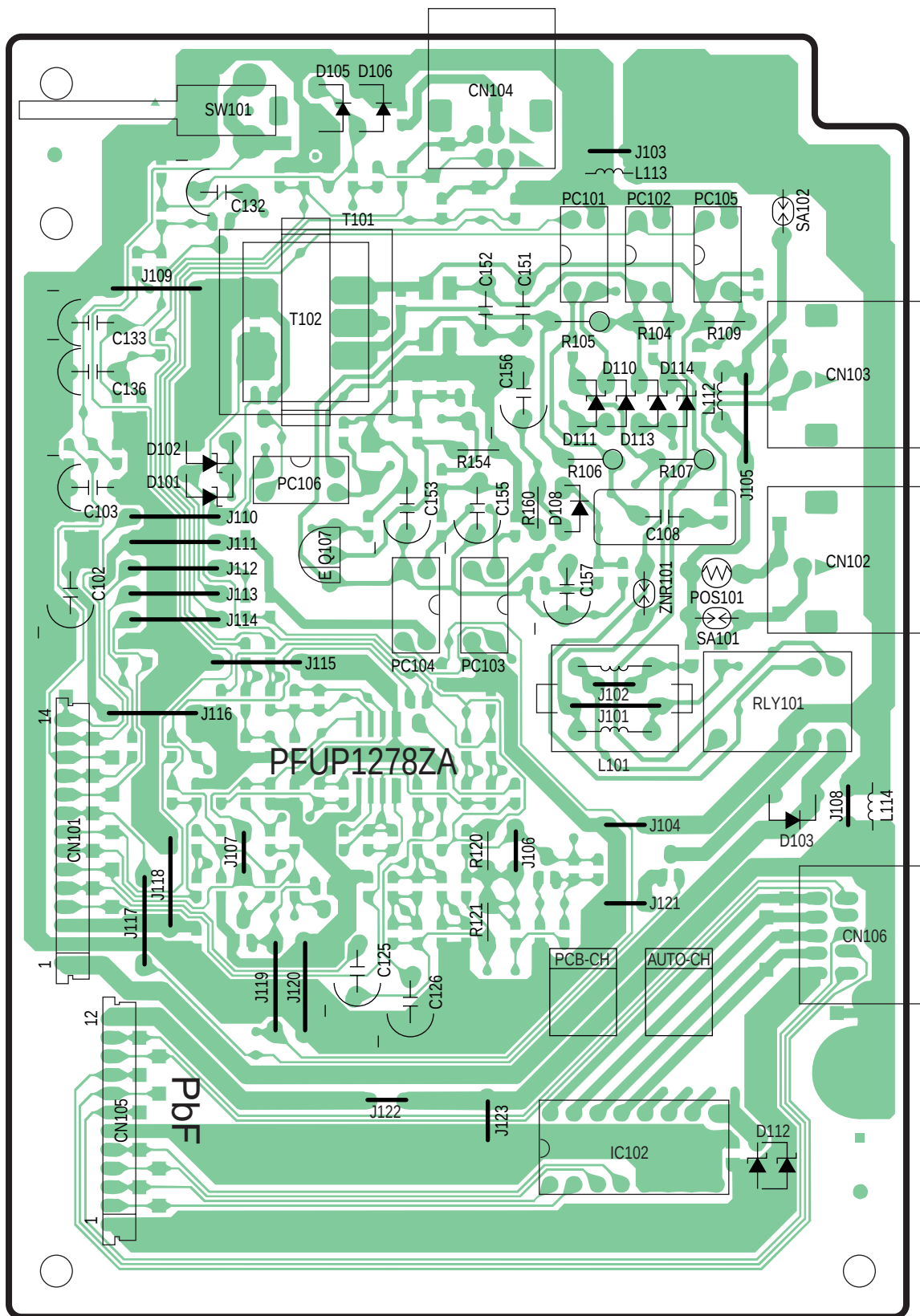
工具和分机软线对维修是有用的。
(它们能使维修变得容易。)

13.1.1. 数字板：元件视图



13.2. 模拟板 (PCB2)

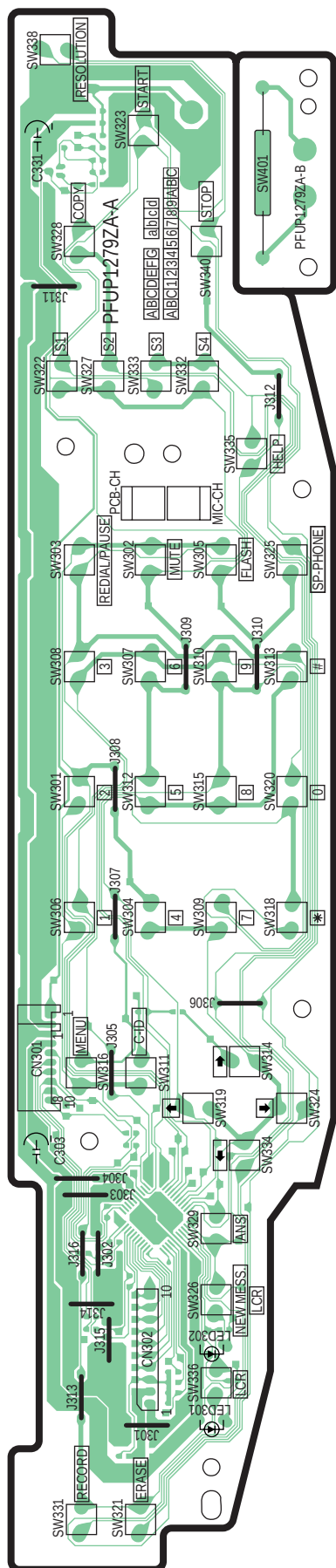
13.2.1. 模拟板：元件视图



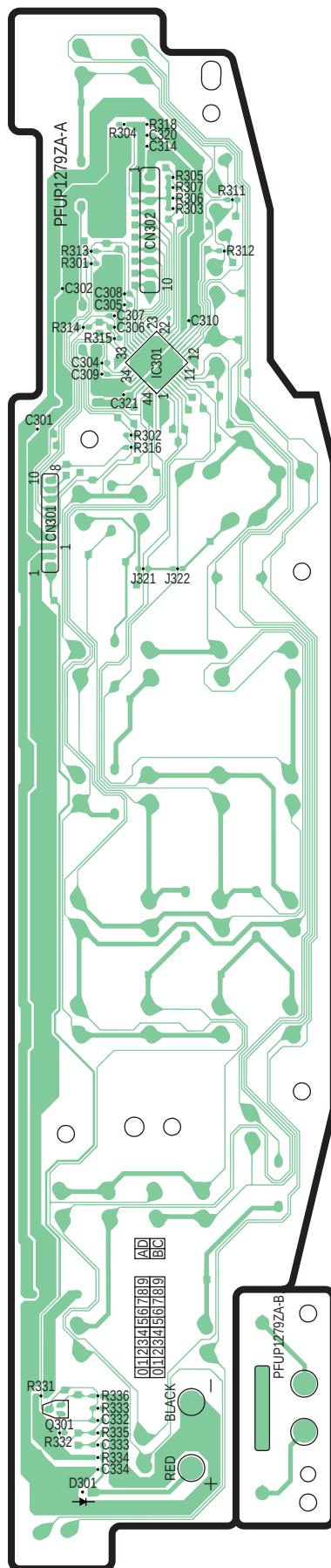
KX-FB423CN : ANALOG BOARD : COMPONENT VIEW

13.3. 操作板 (PCB3) / 芦苇 SW 板

(元件视图)

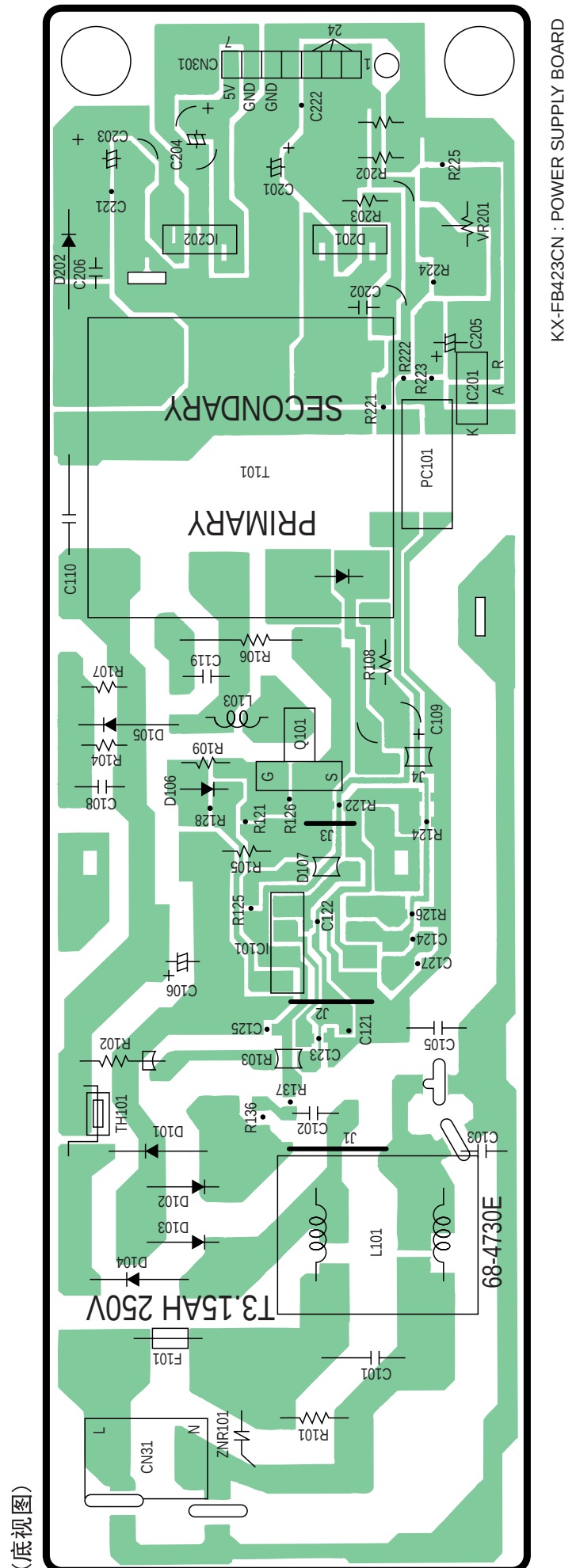
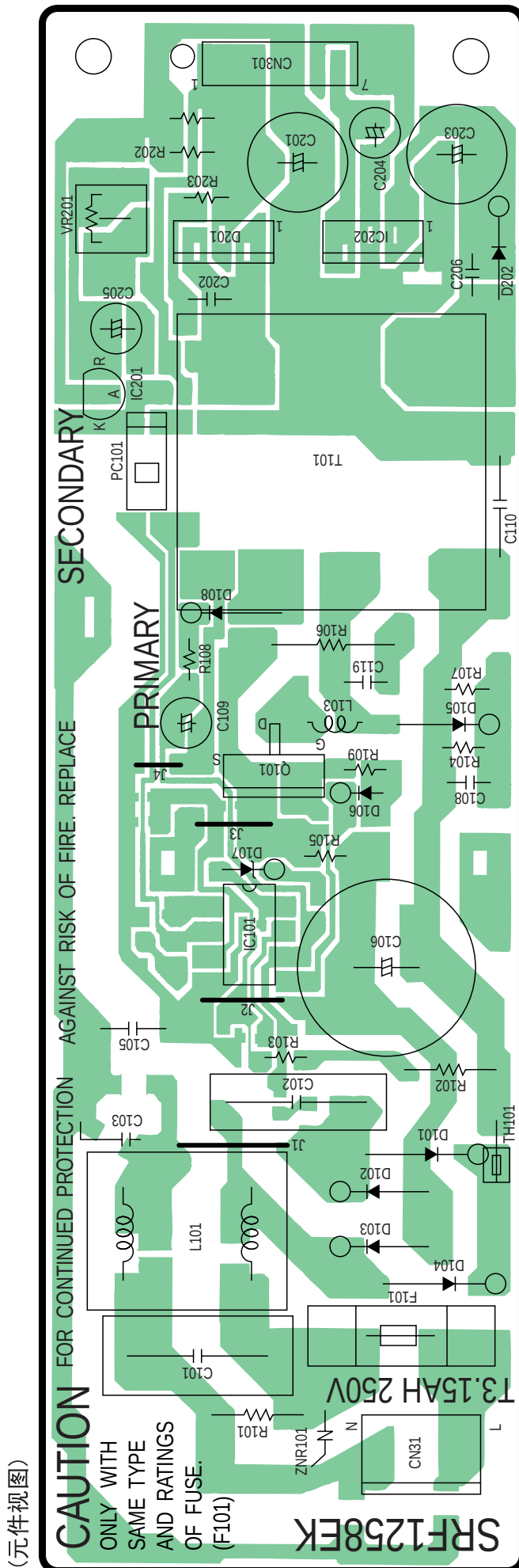


(底视图)



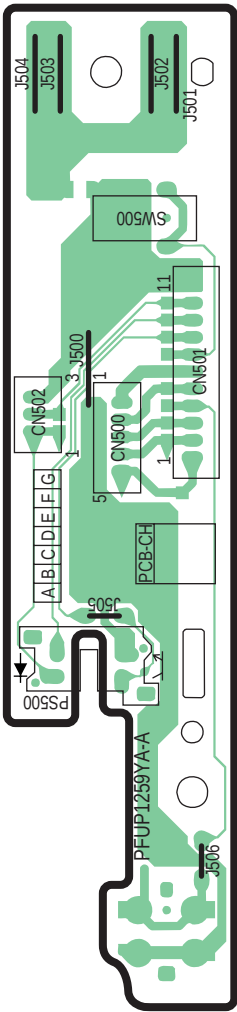
KX-FB423CN : OPERATION BOARD / REED SW BOARD

13.4. 电源板 (PCB4)

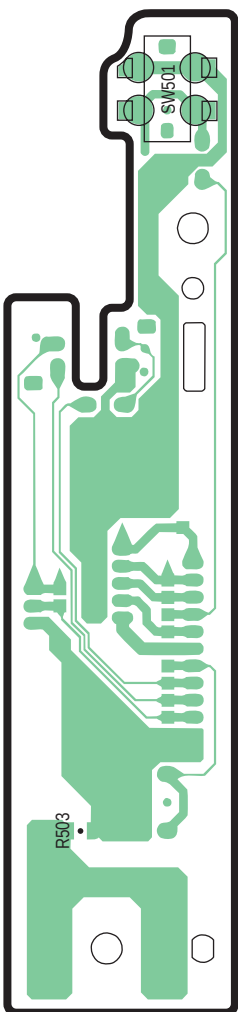


13. 5. 传感器板 (PCB5/PCB6/PCB7/PCB8/PCB9)

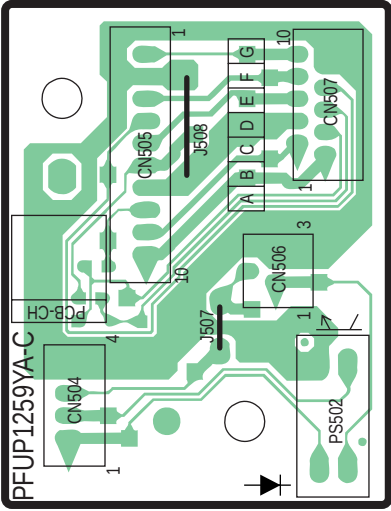
ADF RELAY BOARD (PCB5) : 元件视图



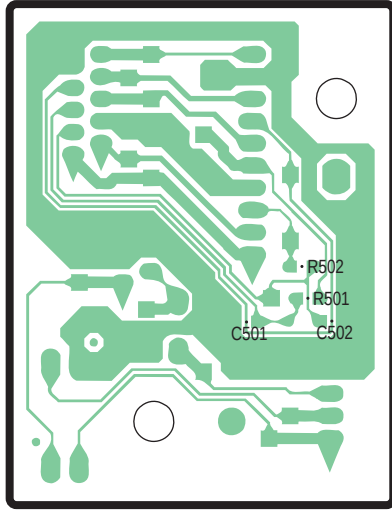
ADF RELAY BOARD (PCB5) : 底视图



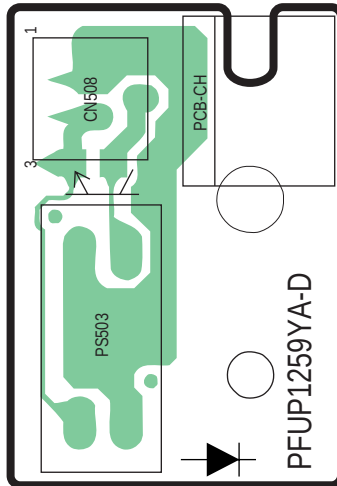
CIS RELAY BOARD (PCB7) : 元件视图



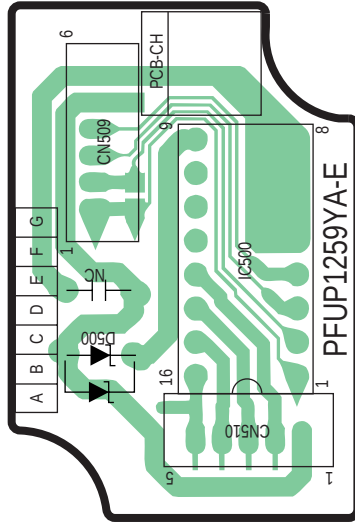
CIS RELAY BOARD (PCB7) : 底视图



CIS SENSOR BOARD (PCB8)



SCAN MOTOR DRIVER BOARD (PCB9)



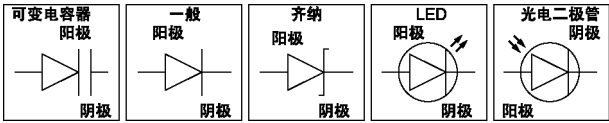
PF SENSOR BOARD (PCB6)



14 示意图说明

注:

- 1. 用一台示波器或测试表在接地条件下进行 DC 电压测量。
- 2. 随着新工艺的开发，可随时修改示意图和电路板。

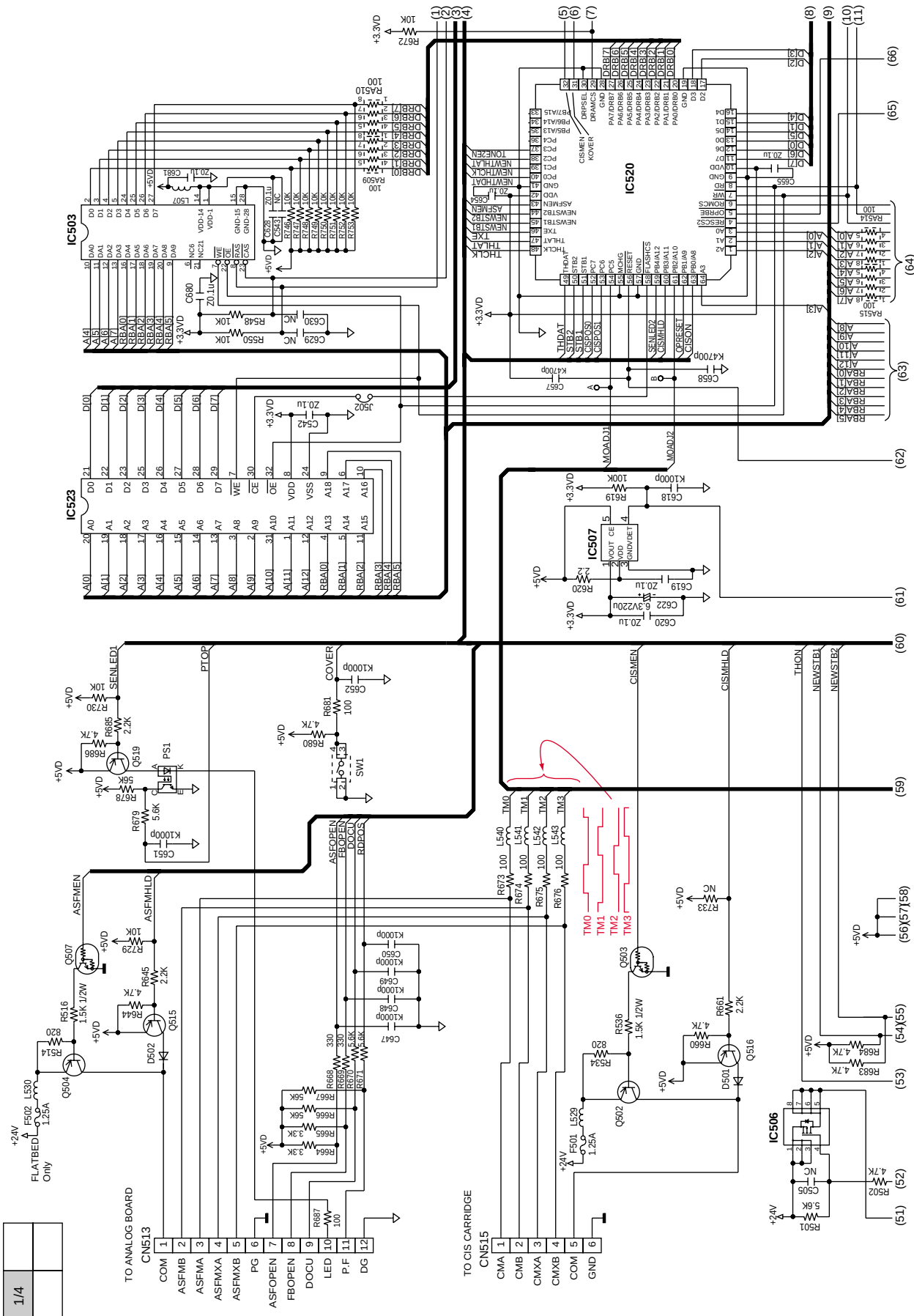


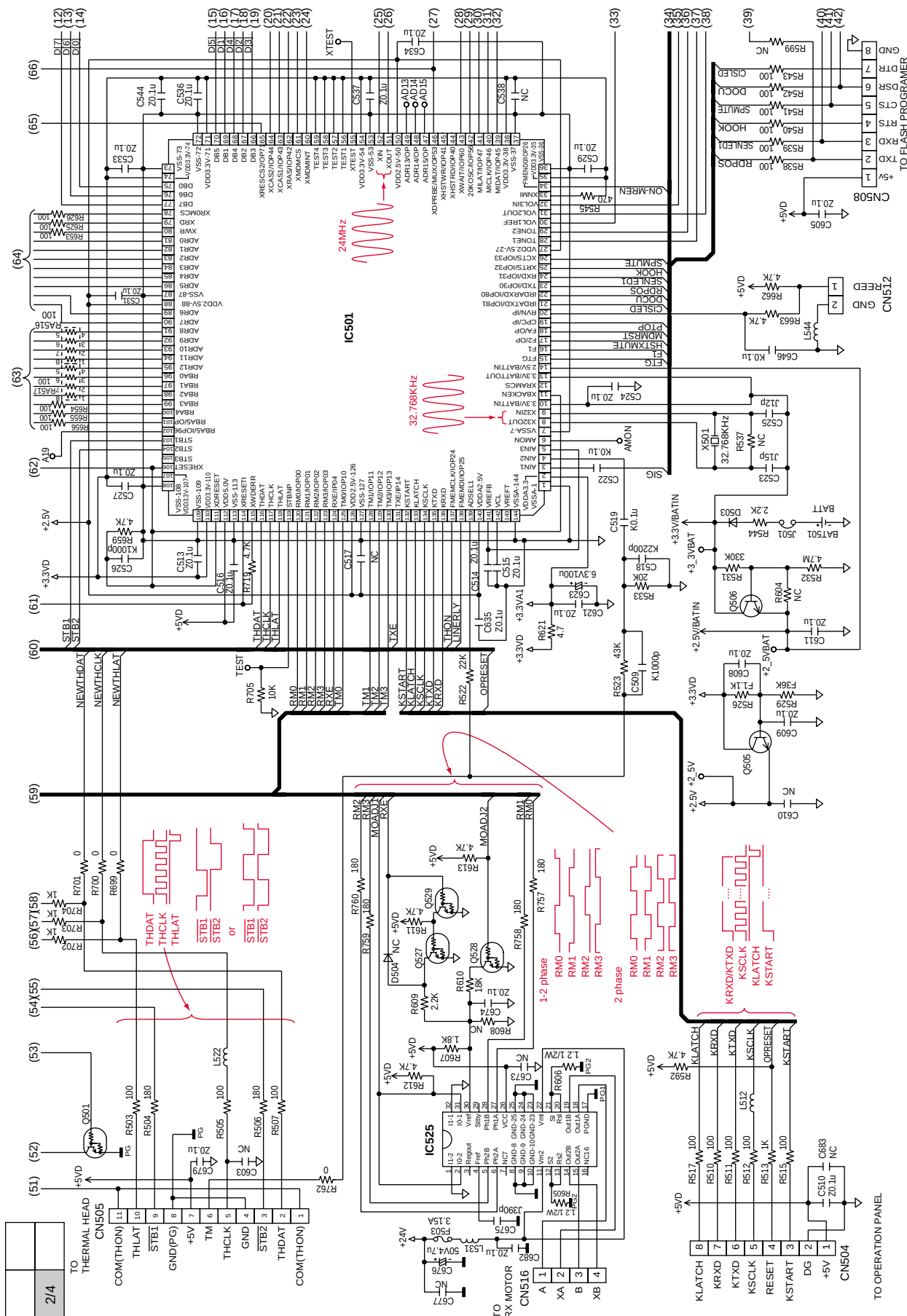
重要安全注意事项

用  标记标注的元件具有特殊的对安全至关重要的特性。更换其中任一元件时，只能使用生产厂方规定的元件。

15 示意图

15.1. 数字板 (PCB1)

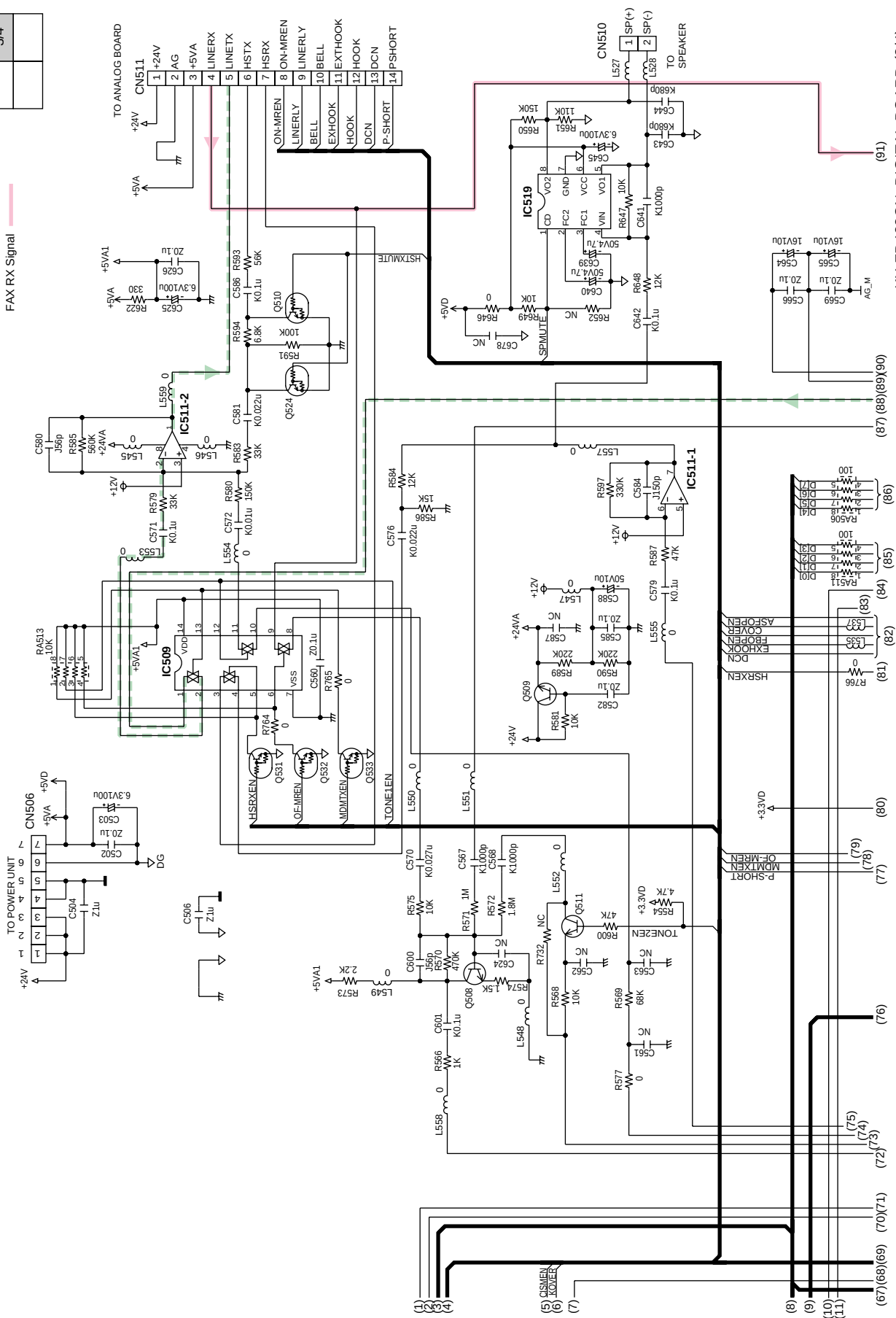




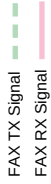
KX-FB423CN : DIGITAL BOARD (2/4)

	3/4

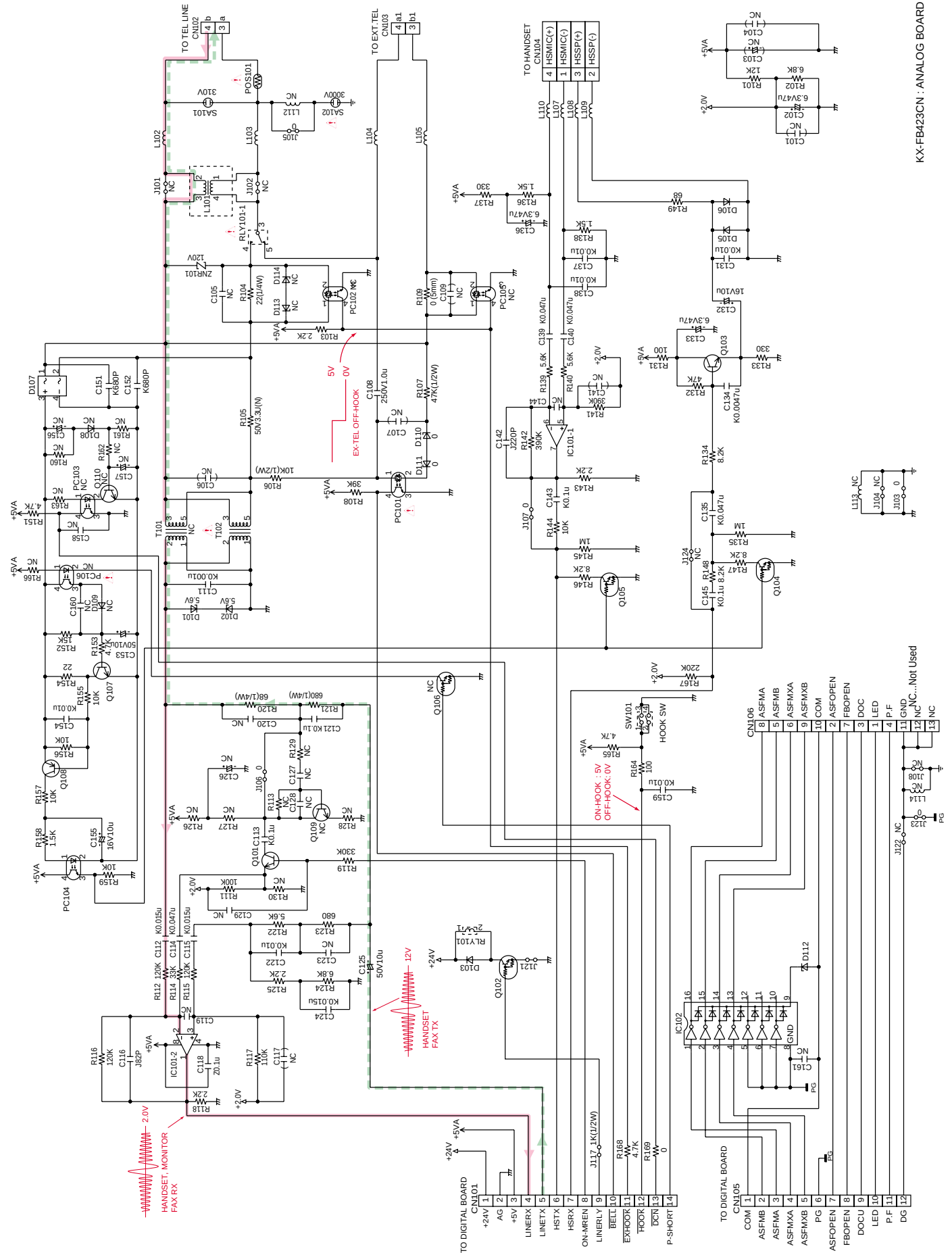
FAX TX Signal
FAX RX Signal



KX-FB423CN: DIGITAL BOARD (3/4)

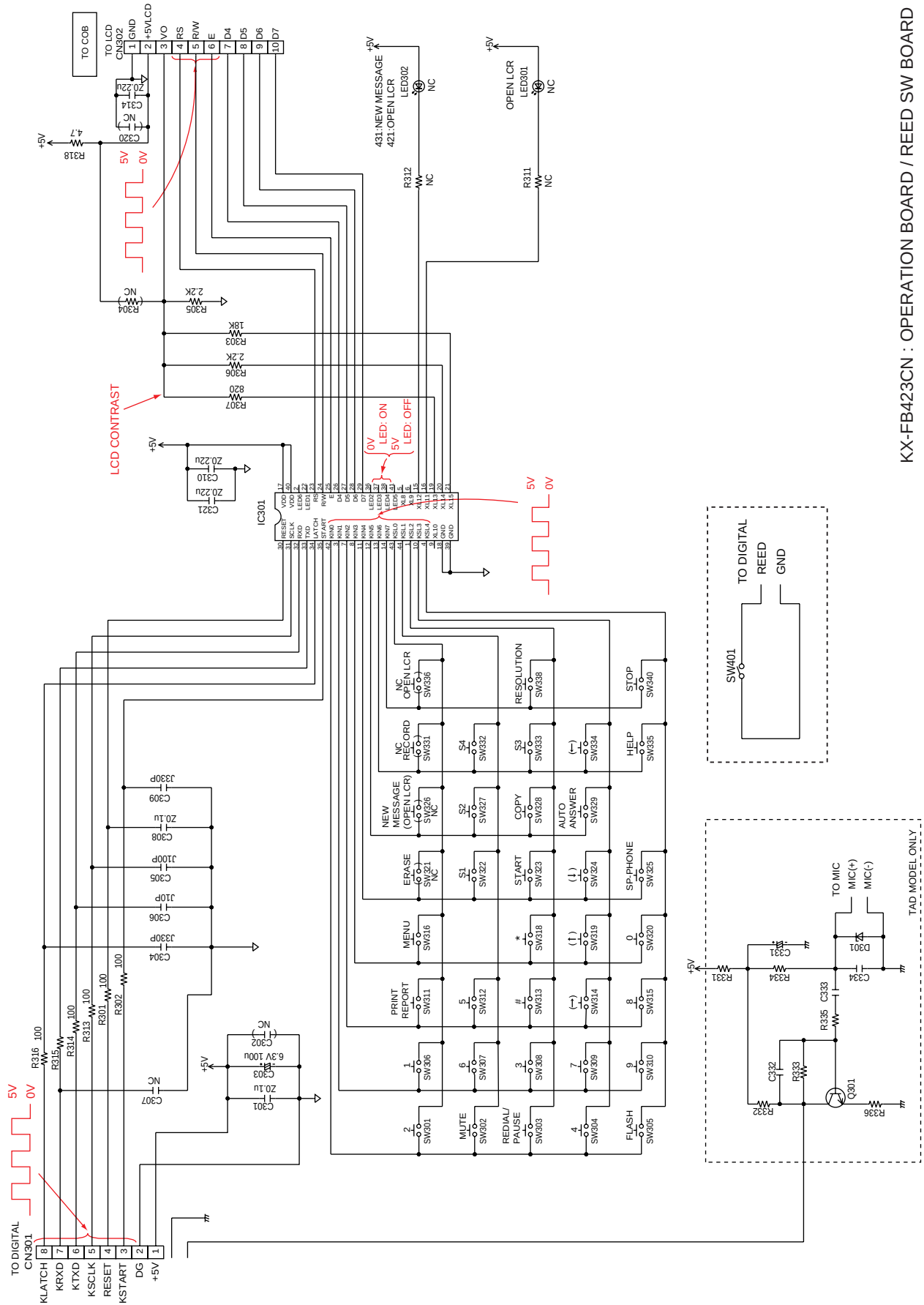


15. 2. 模拟板 (PCB2)



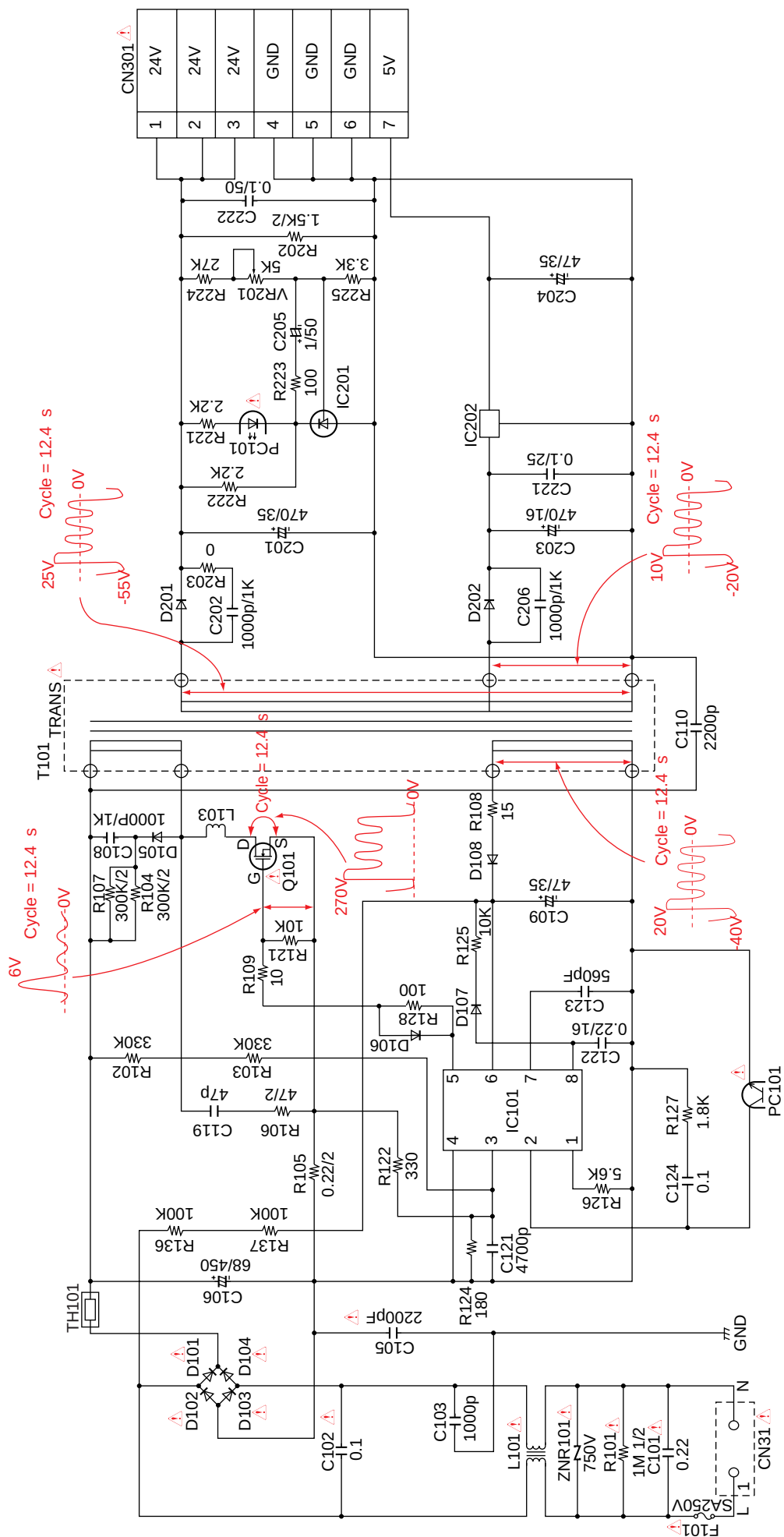
KX-FB423CN : ANALOG BOARD

15. 3. 操作板（PCB3） / 芦苇 SW 板



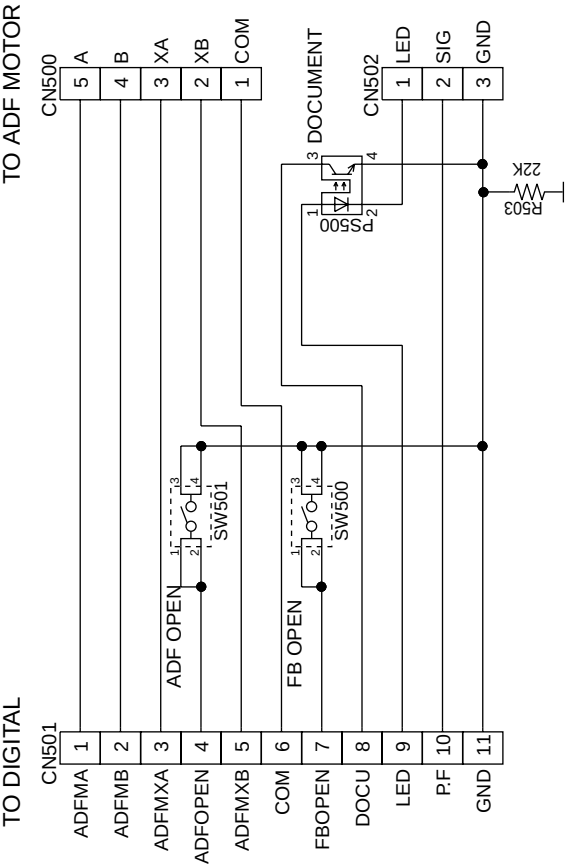
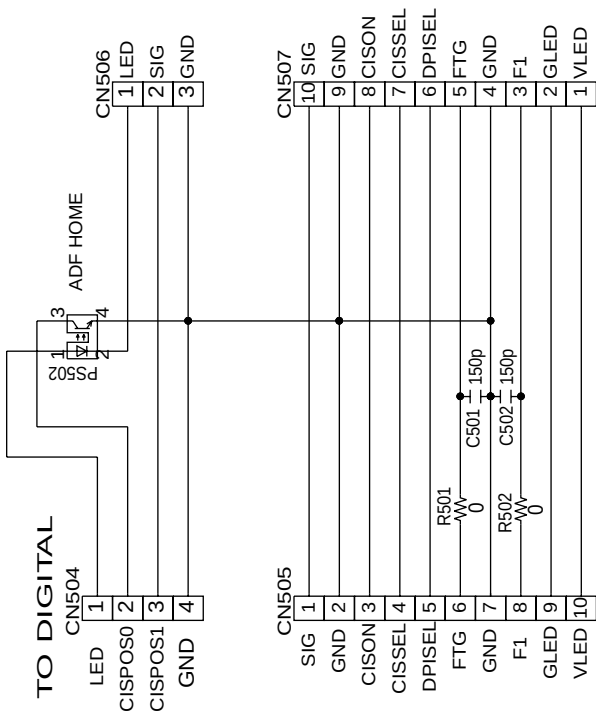
KX-FB423CN : OPERATION BOARD / REED SW BOARD

15. 4. 电源板 (PCB4)

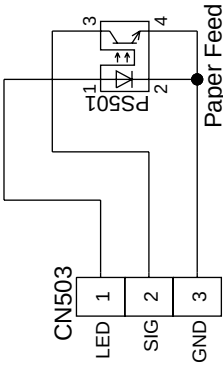


KX-FB423CN : POWER SUPPLY BOARD

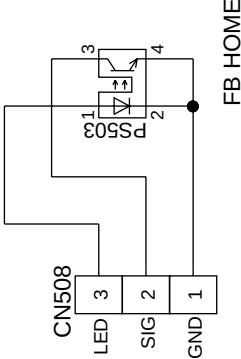
15. 5. 传感器板（PCB5/PCB6/PCB7/PCB8/PCB9）



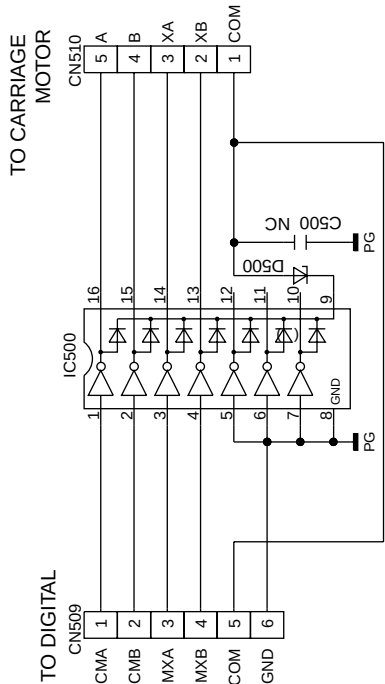
ADF RELAY BOARD (PCB5)



PF SENSOR BOARD (PCB6)



CIS SENSOR BOARD (PCB8)



SCAN MOTOR DRIVER BOARD (PCB9)

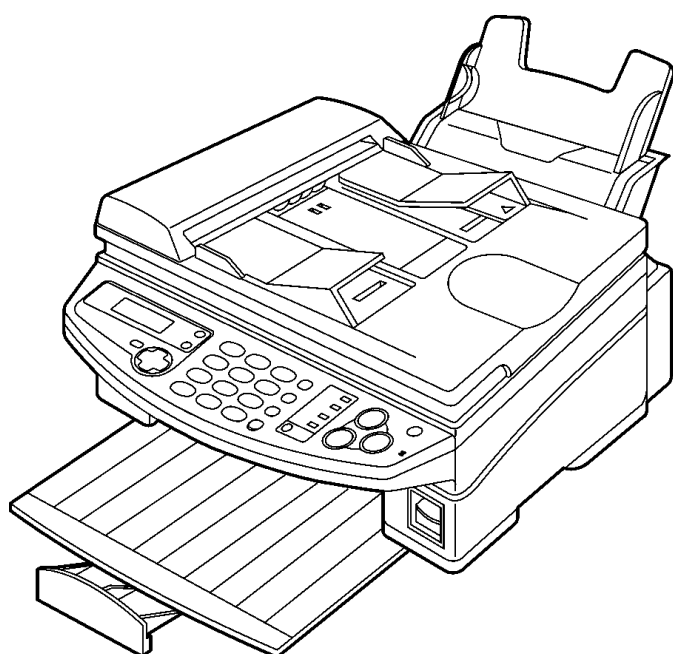
KX-FB423CN : SENSOR BOARDS

Service Manual

Flat-Bed-Plain Paper Fax with Copier

KX-FB423CN

(for China)



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

Panasonic

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CONTENTS

	Page		Page
1 INTRODUCTION	3	8.2. HOW TO REPLACE THE FLAT PACKAGE IC	153
1.1. SAFETY PRECAUTIONS	3	8.3. DIGITAL BOARD SECTION	155
1.2. INSULATION RESISTANCE TEST	3	8.4. MODEM SECTION	157
1.3. FOR SERVICE TECHNICIANS	4	8.5. NCU SECTION	163
1.4. BATTERY CAUTION	4	8.6. ITS (Integrated telephone System) and MONITOR SECTION	165
1.5. AC CAUTION	4	8.7. TEST CHART	167
1.6. PERSONAL SAFETY PRECAUTIONS	5	9 FIXTURES AND TOOLS	169
1.7. SERVICE PRECAUTIONS	6	10 CABINET, MECHANICAL AND ELECTRICAL PARTS	
2 FEATURES AND SPECIFICATIONS	6	LOCATION	170
2.1. FEATURES	6	10.1. GENERAL SECTION	170
2.2. SPECIFICATIONS	7	10.2. UPPER ADF SECTION	171
2.3. OPTIONAL ACCESSORIES	7	10.3. CONVERYOR BLOCK SECTION	172
3 INSTALLATION	8	10.4. LOWER ADF SECTION	173
3.1. LOCATION OF CONTROLS	8	10.5. UPPER PRINTER COVER SECTION AND PAPER TRAY SECTION	174
3.2. CONNECTIONS	10	10.6. LOWER PRINTER COVER SECTION	175
3.3. INSTALLATION	11	10.7. PAPER PASS SECTION	176
4 MAINTENANCE	18	10.8. UPPER MAIN CABINET SECTION	177
4.1. MAINTENANCE ITEMS and COMPONENT LOCATIONS	18	10.9. LOWER MAIN CABINET SECTION	178
4.2. PRINT AND EXIT MODE	20	10.10. ACTUAL SIZE OF SCREWS	179
4.3. PAPER PICK UP AND EXIT MODE	20	11 ACCESSORIES AND PACKING MATERIALS	180
4.4. SCANNING (ADF)	21	12 REPLACEMENT PARTS LIST	181
4.5. MAINTENANCE	22	12.1. CABINET AND ELECTRICAL PARTS	181
4.6. RECORDING PAPER JAM	25	12.2. ACCESSORIES AND PACKING MATERIALS	183
4.7. DOCUMENT JAMS - SENDING	27	12.3. DIGITAL BOARD PARTS	183
5 DISASSEMBLY INSTRUCTIONS	28	12.4. ANALOG BOARD PARTS	186
5.1. DISASSEMBLY FLOW CHART	28	12.5. OPERATION BOARD PARTS	187
5.2. DISASSEMBLY PROCEDURE	32	12.6. POWER SUPPLY BOARD PARTS	188
5.3. NOTE FOR ASSEMBLING	48	12.7. ADF RELAY BOARD PARTS	188
5.4. INSTALLATION POSITION OF THE LEAD	49	12.8. PF SENSOR BOARD PARTS	188
6 TROUBLESHOOTING GUIDE	52	12.9. CIS RELAY BOARD PARTS	189
6.1. USER RECOVERABLE ERRORS	52	12.10. CIS SENSOR BOARD PARTS	189
6.2. PROGRAMMING AND LISTS	54	12.11. SCAN MOTOR DRIVE BOARD PARTS	189
6.3. TEST FUNCTIONS	57	12.12. FIXTURES AND TOOLS	189
6.4. REMOTE PROGRAMMING	60	13 PRINTED CIRCUIT BOARD	190
6.5. TROUBLESHOOTING DETAILS	65	13.1. DIGITAL BOARD (PCB1)	190
7 CIRCUIT OPERATIONS	117	13.2. ANALOG BOARD (PCB2)	192
7.1. CONNECTION DIAGRAM	117	13.3. OPERATION BOARD (PCB3) / REED SW BOARD	194
7.2. GENERAL BLOCK DIAGRAM	119	13.4. POWER SUPPLY BOARD (PCB4)	195
7.3. FACSIMILE SECTION	121	13.5. SENSOR BOARDS (PCB5/PCB6/PCB7/PCB8/PCB9)	196
7.4. SCANNING BLOCK	130	14 FOR THE SCHEMATIC DIAGRAMS	197
7.5. STEPPING MOTOR DRIVE SECTION	131	15 SCHEMATIC DIAGRAM	199
7.6. SENSORS AND SWITCHES SECTION	138	15.1. DIGITAL BOARD (PCB1)	199
7.7. OPERATION BOARD SECTION	143	15.2. ANALOG BOARD (PCB2)	200
7.8. LCD SECTION	144	16 SCHEMATIC DIAGRAM	201
7.9. POWER SUPPLY BOARD SECTION	145	16.1. OPERATION BOARD (PCB3) / REED SW BOARD	201
7.10. THERMAL HEAD	148	16.2. POWER SUPPLY BOARD (PCB4)	202
8 REFERENCE MATERIALS DATA	152	16.3. SENSOR BOARDS (PCB5/PCB6/PCB7/PCB8/PCB9)	203
8.1. TERMINAL GUIDE OF THE ICs TRANSISTORS AND DIODES	152		

1 INTRODUCTION

1.1. SAFETY PRECAUTIONS

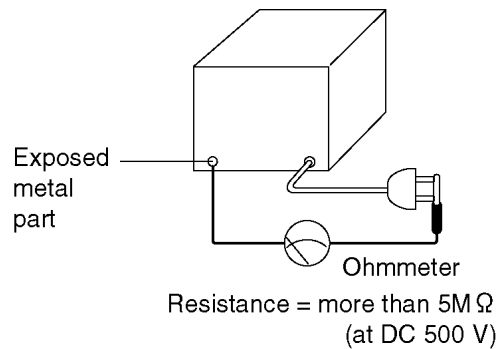
1. Before servicing, unplug the AC power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to perform the following insulation resistance test to prevent the customer from being exposed to shock hazards.

1.2. INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part (screw heads, control shafts, bottom frame, etc.).

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard.



1.3. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic part's boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch the IC or LSI pins with bare fingers.

1.4. BATTERY CAUTION

CAUTION

Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's Instructions.

The lithium battery is a critical component (type No. CR2032). Please observe for the proper polarity and the exact location when replacing it and the exact location when replacing it and soldering the replacement lithium battery in.

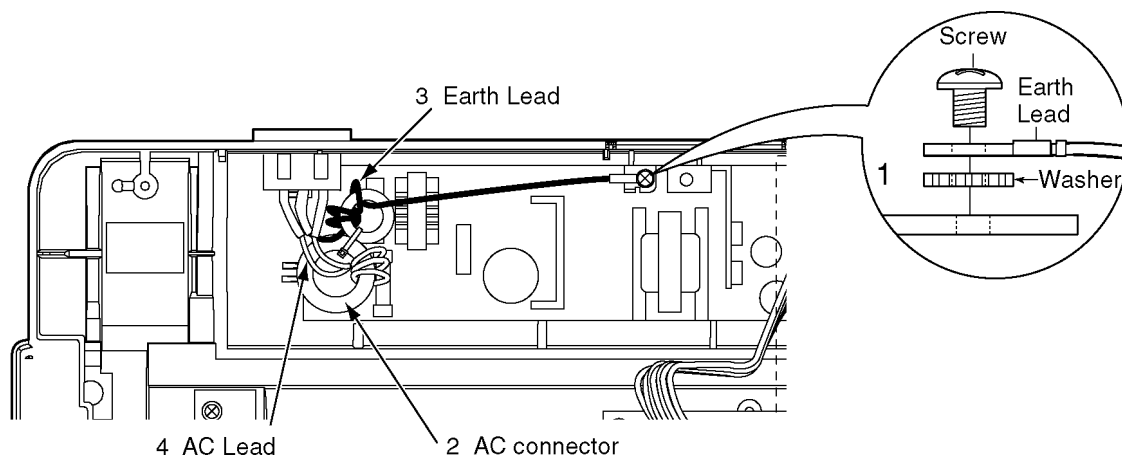
Recommend Type Number:

CR2032 (BAT501) Manufactured by MATSUSHITA/SONY/TOSHIBA/HITACHI

1.5. AC CAUTION

For safety, before closing the lower cabinet, please make sure of the following precautions.

1. The earth lead is fixed with the screw.
2. The AC connector is connected properly.
3. Wind the earth lead around the core 3 times.
4. Wind the earth AC around the core 3 times.

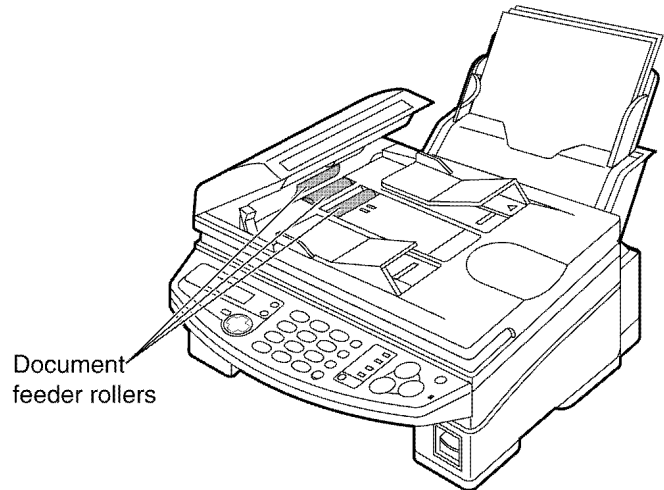
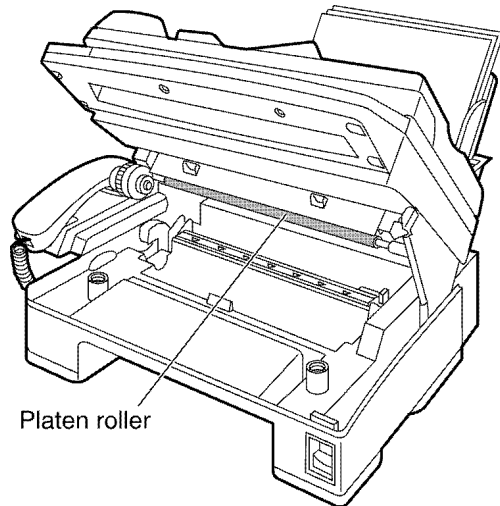


1.6. PERSONAL SAFETY PRECAUTIONS

1.6.1. MOVING SECTIONS OF THE UNIT

Be careful not to let your hair, clothes, fingers, accessories, etc., become caught in any moving sections of the unit.

The moving sections of the unit are the rollers and a gear. There is a separation roller and a document feed roller which are rotated by the document feed motor. A gear rotates the two rollers. Be careful not to touch them with your hands, especially when the unit is operating.



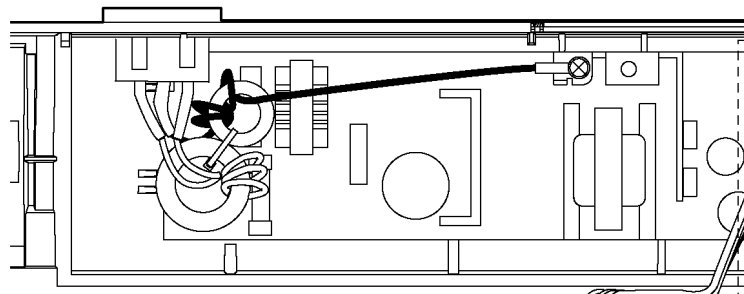
1.6.2. LIVE ELECTRICAL SECTIONS

All the electrical sections of the unit supplied with AC power by the AC power cord are live.

Never disassemble the unit for service with the AC power supply plugged in.

CAUTION:

AC voltage is supplied to the primary side of the power supply unit. Therefore, always unplug the AC power cord before disassembling for service.

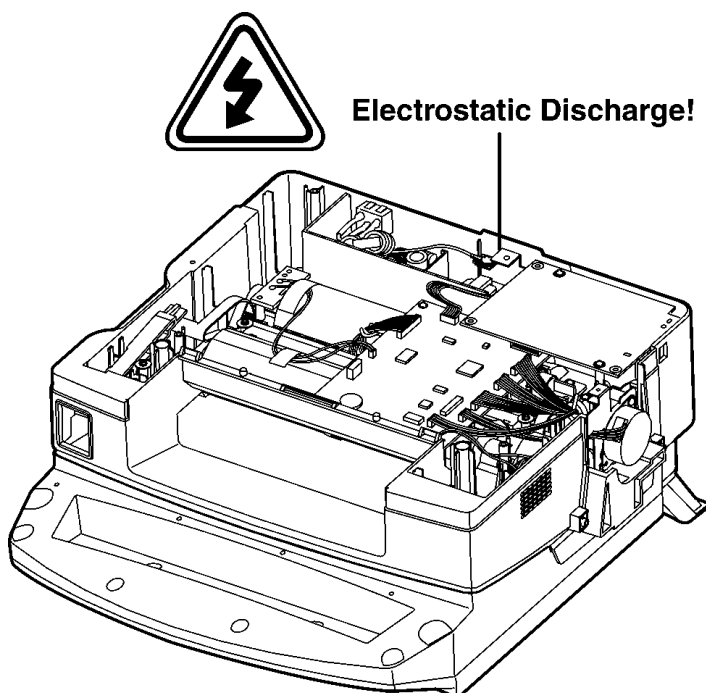


(Bottom View)

1.7. SERVICE PRECAUTIONS

1.7.1. PRECAUTIONS TO PREVENT DAMAGE FROM STATIC ELECTRICITY

Electrical charges accumulate on a person. For instance, clothes rubbing together can damage electric elements or change their electrical characteristics. In order to prevent static electricity, touch a metallic part that is grounded to release the static electricity. Never touch the electrical sections such as the power supply unit, etc.



2 FEATURES AND SPECIFICATIONS

2.1. FEATURES

General

- Help function
- Display:
 - FEATURE LIST
 - DIRECTORY
 - FAX RECEIVING
- LCD (Liquid Crystal Display) readout
- TAM (Telephone answering machine) interface

Plain Paper Facsimile Machine

- 8 second transmission speed *
- Letter / Legal / A4, G3 compatible
- Automatic document feeder (15 sheets)
- Quick scan
- Resolution: Standard / Fine, Photo (64 level) / Super fine
- Broad cast with Navigator and Station key
- 100-sheet paper capacity (20 lb.)
- Distinctive ring detection **

* The 8 second speed is based upon the ITU-T No. 1 Test Chart on the condition that memory transmission is performed.

** Subscription to distinctive ring services is required.

Large Memory... Performed by DRAM

- Approx. 28 pages of memory reception
- Approx. 25 pages of memory transmission

Integrated Telephone System

- On-hook dialing
- Monitor speaker
- Voice muting
- Redialing function
- 106-Station telephone directory with Navigator and one-touch keys

Enhanced Copier Function

- Multi-copy function (up to 99 copies)
- Enlargement and reduction
- Collate
- 64-Level halftone

2.2. SPECIFICATIONS

Applicable Lines:	Public Switched Telephone Network
Document Size:	Max. 216 mm in width Max. 600 mm in length
Effective Scanning Width:	208 mm
Recording Paper Size:	Letter: 216×279 mm Legal: 216×356 mm A4: 210×297 mm
Effective Printing Width:	208 mm
Transmission Time*¹:	Approx. 8 s/page (Original mode)* ²
Scanning Density:	Horizontal: 8 pels/mm Vertical: 3.85 lines/mm—STANDARD mode 7.7 lines/mm—FINE / PHOTO mode 15.4 lines/mm—SUPER FINE Mode
Halftone Level:	64-level
Scanner Type:	Contact Image Sensor (CIS)
Printer Type:	Thermal Transfer on Plain Paper
Data Compression System:	Modified Huffman (MH), Modified READ (MR), Modified Modified READ (MMR)
Modem Speed:	14,400/12,000/9,600/7,200/4,800/2,400 bps; Automatic Fallback
Operating Environment:	5—35°C, 20—80 % RH (Relative Humidity)
Dimensions:	Approx. High 210 mm× Width 472 mm× Depth 446 mm
Mass (Weight):	Approx. 7.4 kg
Power Consumption:	Standby: Approx. 5.0 W Transmission: Approx. 18 W Reception: Approx. 35 W (When receiving a 20% black document) Copy: Approx. 60 W (When copying a 20% black document) Maximum: Approx. 135 (When copying a 100% black document)
Power Supply:	220 V-240V AC, 50Hz / 60 Hz
Memory Capacity:	Approx. 28 pages memory reception Approx. 25 pages memory transmission (Based on ITU-T No. 1 Test Chart in standard resolution without using Error Correction Mode.)

*¹ Transmission speed depends upon the contents of the pages, resolution, telephone line conditions and capability of the other party's machine.

*² Transmission speed is based upon the ITU-T No. 1 Test Chart and original mode. (Refer to **ITU-T No.1 TEST CHART(P.167).**) If the capability of the other party's machine is inferior to your unit, the transmission time may be longer.

Note:

- Any details given in these instructions are subject to change without notice.
- The pictures and illustrations in these instructions may vary slightly from the actual product.

Design and specifications are subject to change without notice.

2.3. OPTIONAL ACCESSORIES

- We recommend that you buy a full-size replacement film 120 meters for continuous use of your unit. For best results, use genuine Panasonic replacement film as follows.

Model No.	Description	Specifications
KX-FA67E	Replacement Film	216 mm × 120 m

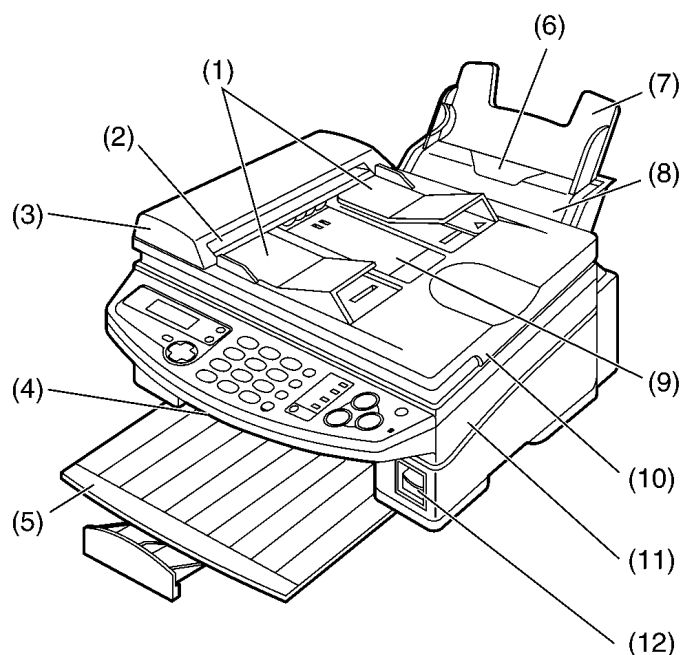
Note:

The ink film is not reusable. Do not rewind and use the ink film again.

3 INSTALLATION

3.1. LOCATION OF CONTROLS

3.1.1. OVERVIEW



(1) Document guides

(2) Document exit

(3) ADF (Auto Document Feeder) cover

(4) Recording paper exit

(5) Paper stacker

· The paper stacker may not be shown in all illustrations.

(6) Recording paper entrance

(7) Paper tray

(8) Tension plate

(9) Document entrance

(10) Document cover

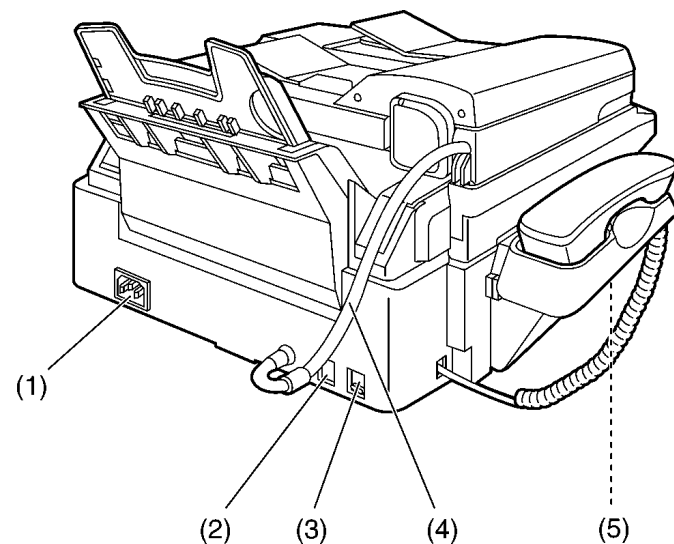
(11) Printer cover

(12) Printer cover open button

Note:

*The paper stacker may not be shown in all illustrations.

3.1.2. REAR VIEW



(1) Power inlet

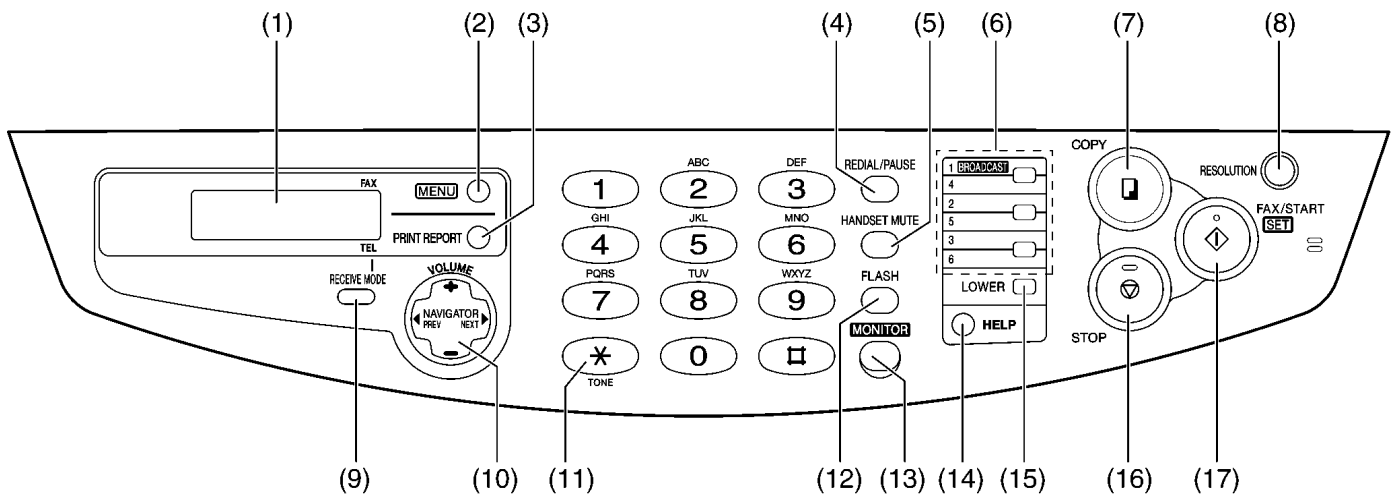
(2) Telephone line jack

(3) External telephone jack

(4) ADF (Auto Document Feeder) cable

(5) Speaker

3.1.3. CONTROL PANEL



(1) Display

(2) MENU

- To initiate or exit programming.

(3) PRINT REPORT

- To print reference lists and reports.

(4) REDIAL/PAUSE

- To redial the last number dialed. If the line is busy when you make a phone call using the **[MONITOR]** button, the unit will automatically redial the number up to 5 times.
- To insert a pause during dialing.

(5) HANDSET MUTE

- To mute your voice to the party during a conversation. Press this button again to resume the conversation.

(6) One-touch keys

- To use one-touch dial.
- To transmit to multiple entries.

(7) COPY

- To initiate copying.

(8) RESOLUTION

- To select print quality.

(9) RECEIVE MODE

- To change the receive mode.

(10) NAVIGATOR, VOLUME

- To adjust volume.
- To search for a stored name.
- To select the features or feature settings during programming.
- To navigate to the next operation.

(11) TONE

- To change from pulse to tone temporarily during dialing when your line has rotary pulse services.

(12) FLASH

- To access special telephone services such as call waiting or for transferring extension calls.

(13) MONITOR

- To initiate dialing without lifting the handset.

(14) HELP

- To print a quick reference.

(15) LOWER

- To select stations 4-6 for one-touch dial.

(16) STOP

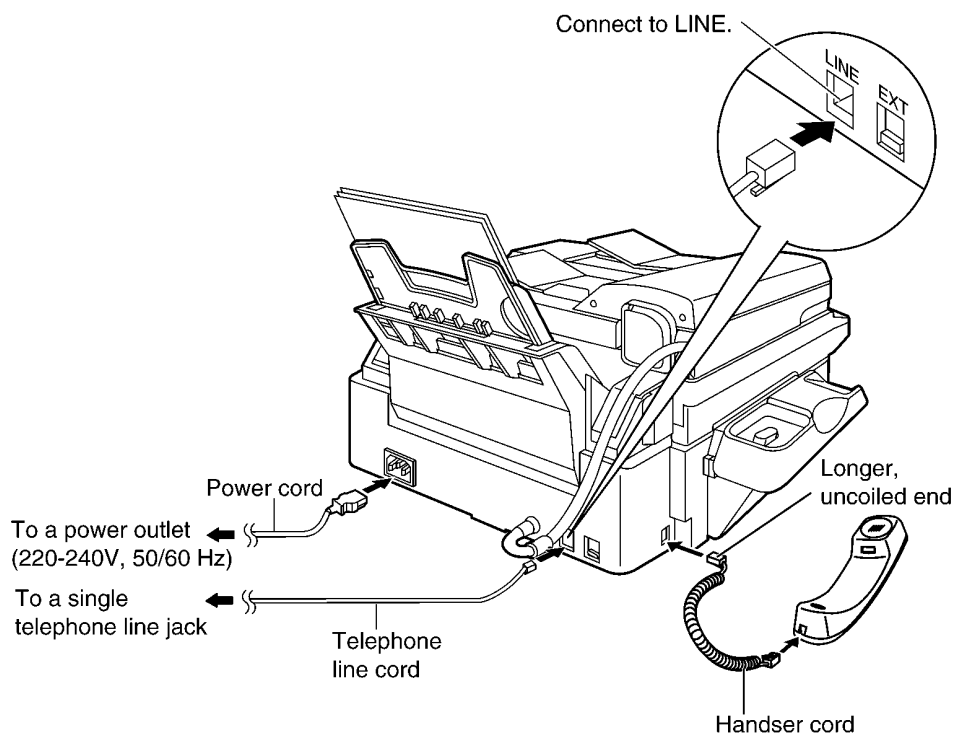
- To stop an operation or cancel programming.

(17) FAX/START, SET

- To initiate fax transmission or reception.
- To store a setting during programming

3.2. CONNECTIONS

- (1) Connect the handset cord.
- (2) Connect the telephone line cord.
- (3) Connect the power cord.

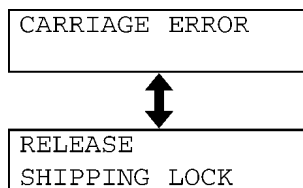


Caution:

- When you operate this product, the power outlet should be near the product and easily accessible.

Note:

- To avoid malfunction, do not position fax machine near appliance such as TVs or speakers which generate an intense magnetic field.
- If any other device is connected on the same line, this unit may disturb the network condition of the device.
- When the power is turned on and the display shows the following, unlock the shipping lock.

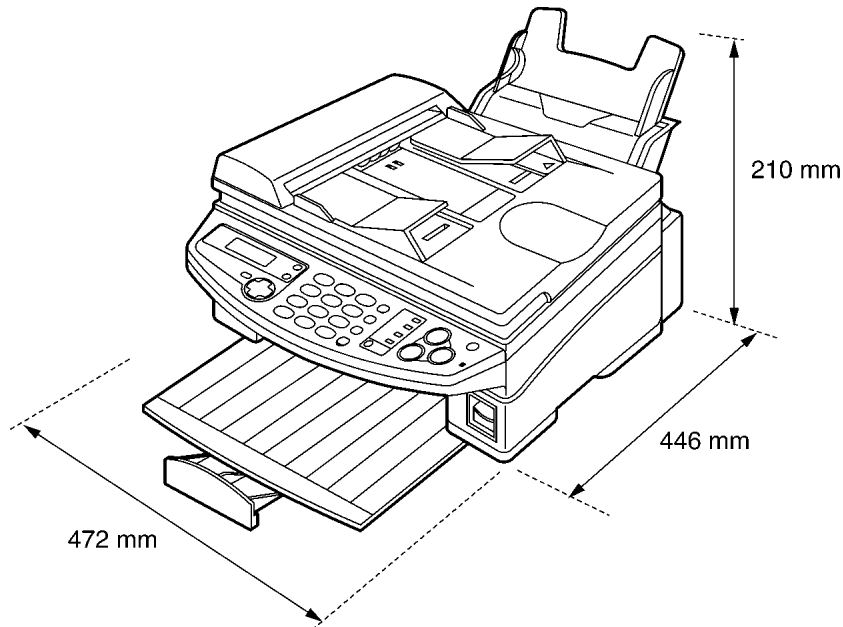


3.3. INSTALLATION

3.3.1. INSTALLATION SPACE

The space required to install the unit is shown below.

The dimensions given are necessary for the unit to operate efficiently.



Note:

- Avoid excessive heat or humidity.
- Use the unit within the following ranges of temperature and humidity.
- Ambient temperature: 5°C to 35°C
- Relative humidity: 20% to 80% (without condensation)
- Power cord length should be less than 5 meters. Using a longer cord may reduce the voltage or cause malfunctions.
- Avoid direct sunlight.
- Do not install near devices which contain magnets or generate magnetic fields.
- Do not subject the unit to strong physical shock or vibration.
- Keep the unit clean. Dust accumulation can prevent the unit from functioning properly.
- To protect the unit from damage, hold both sides when you move it.

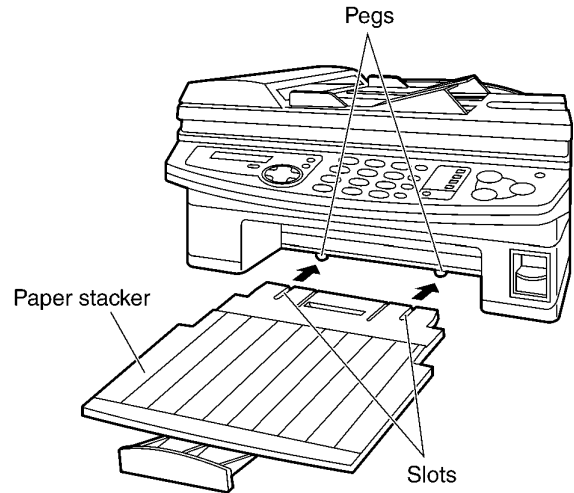
3.3.2. PAPER STACKER AND PAPER TRAY

1 PAPER STACKER

Line up the slots in the paper stacker with the pegs on the bottom of the unit, then slide until locked.

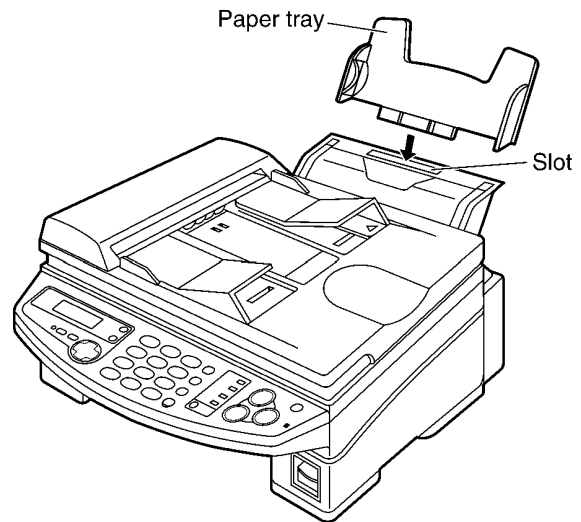
- The paper stacker can hold up to approx. 100 sheets of printed paper.

Remove the printed paper before the paper stacker becomes full.



2 PAPER TRAY

Insert the paper tray into the slot on the back of the unit.



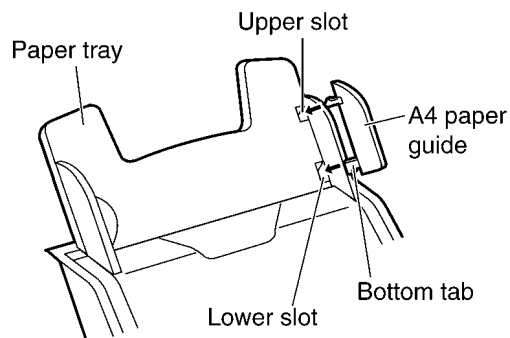
Note:

- Do not place the unit in an area where the paper tray may be obstructed (i.e. by a wall etc.).
- Recording paper will be ejected from the front of the unit. Do not place anything in front of the unit.

To use A4 size paper

Insert the bottom tab on the A4 paper guide into the lower slot. Press the guide into the upper slot.

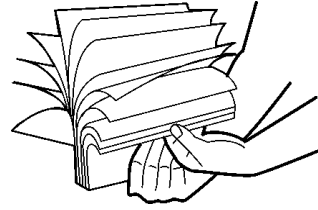
- Change the recording paper size (feature #16 on **PROGRAM MODE TABLE** (P.61)).



3.3.3. RECORDING PAPER

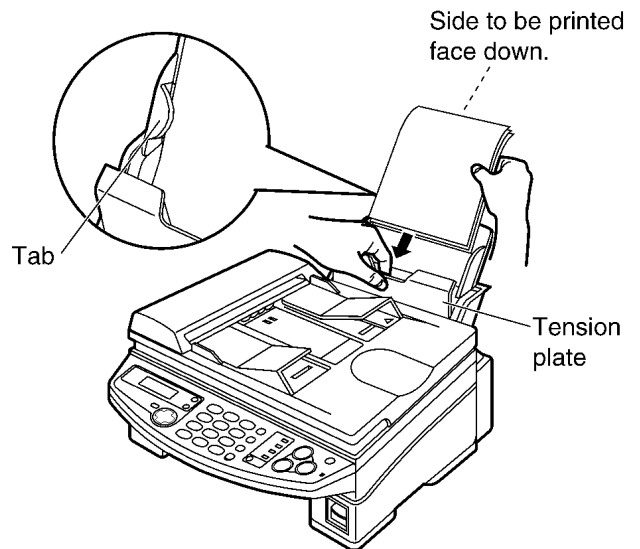
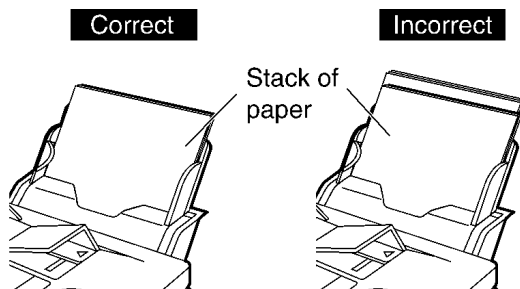
Letter, legal or A4 size recording paper can be loaded. The unit can hold up to 100 sheets of 75 g/m² paper. You may use 60 g/m² to 90 g/m² paper. See the note for paper specifications.

- 1 Fan the stack of paper to prevent a paper jam.



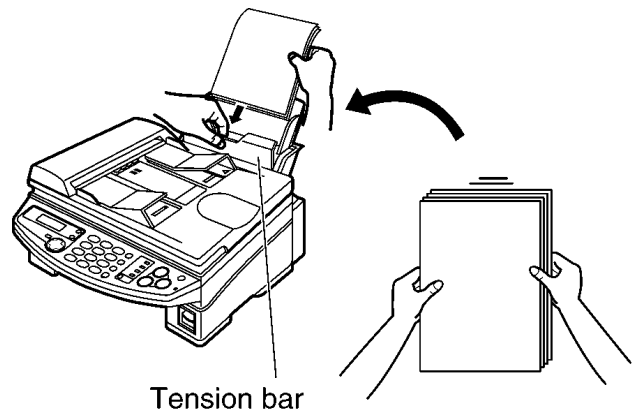
- 2 Pull the tension plate forward and hold open while inserting the paper.

- The paper should not be over the tab.
- If the paper is not inserted correctly, readjust the paper, or the paper may jam.



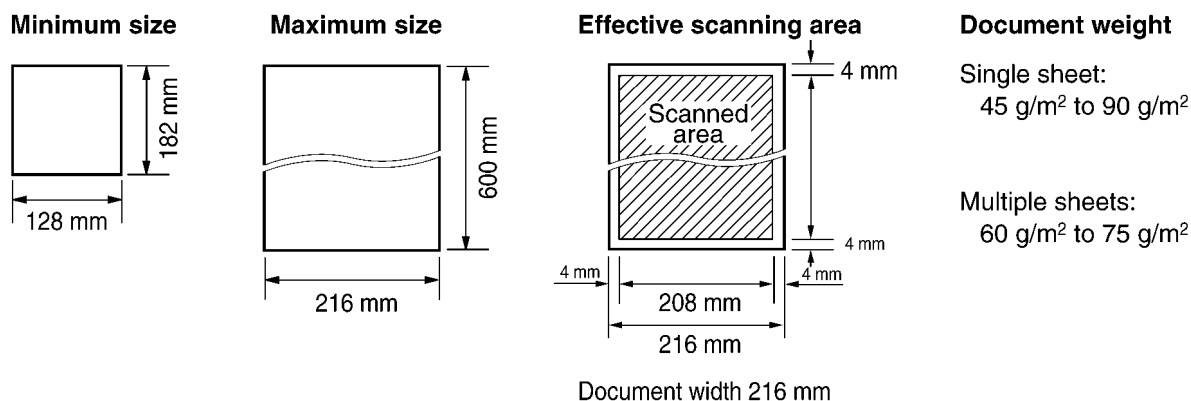
To add paper

1. Pull the tension plate forward and hold open while removing all of the installed paper.
2. Add paper to the stack of paper you removed and straighten.
3. Fan the stack of paper.
4. Pull the tension plate forward and hold open while inserting the paper.



3.3.4. DOCUMENTS THE UNIT CAN FEED

3.3.4.1. USING THE ADF (AUTO DOCUMENT FEEDER)



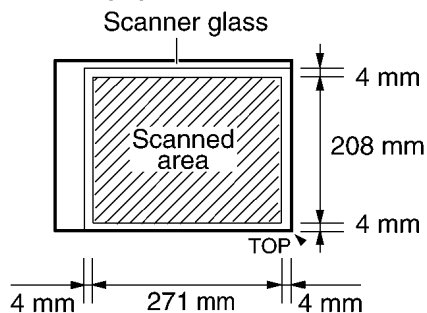
Note:

- Remove chips, staples or other similar fastening.
- Do not send the following types of documents. (Use the scanner glass for fax transmission.)
 - Chemically treated paper such as carbon or carbon less duplicating paper
 - Electrostatically charged paper
 - Badly curled, creased or torn paper
 - Paper with a coated surface

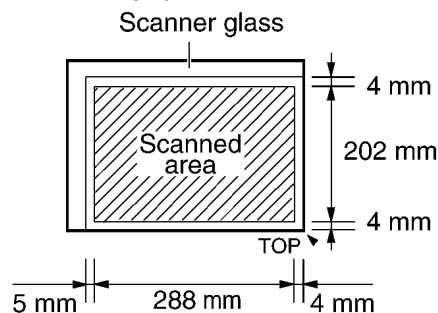
3.3.4.2. USING SCANNER GLASS

Effective scanning area on the scanner glass is changed depending on the setting of the paper size. (feature #16 on **PROGRAM MODE TABLE** (P.61))

When the paper size is set to “LETTER”:



When the paper size is set to “A4”:

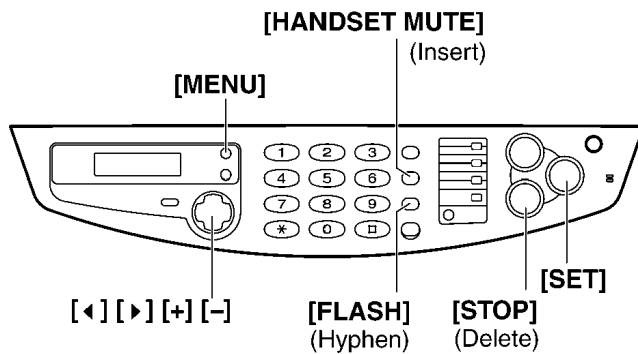


Note for the auto document feeder and the scanner glass

- Check that ink, paste or correction fluid has dried completely.
- Do not send the following types of documents: (Use copies for fax transmission.)
 - Paper with a faint image
 - Paper with printing on the opposite side that can be seen through the other side (i.e. newspaper)
- To transmit the document with a width of less than standard A4 size (210 mm), we recommend transmitting the document using the scanner glass.

3.3.5. SETTING YOUR LOGO

The logo can be your company, division or name.



- 1 Press **[MENU]**.

SYSTEM SET UP
PRESS NAVI. [◀ ▶]

- 2 Press **[◀]** or **[▶]** until the following is displayed.

YOUR LOGO
PRESS SET

- 3 Press **[SET]**.

LOGO=

- 4 Enter your logo, up to 30 characters, using the dial keypad.

Example: "BILL"

1. Press **[2]** 2 times.

• Cursor () will appear on the display.

LOGO=B

2. Press **[4]** 6 times.

LOGO=BI

3. Press **[5]** 6 times.

LOGO=BIL

4. Press **[▶]** to move the cursor to the next space and press **[5]** 6 times.

LOGO=BILL

- 5 Press **[SET]**.

• The next feature will be displayed.

- 6 Press **[MENU]**.

Note:

• You can enter your logo by pressing **[+]** or **[-]** in step 4. In this case, press **[▶]** to move the cursor.

To correct a mistake

Press **[◀]** or **[▶]** to move the cursor to the incorrect character, and make the correction.

To delete a character

Press **[◀]** or **[▶]** to move the cursor to the character you want to delete and press **[STOP]**.

To insert a character

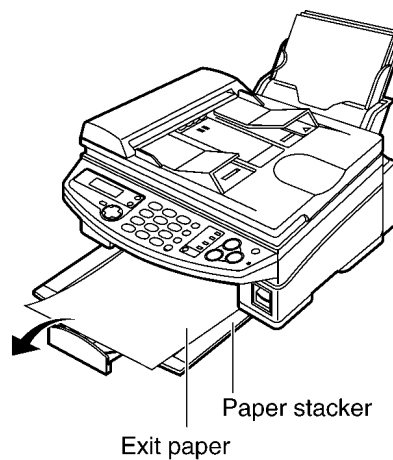
1. Press **[◀]** or **[▶]** to move the cursor to the position to the right of where you want to insert the character.
2. Press **[HANDSET MUTE]** to insert a space and enter the character.

3.3.6. INK FILM - INSTALLING / REPLACING

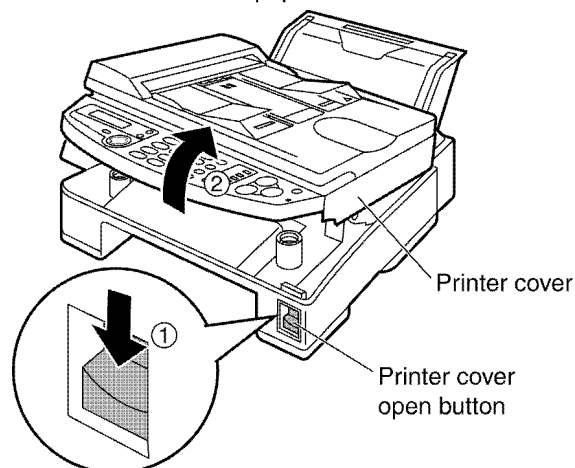
Install the included ink film or replace the used ink film with a new one.

Replacement film Model No. **KX-FA67E**: prints about 375 A4 sized pages. (Refer to **OPTIONAL ACCESSORIES** (P.7).)

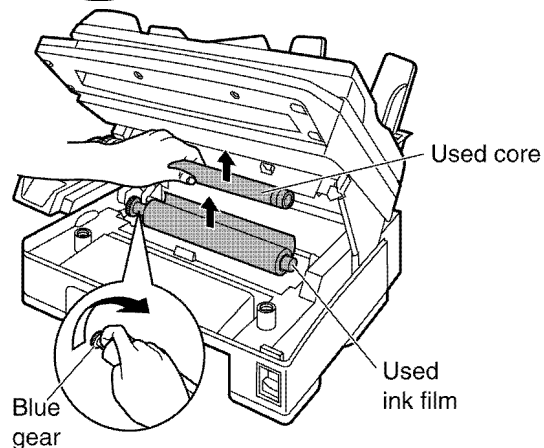
- 1 For replacement only:
If ejected paper is stacked on the paper stacker, remove it.



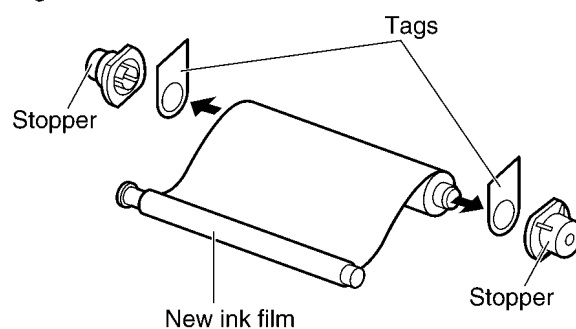
- 2 Press down the printer cover open button (①). Open the printer cover (②).
• For first time installation of the supplied ink film, skip to step 4.



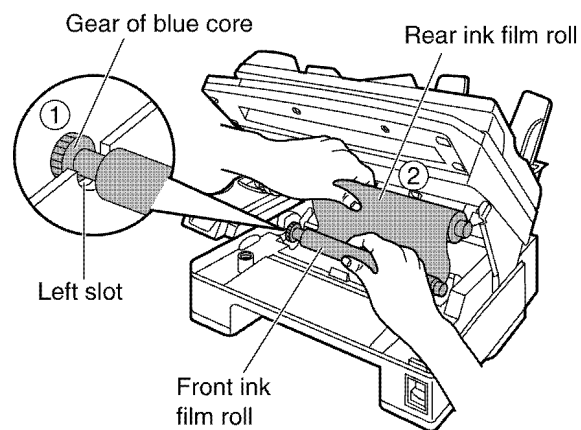
- 3 For replacement only:
Pull out the blue gear and remove the used ink film. Remove the used core.



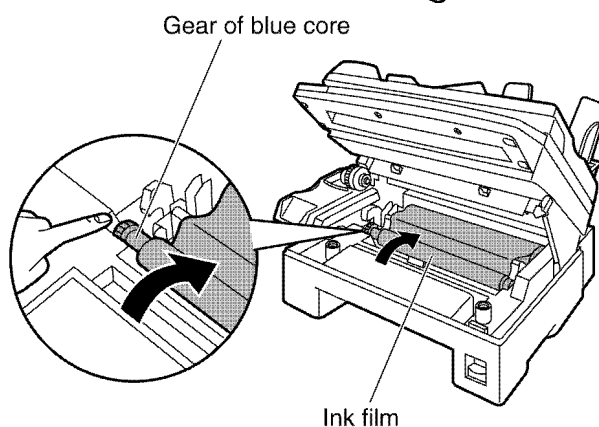
- 4 For replacement only:
Remove the stoppers and tags from the new ink film.



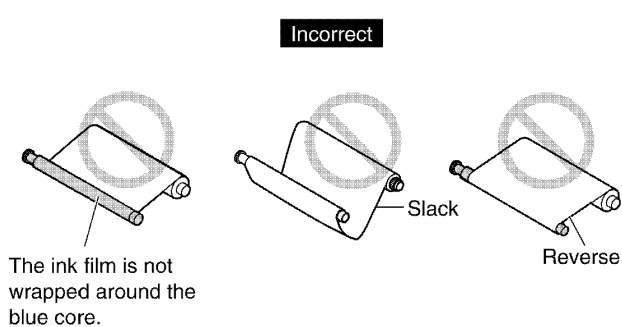
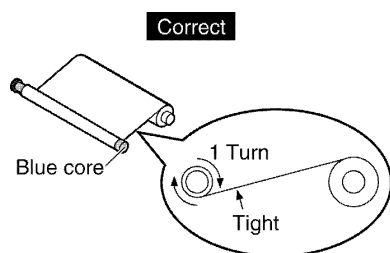
- 5 Inset the gear of blue core of the front ink film roll into the left slot of the unit (①). Insert the rear ink film roll (②).



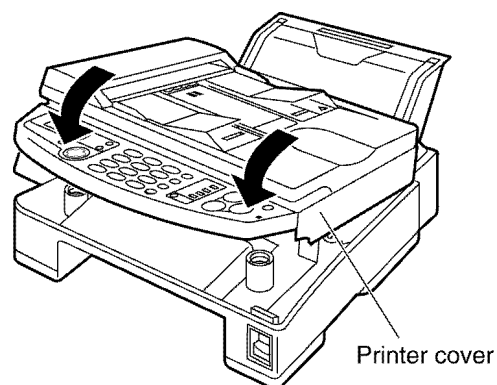
- 6 Turn the gear of blue core in the direction of the arrow.



- Make sure that the ink film is wrapped around the blue core at least once.



- 7 Close the printer cover by pushing down on both sides until locked.



Note:

- The ink film is safe to touch and will not rub off on your hands like carbon paper.

4 MAINTENANCE

4.1. MAINTENANCE ITEMS and COMPONENT LOCATIONS

4.1.1. OUTLINE

MAINTENANCE AND REPAIRS ARE PERFORMED USING THE FOLLOWING STEPS.

1. Periodic maintenance

Inspect the equipment periodically and if necessary, clean any contaminated parts.

2. Check for breakdowns

Look for problems and consider how they arose.

If the equipment can be still used, perform copying, self testing or communication testing.

3. Check equipment

Perform copying, self testing and communication testing to determine if the problem originates from the transmitter, receiver or the telephone line.

4. Determine causes

Determine the causes of the equipment problem by troubleshooting.

5. Equipment repairs

Repair or replace the defective parts and take appropriate measures at this stage to ensure that the problem will not recur.

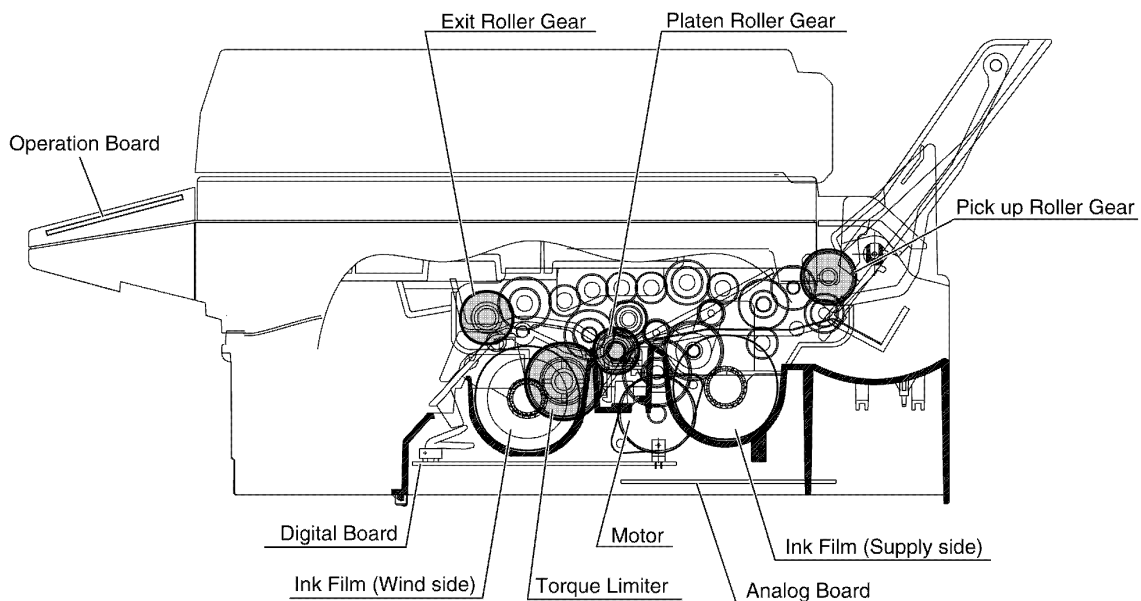
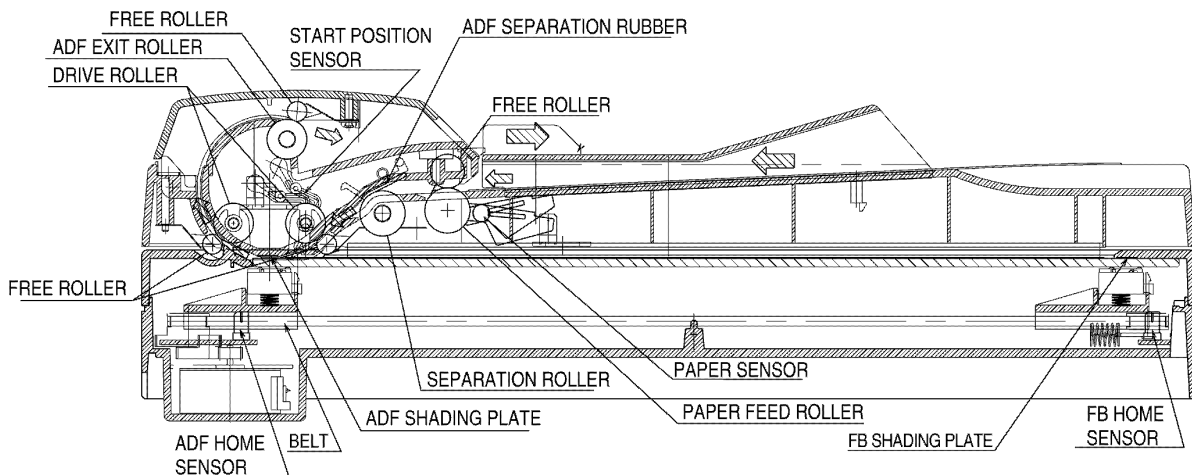
6. Confirm normal operation of the equipment

After completing the repairs, conduct copying, self testing and communication testing to confirm that the equipment operates normally.

7. Record keeping

Make a record of the measures taken to rectify the problem for future reference.

4.1.2. MAINTENANCE CHECK ITEMS/COMONET LOCATIONS



4.1.2.1. MAINTENANCE LIST

NO.	OPERATION	CHECK	REMARKS
1	Document Path	Remove any foreign matter such as paper.	—
2	Rollers	If the roller is dirty, clean it with a damp cloth then dry thoroughly.	Refer to MAINTENANCE CHECK ITEMS/COMMONET LOCATIONS (P.18). DOCUMENT FEEDER ROLLERS (P.22)
3	Sensors	Document sensor (PS500), Paper feed sensor (PS501), Printer cover open switch (SW101), ADF cover open sensor (SW501), FB cover open sensor (SW500), ADF CIS position sensor (PS502), FB CIS position sensor (PS503) Resist sensor (PC201), Paper exit sensor (PS50). Paper top sensor (PS1). Confirm the operation of the sensors.	See MAINTENANCE CHECK ITEMS/COMMONET LOCATIONS (P.18) and SENSORS AND SWITCHES SECTION (P.138) TEST FUNCTIONS (P.57)
4	Glass	If the glass is dirty, clean them with a dry soft cloth.	Refer to MAINTENANCE (P.22).
5	Abnormal, wear and tear or loose parts	Replace the part. Check if the screws are tight on all parts.	—

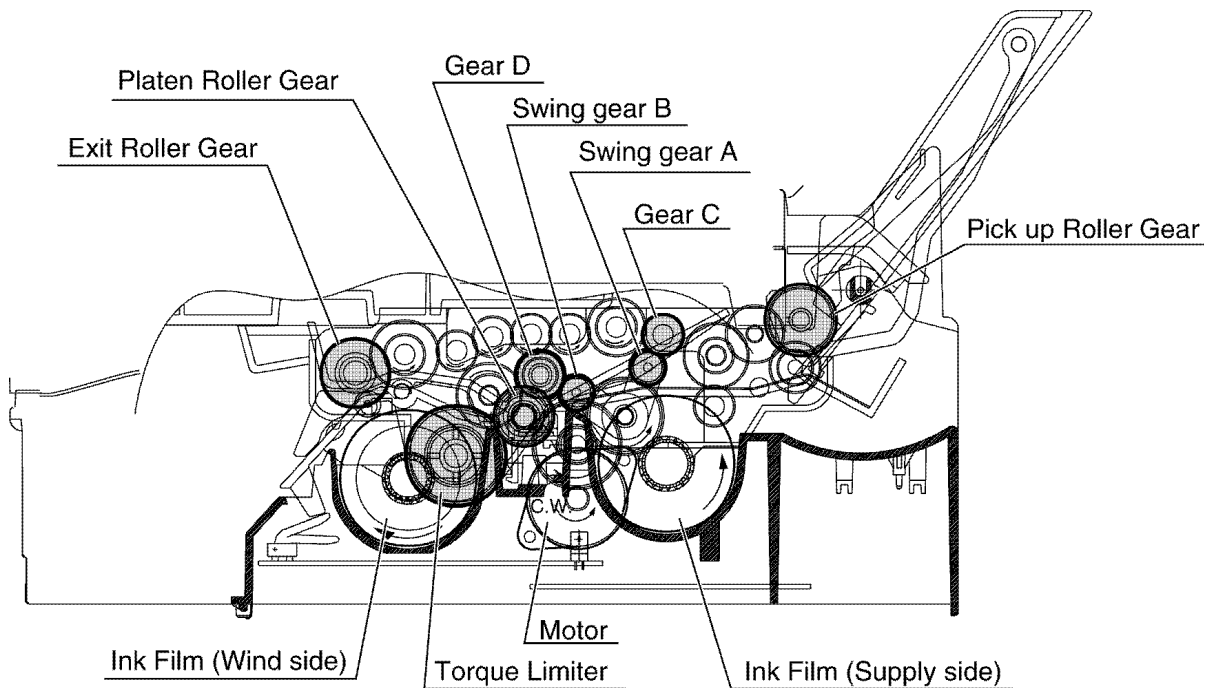
4.1.2.2. MAINTENANCE CYCLE

No.	Item	Cleaning Cycle	Replacement	
			Cycle	Procedure
1	ADF Separation Roller (Ref.No.83)	3 months	7 years* (100,000 documents)	Refer to HOW TO REMOVE THE FEED ROLLER AND SEPARATION ROLLER (P.39).
2	Paper Feed Roller (Ref.No.82)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE FEED ROLLER AND SEPARATION ROLLER (P.39).
3	ADF Separation Rubber (Ref. No.43)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE TOP COVER AND CONVEYOR BLOCK (P.40).
4	Drive Roller (Ref. No.35)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE ADF EXIT ROLLER AND DRIVE ROLLER (P.41).
5	ADF Exit Roller (Ref.No.32)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE ADF EXIT ROLLER AND DRIVE ROLLER (P.41).
6	Pick up Roller (Ref No.187)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE PICK UP ROLLER (P.42).
7	Platen Roller (Ref.No.224)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE EXIT ROLLER AND PLATEN ROLLER (P.43).
8	Exit Roller (Ref.No.225)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE EXIT ROLLER AND PLATEN ROLLER (P.43).
9	Thermal Head (Ref.No.261)	3 months	7 years (100,000 documents)	Refer to HOW TO REMOVE THE THERMAL HEAD (P.34).

If each part has got dirty, clean it with a damp cloth then dry thoroughly.

* These values are standard and may vary depending on usage conditions.

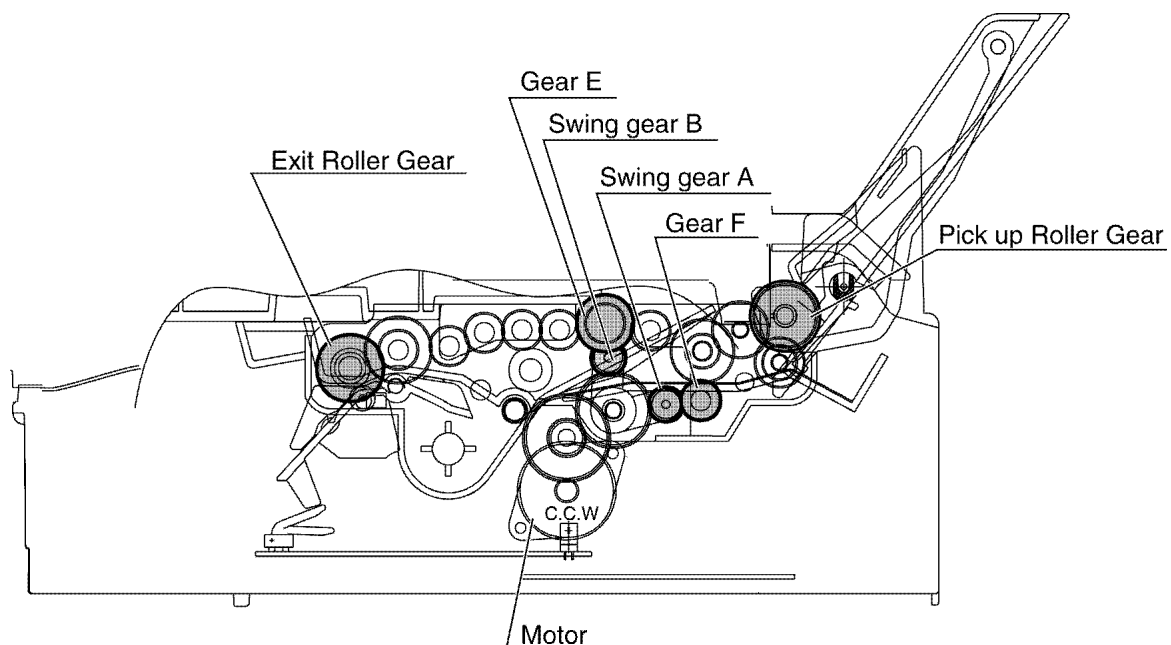
4.2. PRINT AND EXIT MODE



Swing Gear A engages Gear C and conveys its power to the Exit Roller Gear.

Swing Gear B engages Gear D and conveys its power to the Platen Roller Gear.

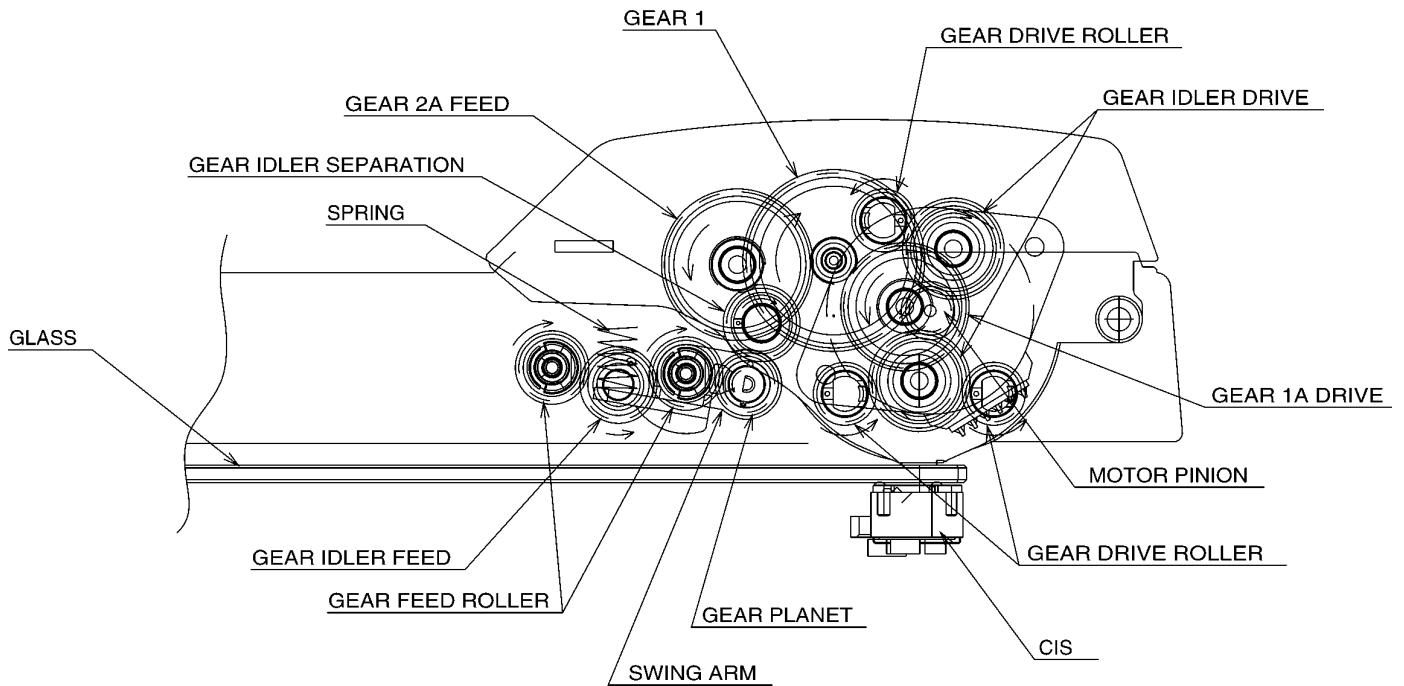
4.3. PAPER PICK UP AND EXIT MODE



Swing Gear B engages Gear E and conveys its power to the Exit Roller Gear.

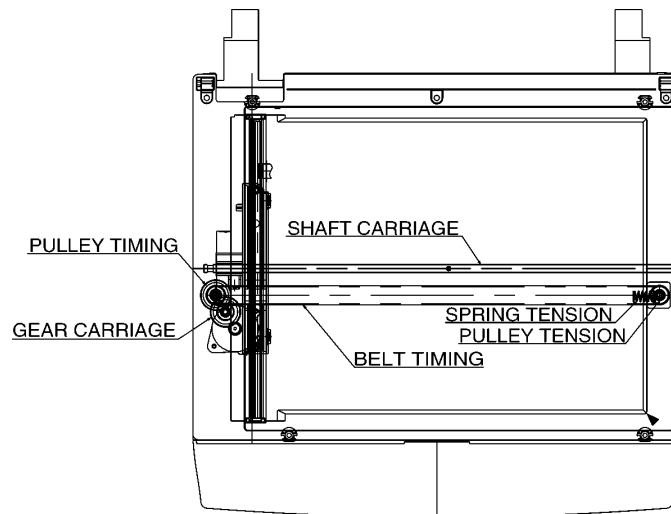
Swing Gear A engages Gear F and conveys its power to the Pick up Roller Gear.

4.4. SCANNING (ADF)



• DOCUMENT TRANSMISSION (ADF)

The tip of the document is sent to a point of contact between the separation roller and the separation pad through the document feed roller, then the document is fed there separately. The document transference roller carries the document and the CIS reads it through the glass. The document U-turns along the guide and is exited through the paper exit roller.



• DOCUMENT TRANSMISSION (SCANNER GLASS)

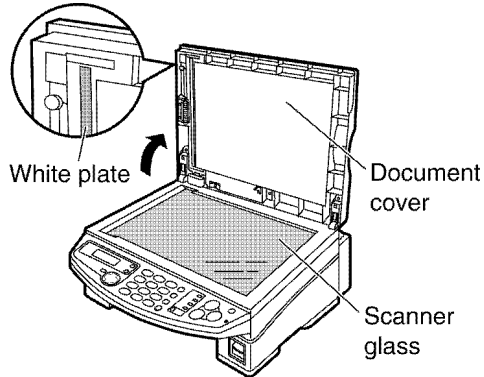
The CIS held in the CIS holder is carried by the belt timing along the shaft carriage to the reading start position. Then it goes back to the home position reading the document through the glass.

4.5. MAINTENANCE

4.5.1. WHITE PLATE AND SCANNER GLASS

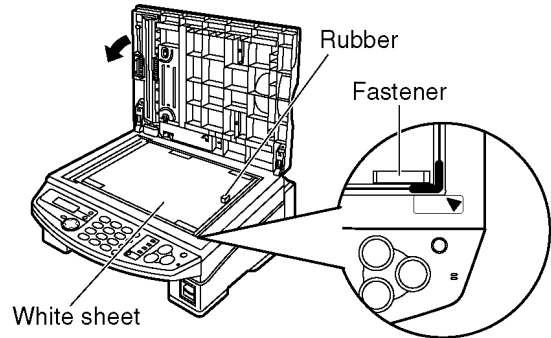
If a black line, a white line or a smudge appears on your recording paper, on your original, or on the fax document received by the other party, clean the white plate and scanner glass.

- 1 Open the document cover. Clean the white plate and scanner glass with a soft and dry cloth.



Attaching the white sheet to the document cover

If the white sheet is detached from the document cover when cleaning, place the white sheet on the scanner glass with fastener facing up, aligning the top edge of the white sheet to the "▼" mark on the unit, and close the document cover.

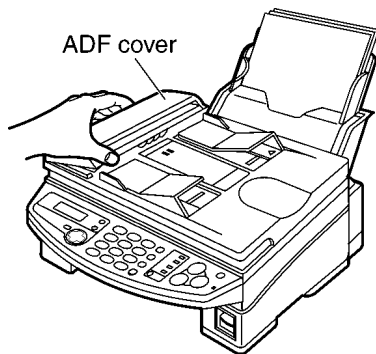


- 2 Close the document cover.

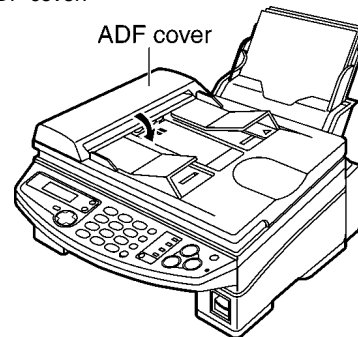
4.5.2. DOCUMENT FEEDER ROLLERS

If misfeeding of your original occurs frequently, clean the document feeder rollers.

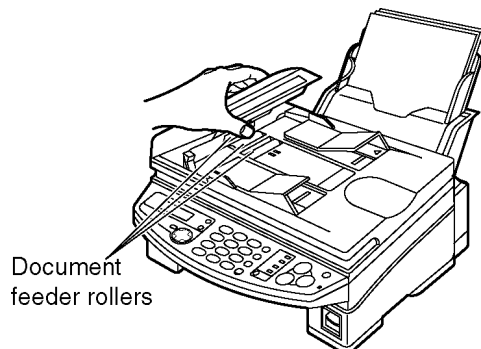
- 1 Lift, and the hold open the ADF cover.



- 3 Close the ADF cover.



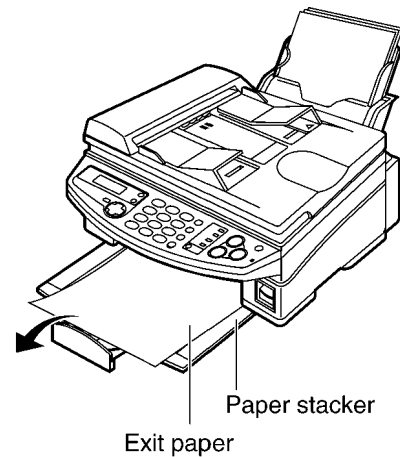
- 2 Clean the document feeder rollers with a soft and dry cloth.



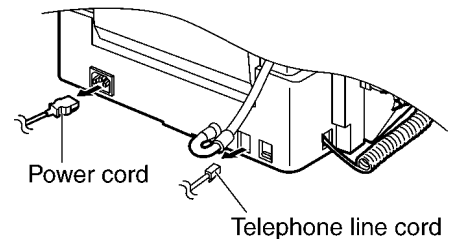
4.5.3. THERMAL HEAD AND ROLLER SHAFT

If smudges or black/white bands appear on a copied or received document, check whether there is dust on the thermal head and roller shaft, and clean the thermal head and roller shaft to remove the dust.

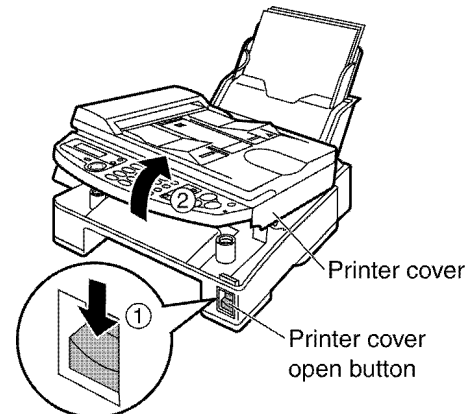
- 1 If ejected paper is stacked on the paper sacker, remove it.



- 2 Disconnect the power cord and the telephone line cord.



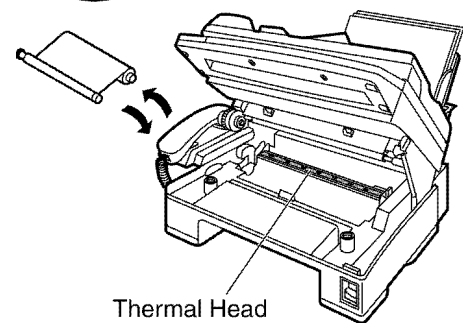
- 3 Press down the printer cover open button (①). Open the printer cover (②).



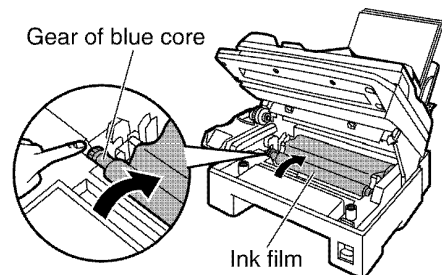
- 4 Remove the ink film and clean the thermal head with a cloth moistened with isopropyl rubbing alcohol, and let it dry thoroughly. Replace the ink film.

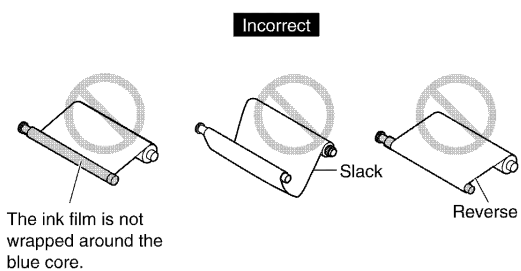
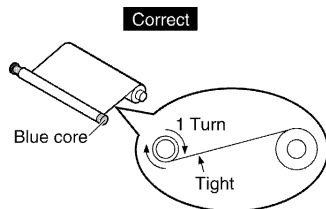
Caution:

- To prevent a malfunction due to static electricity, do not use a dry cloth and do not touch the thermal head directly.

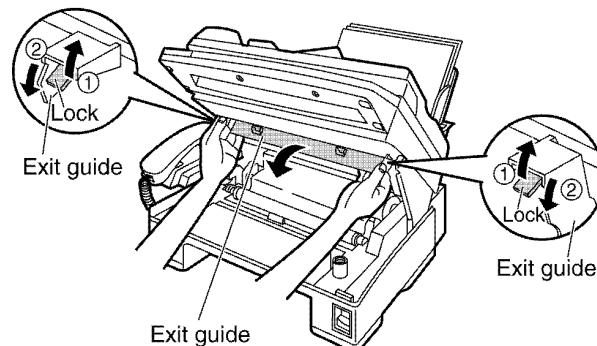


- 5 Turn the gear of blue core in the direction of the arrow.
 - Make sure that the ink film is wrapped around the blue core at least once.

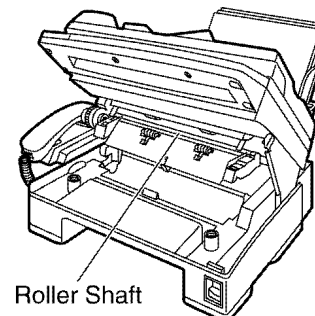




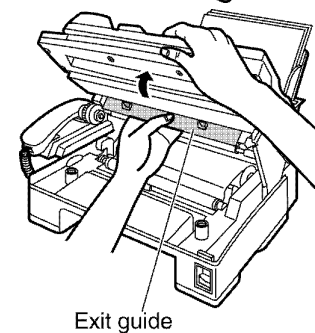
- 6 Lift two locks (①), lower the exit guide to unlock the two locks (②) and open the exit guide (③).



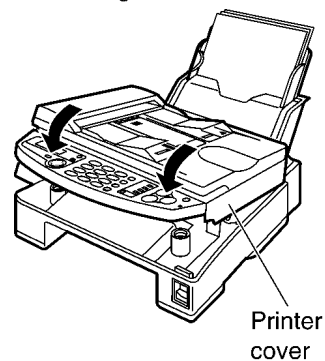
- 7 Clean the roller shaft with a cloth moistened with isopropyl rubbing alcohol, and let it dry thoroughly.



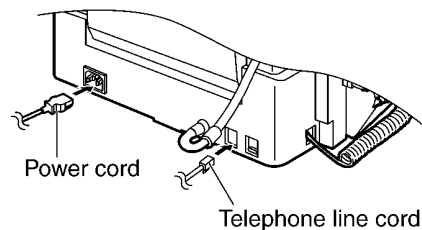
- 8 Close the exit guide.



- 9 Close the printer cover by pushing down on both sides until locked.



- 10 Connector the power cord and the telephone line cord.



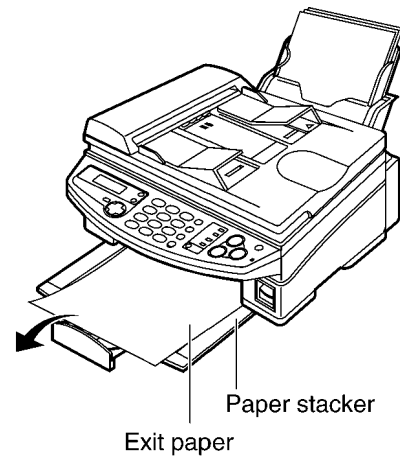
4.6. RECORDING PAPER JAM

When the recording paper has jammed in the unit

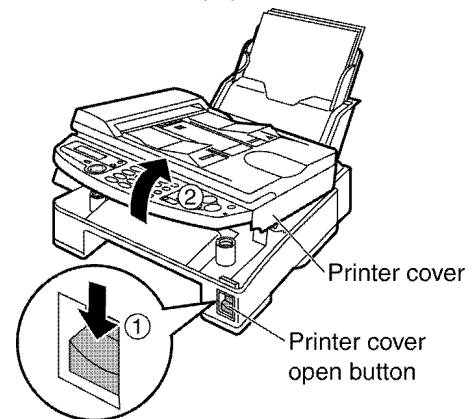
The display will show the following.

PAPER JAMMED

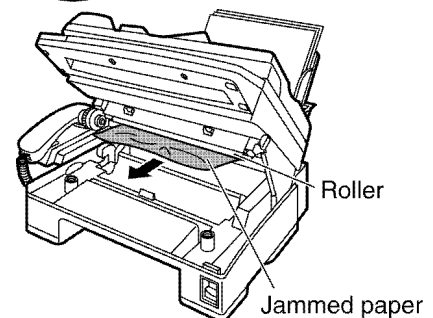
- 1 If ejected paper is stacked on the paper stacker, remove it.



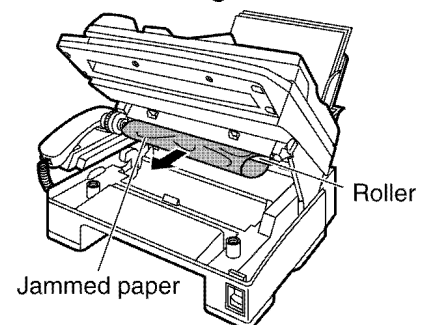
- 2 Press down the printer cover open button (①). Open the printer cover (②).



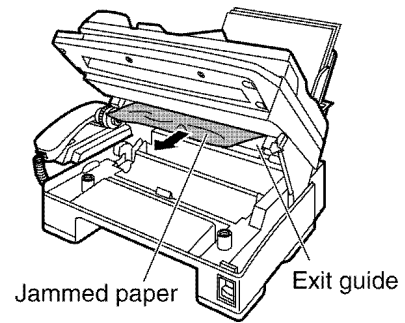
- 3 Remove the jammed paper carefully by pulling it toward you.
When the recording paper has jammed under the roller:



When the recording paper has jammed and wrapped around the roller:

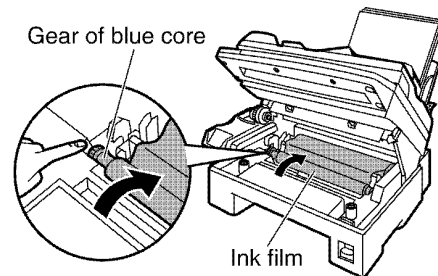


When the recording paper has jammed near the exit guide:

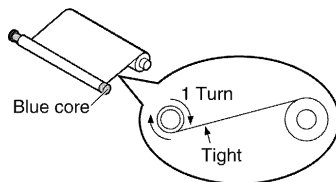


- 4 Turn the gear of blue core in the direction of the arrow.

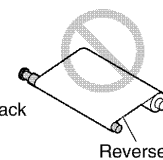
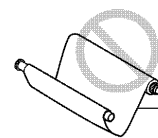
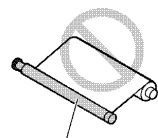
· Make sure that the ink film is wrapped around the blue core at least once.



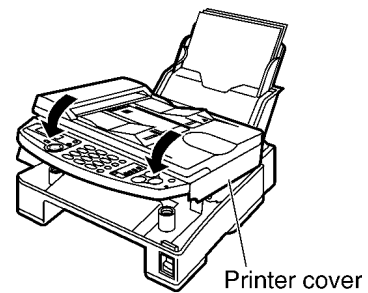
Correct



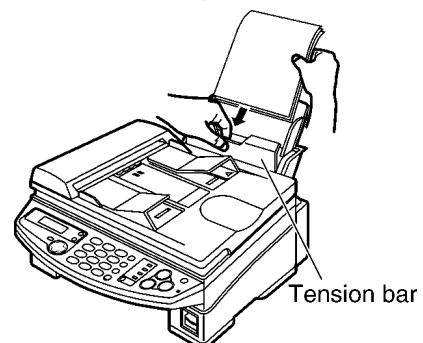
Incorrect



- 5 Close the printer cover by pushing down on both sides until locked.



- 6 Remove the recording paper and straighten. Pull the tension plate forward and hold open while inserting the paper.

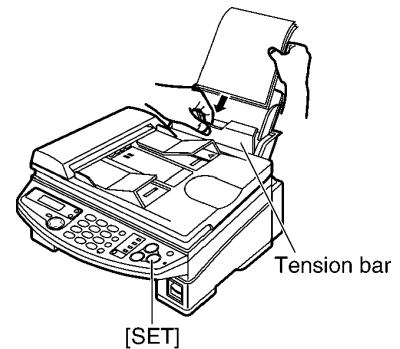


When the recording paper was not fed into the unit properly

The display will show the following.

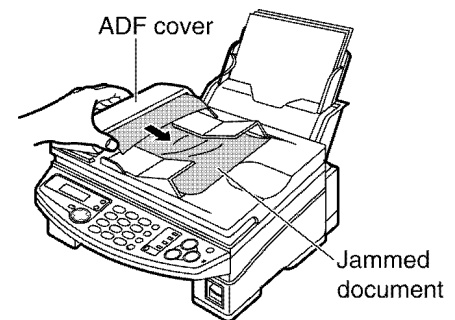
CHECK PAPER

Remove the recording paper and straighten. Pull the tension plate forward and hold open while inserting the paper. Press **[SET]** to clear the message.

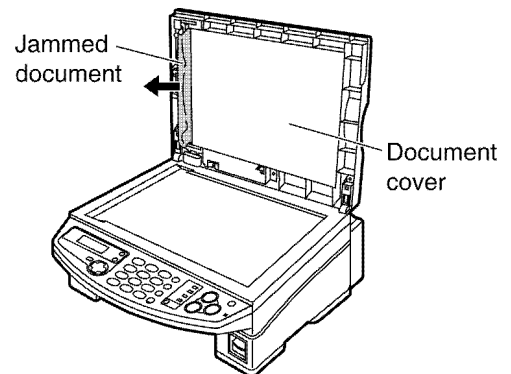


4.7. DOCUMENT JAMS - SENDING

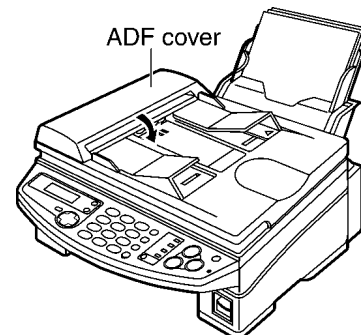
- 1 Lift, and hold open the ADF cover. Remove the jammed document carefully.



- Do not pull out the jammed document forcibly before lifting the ADF cover.
- If you cannot remove the jammed document, open the document cover, remove the document, then close the document cover.

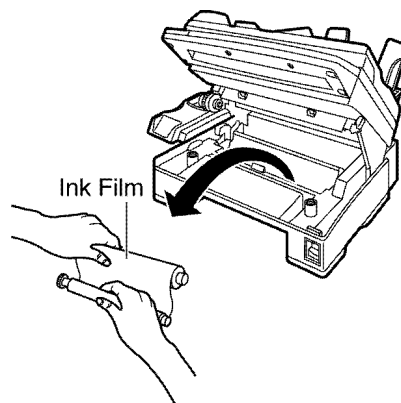


- 2 Close the ADF cover.



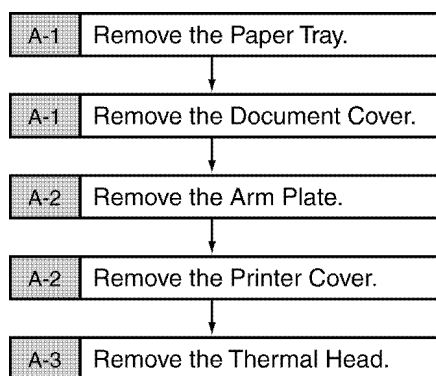
5 DISASSEMBLY INSTRUCTIONS

Before disassembling, remove the Ink Film.



5.1. DISASSEMBLY FLOW CHART

5.1.1. UPPER MAIN CABINET SECTION



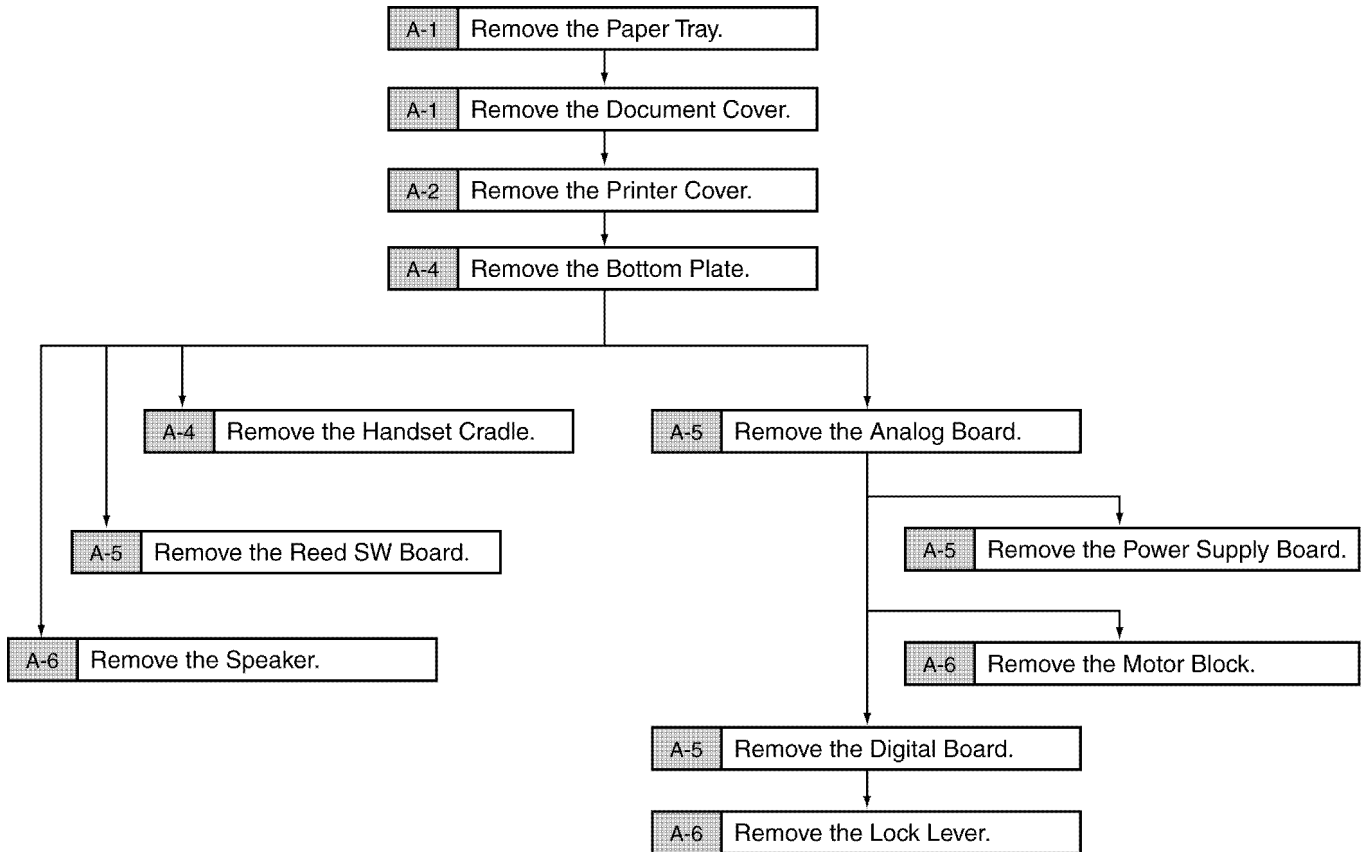
CROSS REFERENCE:

A-1: HOW TO REMOVE THE PAPER TRAY AND DOCUMENT COVER (P.32)

A-2: HOW TO REMOVE THE PRINTER COVER (P.33)

A-3: HOW TO REMOVE THE THERMAL HEAD (P.34)

5.1.2. LOWER MAIN CABINET SECTION



CROSS REFERENCE:

A-1: HOW TO REMOVE THE PAPER TRAY AND DOCUMENT COVER (P.32)

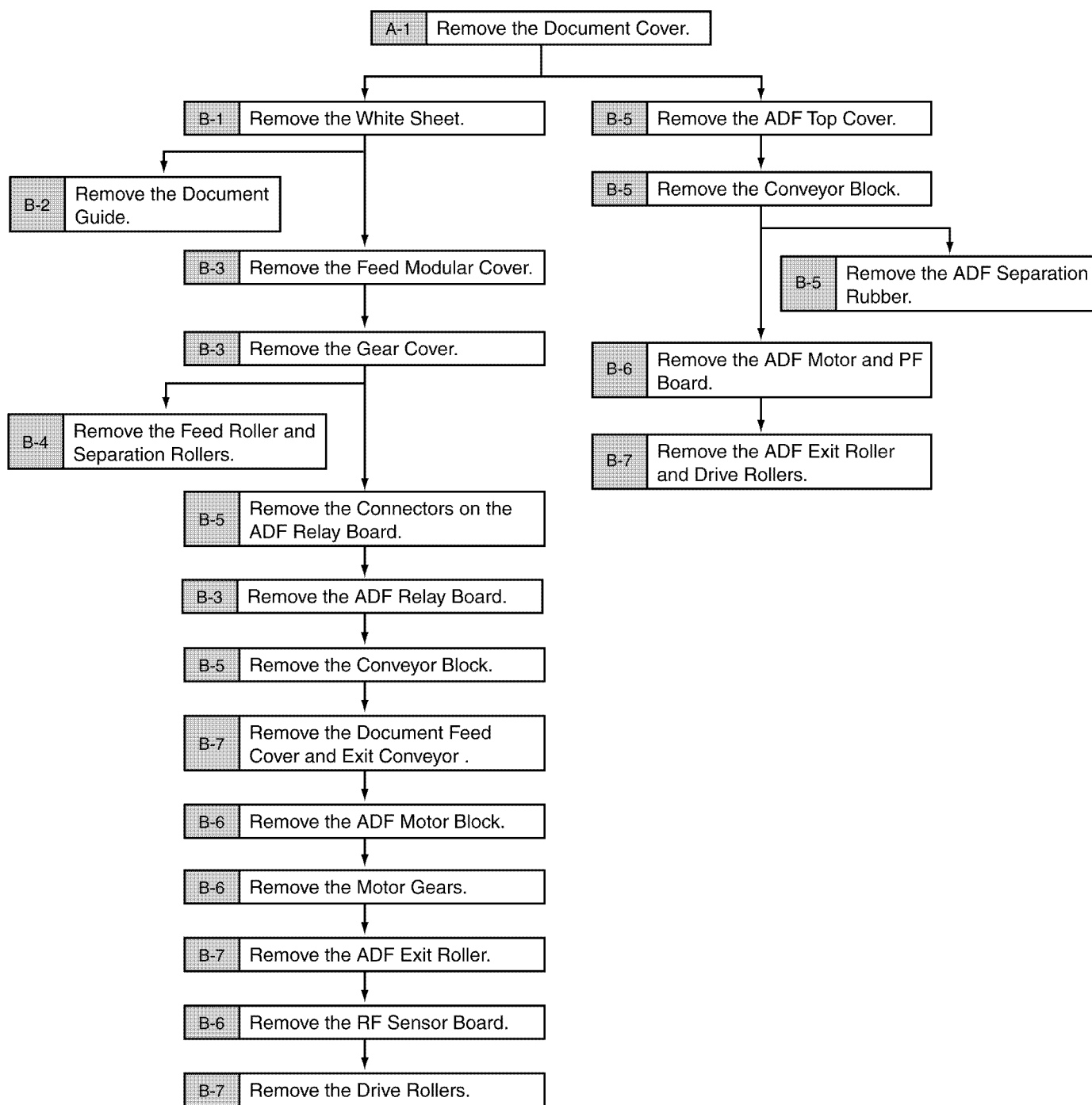
A-2: HOW TO REMOVE THE PRINTER COVER (P.33)

A-4: HOW TO REMOVE THE BOTTOM FRAME AND HANDSET CRADLE (P.35)

A-5: HOW TO REMOVE THE DIGITAL / ANALOG / POWER SUPPLY / 26 REED SW BOARD AND AC INLET (P.36)

A-6: HOW TO REMOVE THE MOTOR BLOCK, LOCK LEVER AND SPEAKER (P.37)

5.1.3. DOCUMENT COVER (ADF) SECTION



CROSS REFERENCE:

A-1: HOW TO REMOVE THE PAPER TRAY AND DOCUMENT COVER (P.32)

B-1: HOW TO REMOVE THE WHITE SHEET (P.38)

B-2: HOW TO REMOVE THE DOCUMENT GUIDES (P.38)

B-3: HOW TO REMOVE THE ADF RELAY BOARD (P.39)

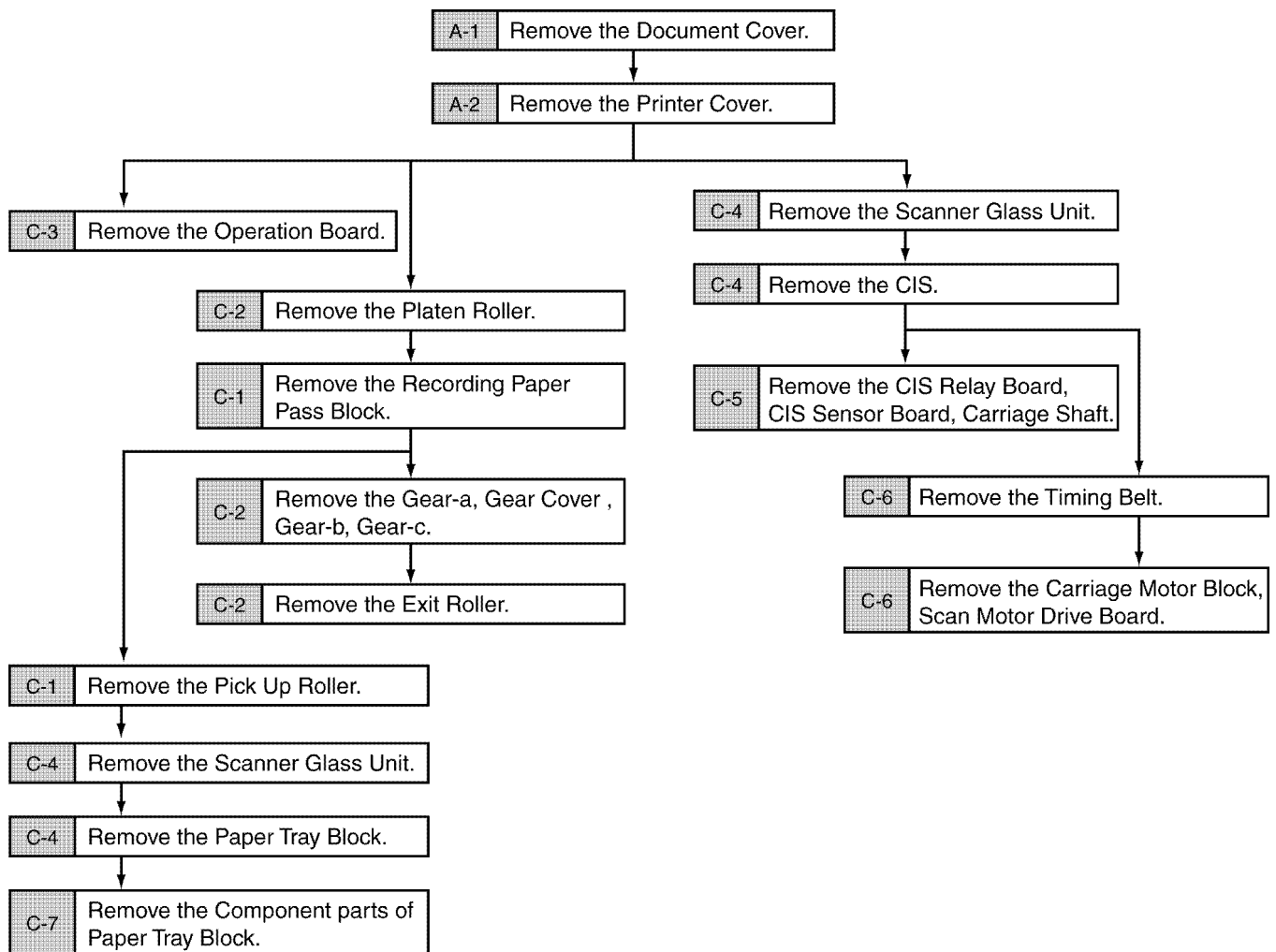
B-4: HOW TO REMOVE THE FEED ROLLER AND SEPARATION ROLLER (P.39)

B-5: HOW TO REMOVE THE TOP COVER AND CONVEYOR BLOCK (P.40)

B-6: HOW TO REMOVE THE ADF MOTOR AND PF SENSOR BOARD (P.41)

B-7: HOW TO REMOVE THE ADF EXIT ROLLER AND DRIVE ROLLER (P.41)

5.1.4. PRINTER COVER SECTION



CROSS REFERENCE:

- A-1: HOW TO REMOVE THE PAPER TRAY AND DOCUMENT COVER (P.32)
- A-2: HOW TO REMOVE THE PRINTER COVER (P.33)
- C-1: HOW TO REMOVE THE PICK UP ROLLER (P.42)
- C-2: HOW TO REMOVE THE EXIT ROLLER AND PLATEN ROLLER (P.43)
- C-3: HOW TO REMOVE THE OPERATION BOARD (P.44)
- C-4: HOW TO REMOVE THE SCANNER GLASS UNIT, CIS AND PAPER TRAY BLOCK (P.45)
- C-5: HOW TO REMOVE THE CIS RELAY BOARD AND CIS SENSOR BOARD (P.46)
- C-6: HOW TO REMOVE THE CARRIAGE MOTOR AND SCAN MOTOR DRIVE BOARD (P.46)
- C-7: HOW TO REMOVE THE COMPONENT PARTS OF PAPER TRAY BLOCK (P.47)

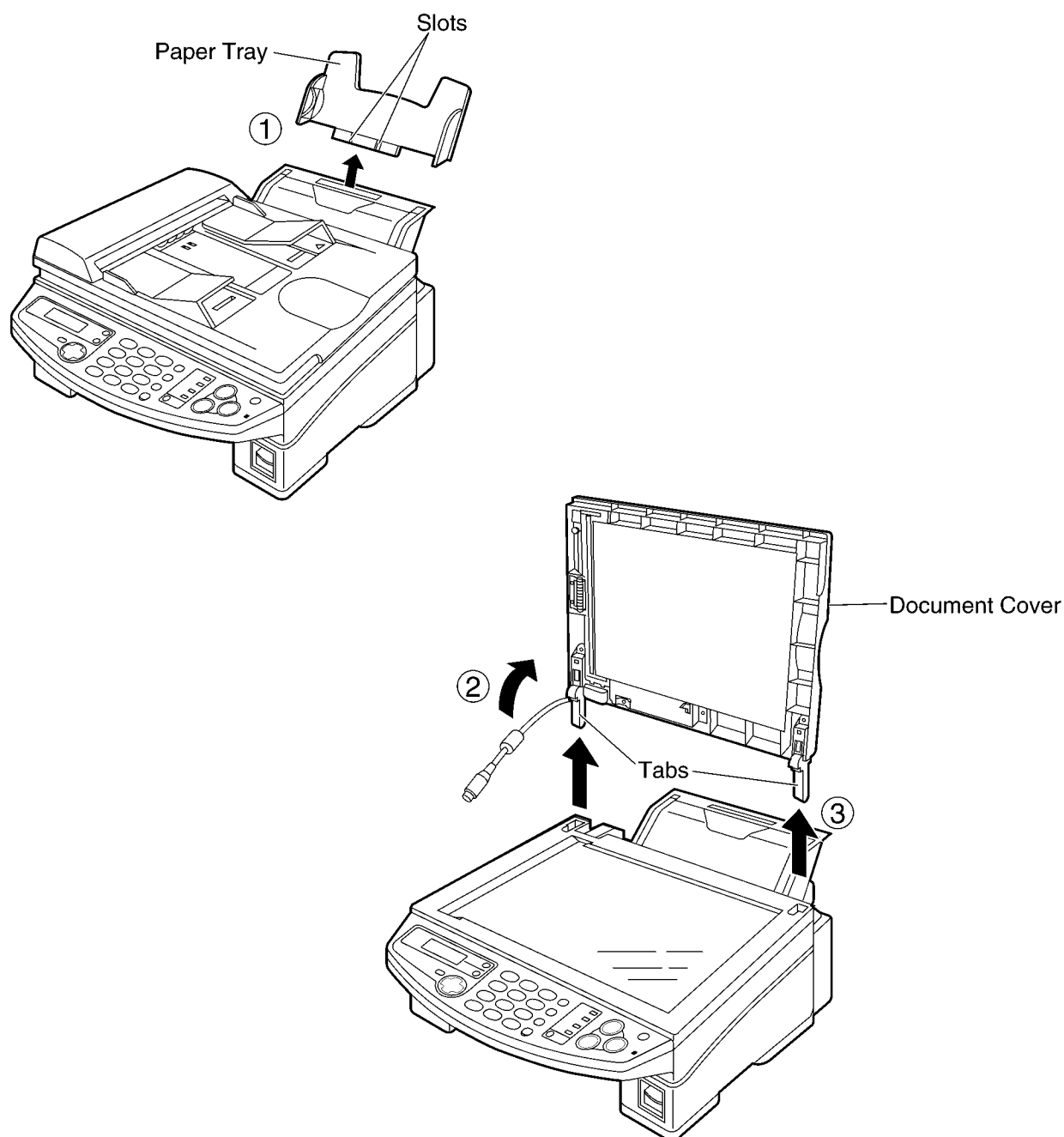
5.2. DISASSEMBLY PROCEDURE

5.2.1. HOW TO REMOVE THE PAPER TRAY AND DOCUMENT COVER

PROCEDURE: A-1

Ref. No. A-1

- 1) Remove the Paper Tray from the slots on the back of the unit.
- 2) Open the Document Cover.
- 3) Lift up the Document Cover from the Unit.

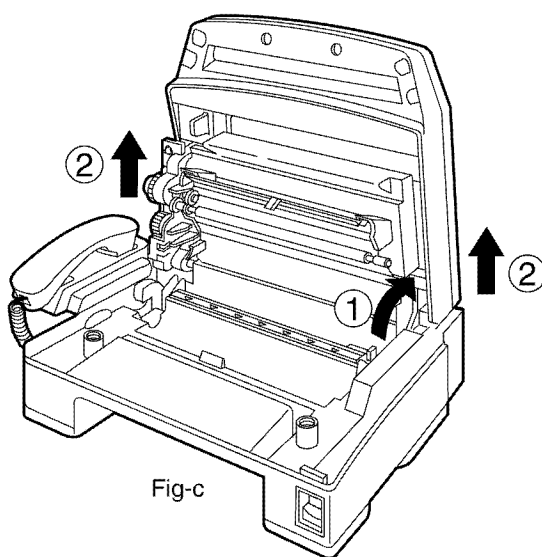
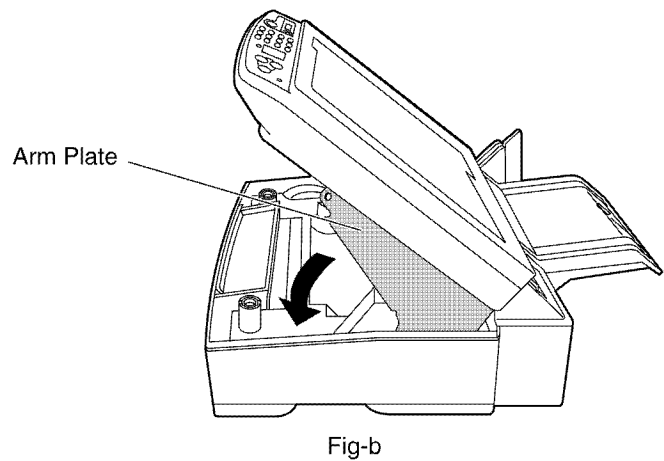
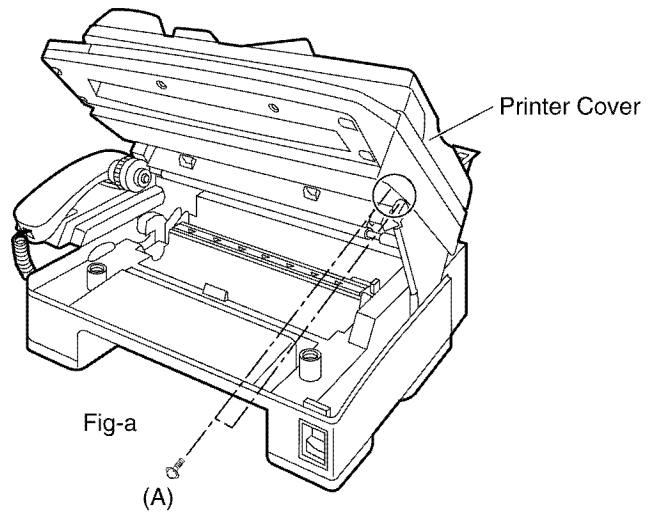


5.2.2. HOW TO REMOVE THE PRINTER COVER

PROCEDURE: A-1 --> A-5 --> A-2

Ref. No. A-2

- 1) Disconnect the Connectors on the Digital Board.
(See Ref No. A-5)
- 2) Open the Printer Cover.
- 3) Remove the 2 screws (A). (Fig-a)
- 4) Push down the Arm Plate. (Fig-b)
- 5) Open the Printer Cover at the top position,
then lift up it. (Fig-c)

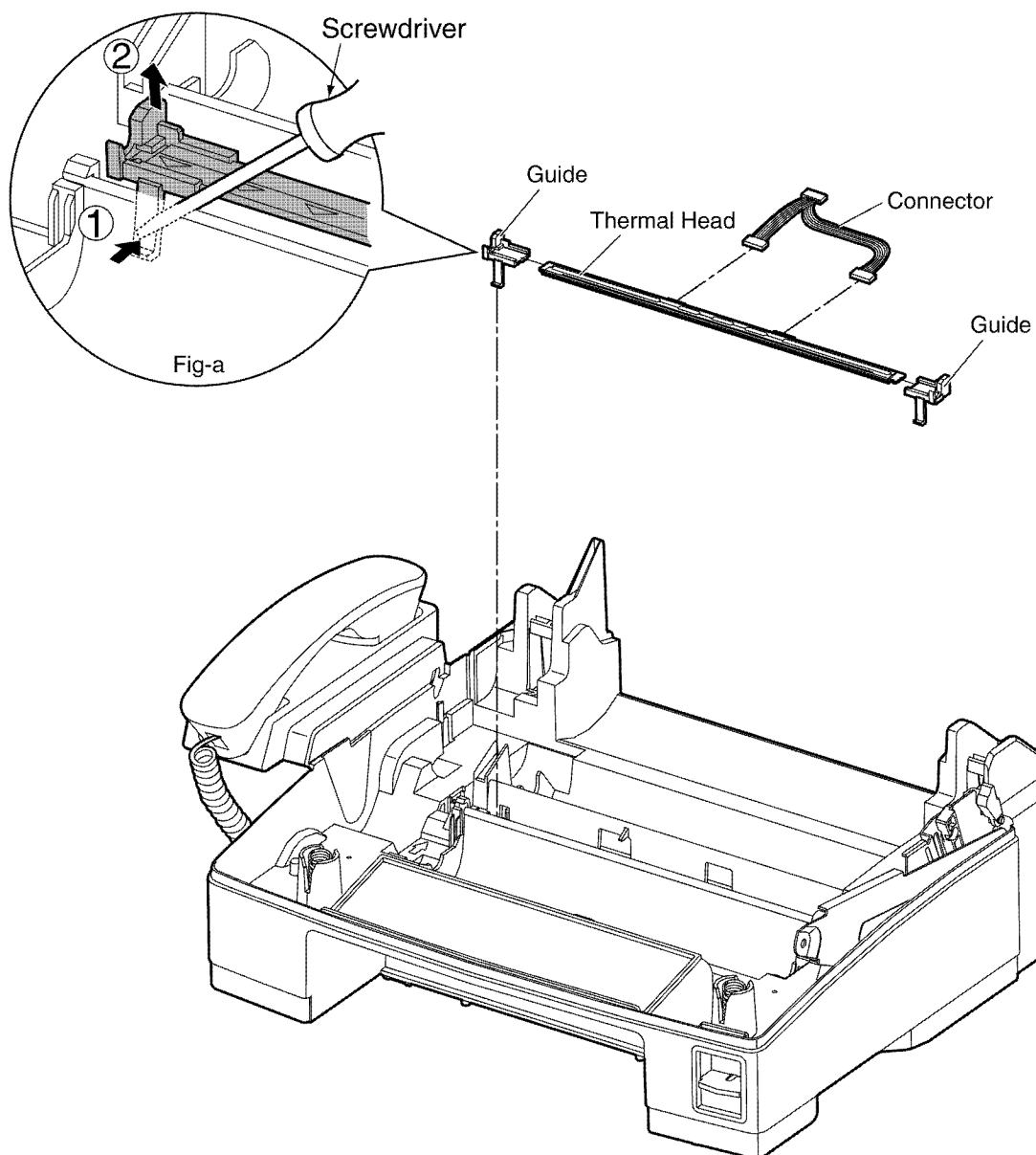


5.2.3. HOW TO REMOVE THE THERMAL HEAD

PROCEDURE: A-1 --> A-2 --> A-3

Ref. No. A-3

- 1) Unhook the both of 2 Guides. (Fig-a)
- 2) Remove the Connector and 2 Guides.
- 3) Remove the Thermal Head.

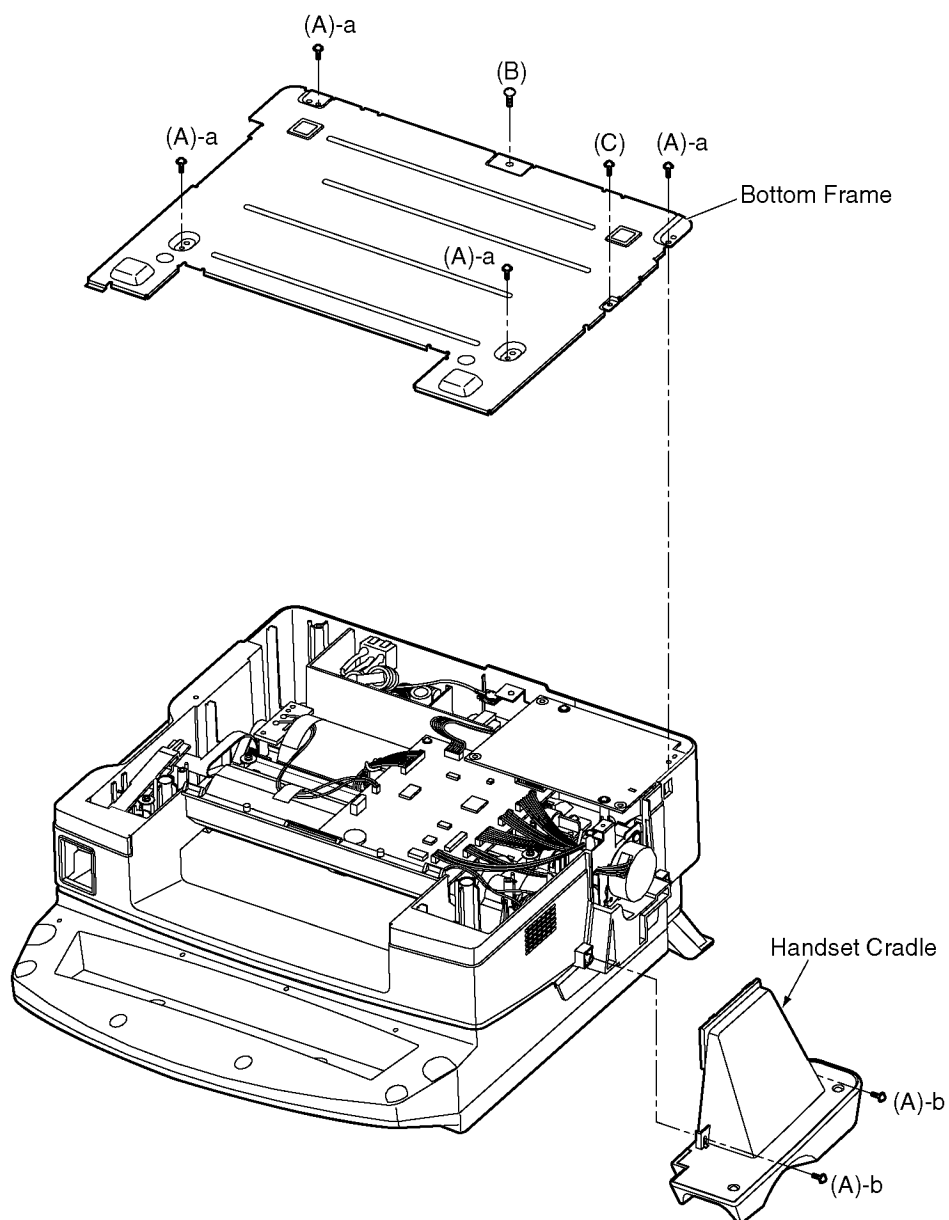


5.2.4. HOW TO REMOVE THE BOTTOM FRAME AND HANDSET CRADLE

PROCEDURE: A-1 --> A2 --> A-4

Ref. No. A-4

- 1) Remove the 4 screws (A)-a, screw (B) and screw (C).
- 2) Remove the Bottom Frame.
- 3) Remove the 2 screws (A)-b.
- 4) Remove the Handset Cradle.

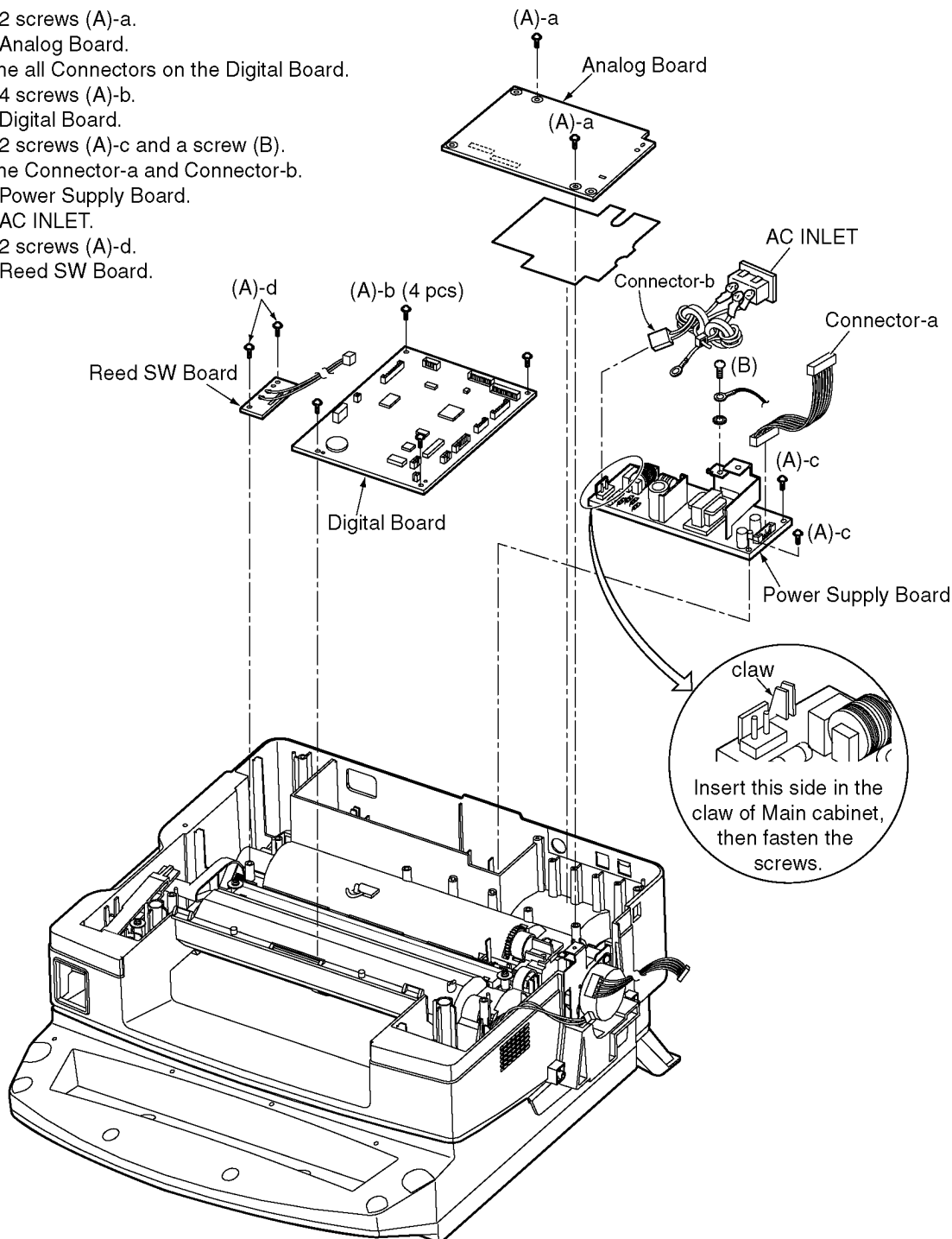


5.2.5. HOW TO REMOVE THE DIGITAL / ANALOG / POWER SUPPLY /26 REED SW BOARD AND AC INLET

PROCEDURE: A-1 --> A-2 --> A-4 --> A5

Ref. No. A-5

- 1) Remove the 2 screws (A)-a.
- 2) Remove the Analog Board.
- 3) Disconnect the all Connectors on the Digital Board.
- 4) Remove the 4 screws (A)-b.
- 5) Remove the Digital Board.
- 6) Remove the 2 screws (A)-c and a screw (B).
- 7) Disconnect the Connector-a and Connector-b.
- 8) Remove the Power Supply Board.
- 9) Remove the AC INLET.
- 10) Remove the 2 screws (A)-d.
- 11) Remove the Reed SW Board.



5.2.6. HOW TO REMOVE THE MOTOR BLOCK, LOCK LEVER AND SPEAKER

PROCEDURE: A-1 --> A-2 --> A-4 --> A-5 --> A-6

Ref. No. A-6

Motor Block

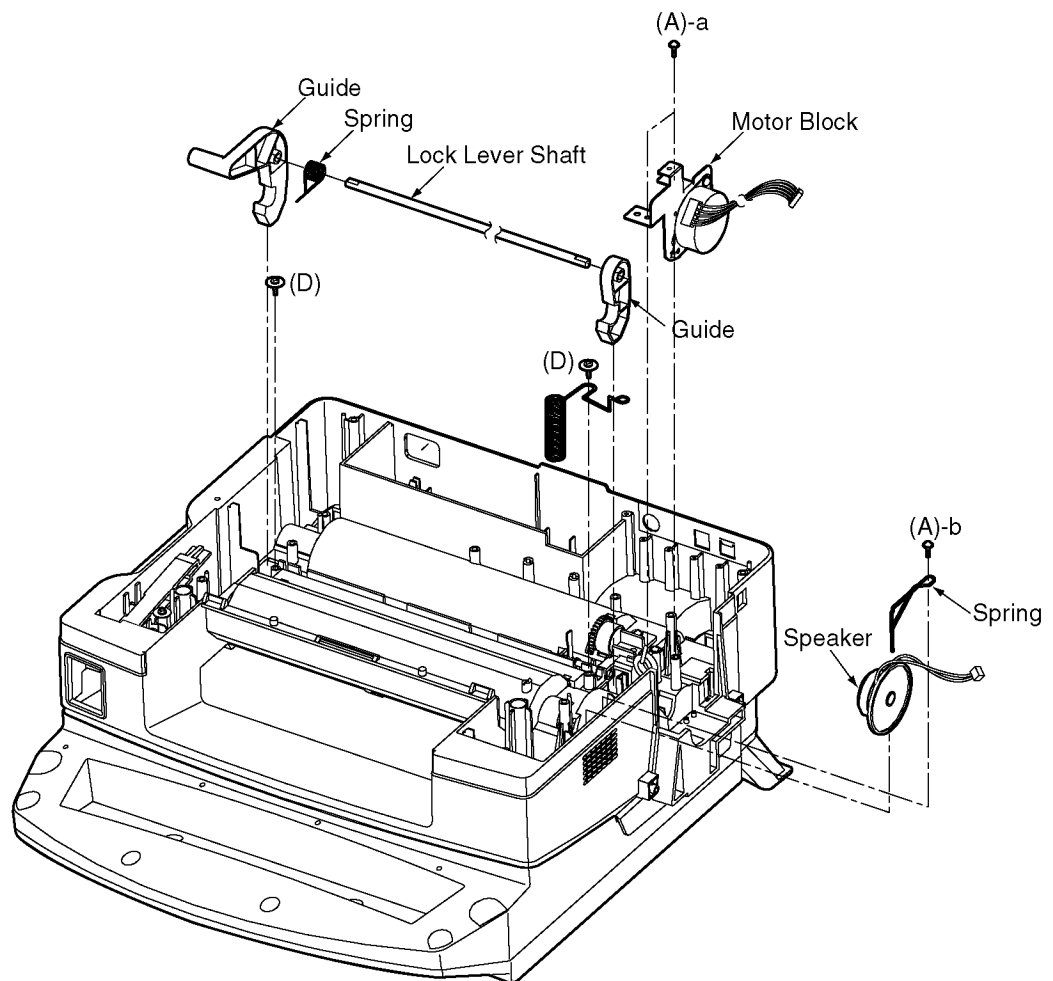
- 1) Remove the 2 screws (A)-a.
- 2) Remove the Motor Block.

Speaker

- 1) Remove the screw (A)-b.
- 2) Remove the Speaker.

Lock Lever Shaft

- 1) Remove the 2 screws (D).
- 2) Remove the Lock Lever Block.
- 3) Remove Guides and Lock Lever Shaft.

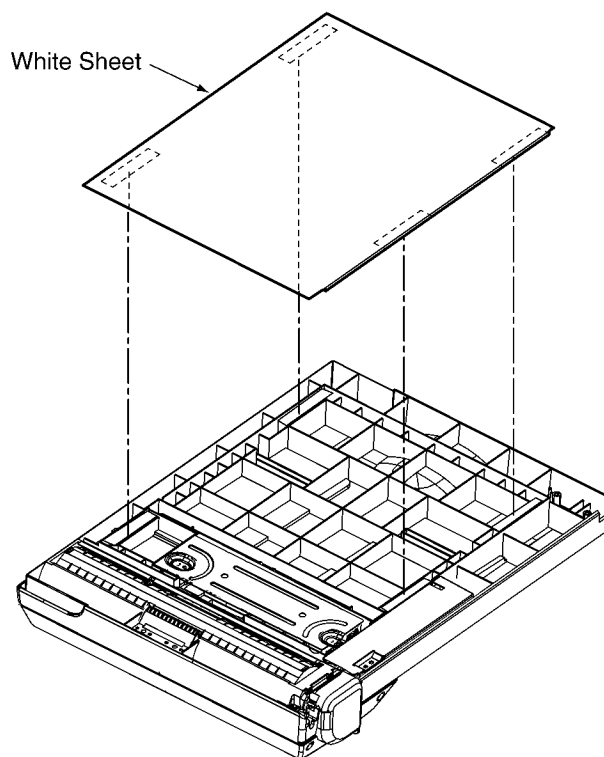


5.2.7. HOW TO REMOVE THE WHITE SHEET

PROCEDURE: A-1 --> B-1

Ref. No. B-1

- 1) Remove the White Sheet.

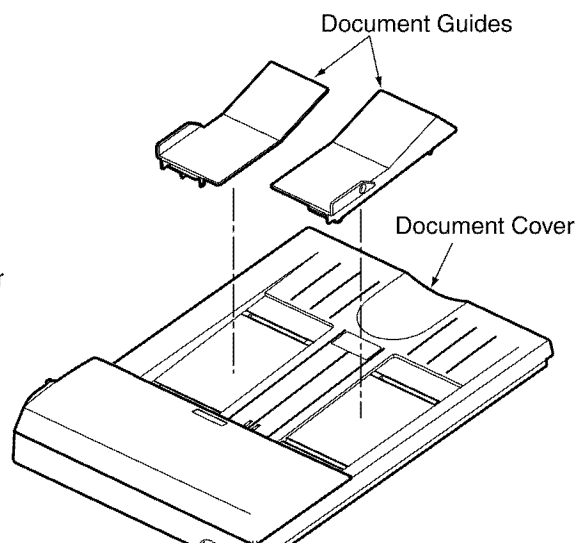
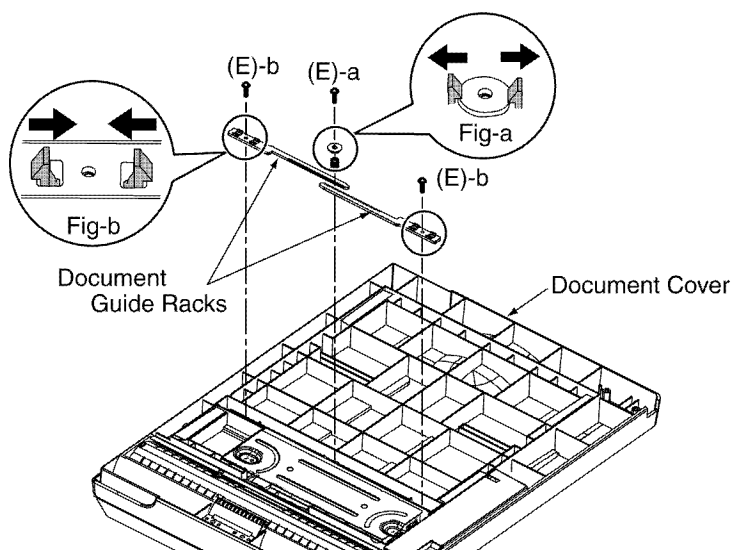


5.2.8. HOW TO REMOVE THE DOCUMENT GUIDES

PROCEDURE: A-1 --> B-1 --> B-2

Ref. No. B-2

- 1) Remove the screw (E)-a.
- 2) Release the washer from the hooks, by pushing in direction of illustrated in Fig-a.
- 3) Remove the 2 screws (E)-b.
- 4) Release the 2 hooks as shown in Fig-b.
- 5) Remove the Document Guide Racks.
- 6) Reverse the Document Cover.
- 7) Lift up the Document Guides from Document Cover.

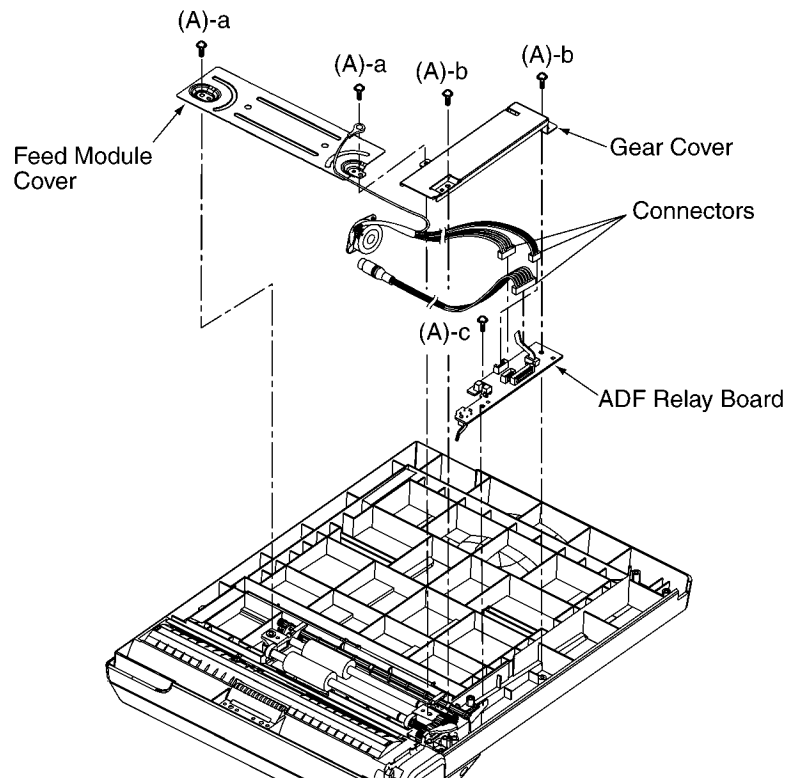


5.2.9. HOW TO REMOVE THE ADF RELAY BOARD

PROCEDURE: A-1 --> B-1 --> B-3

Ref. No. B-3

- 1) Remove the 2 screws (A)-a.
- 2) Remove the Feed Module Cover.
- 3) Remove the 2 screws (A)-b.
- 4) Remove the Gear Cover.
- 5) Remove the Connectors.
- 6) Remove the screw (A)-c.
- 7) Remove the ADF Relay Board.

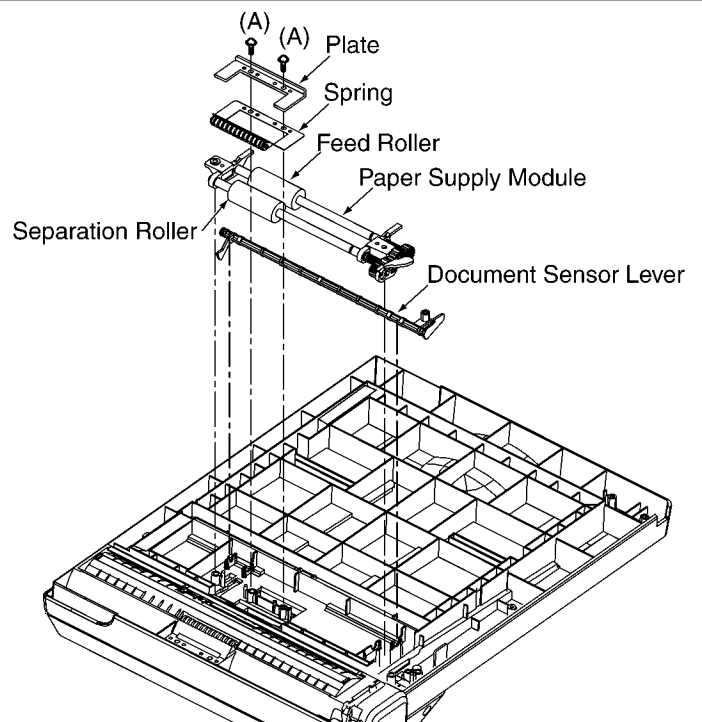


5.2.10. HOW TO REMOVE THE FEED ROLLER AND SEPARATION ROLLER

PROCEDURE: A-1 --> B-1 --> B-3 --> B-4

Ref. No. B-4

- 1) Remove the 2 screws (A).
- 2) Remove the Plate and Spring.
- 3) Lift up the Paper Supply Module.
- 4) Remove the Feed Roller and Separation Roller.
- 5) Remove the Document Sensor Lever.



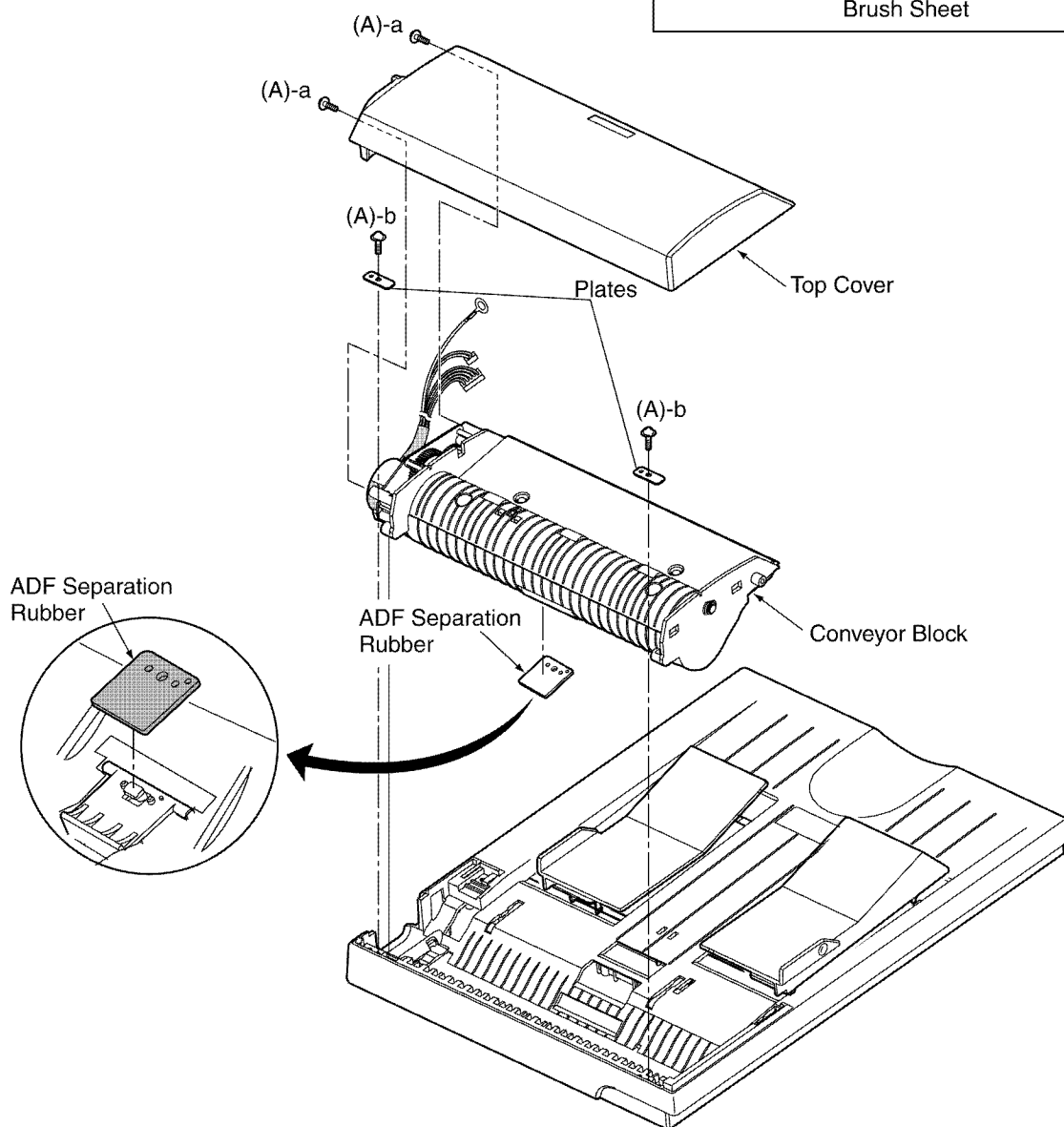
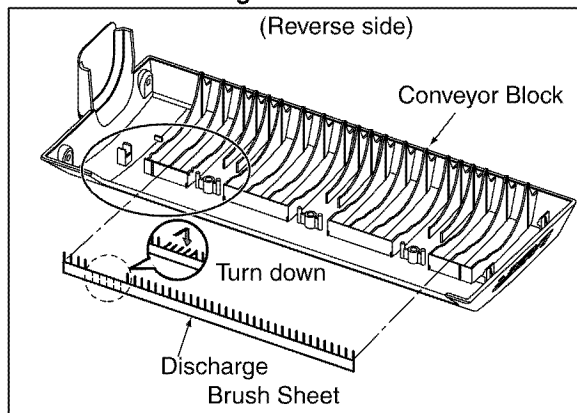
5.2.11. HOW TO REMOVE THE TOP COVER AND CONVEYOR BLOCK

PROCEDURE: A-1 --> B-1 --> B-3 --> B-5

Ref. No. B-5

- 1) Remove the 2 screws (A)-a.
- 2) Remove the Top Cover.
- 3) Remove the 2 screws (A)-b and 2 Plates.
- 4) Lift up the Conveyor Block.
- 5) Remove the ADF Separation Rubber.

Note for Assembling:

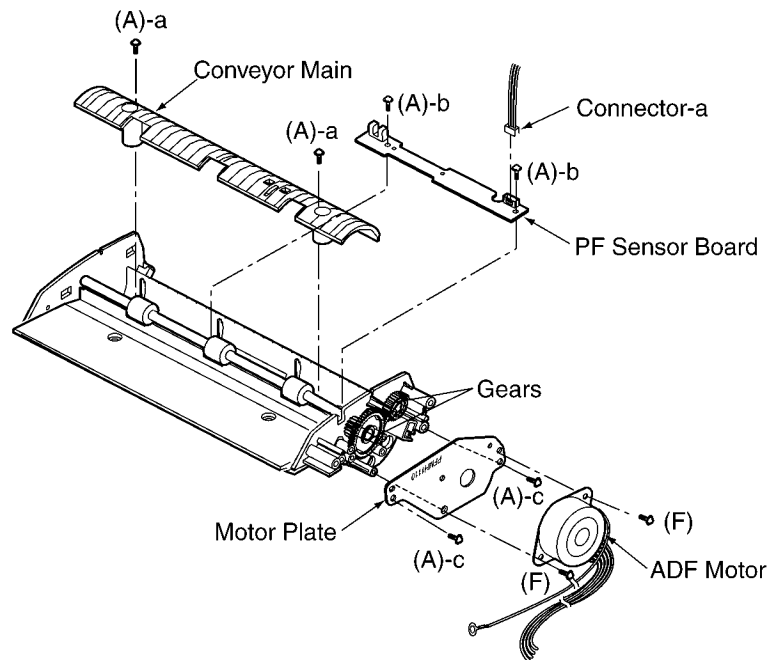


5.2.12. HOW TO REMOVE THE ADF MOTOR AND PF SENSOR BOARD

PROCEDURE: A-1 --> B-1 --> B-3 --> B-5 --> B-6

Ref. No. B-6

- 1) Remove the 2 screws (A)-a.
- 2) Remove the Conveyor Main.
- 3) Disconnect the Connector-a.
- 4) Remove the 2 screws (A)-b.
- 5) Remove the PF Sensor Board.
- 6) Remove the 2 screws (F).
- 7) Remove the ADF Motor.
- 8) Remove the 2 screws (A)-c.
- 9) Remove the Motor Plate.
- 10) Remove the Gears.

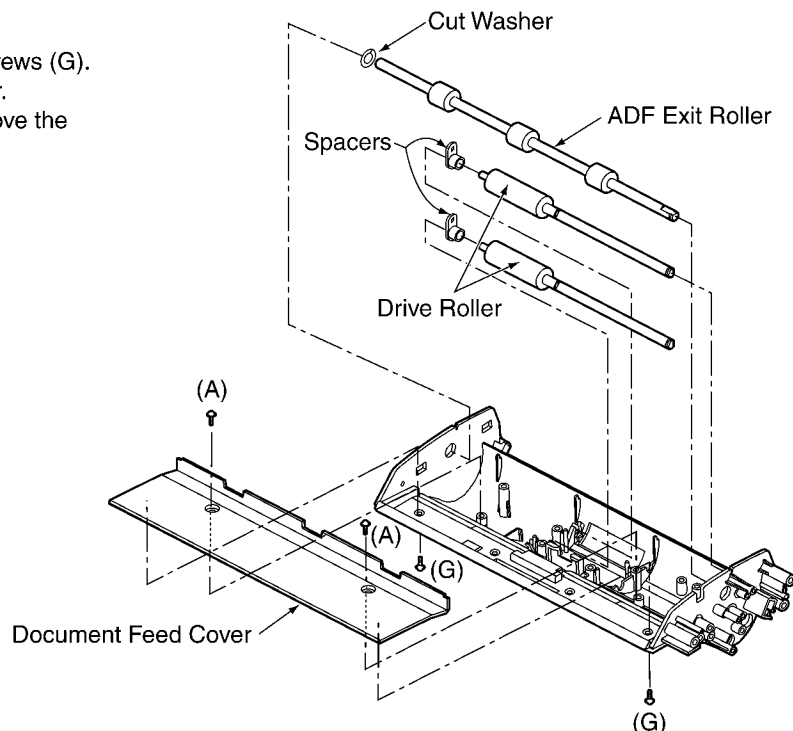


5.2.13. HOW TO REMOVE THE ADF EXIT ROLLER AND DRIVE ROLLER

PROCEDURE: A-1 --> B-1 --> B-3 --> B-5 --> B-6 --> B-7

Ref. No. B-7

- 1) Remove the 2 screws (A) and 2 screws (G).
- 2) Remove the Document Feed Cover.
- 3) Remove the Cut washer, then remove the ADF Exit Roller.
- 4) Remove the 2 Spacers.
- 5) Remove the 2 Drive Roller.



5.2.14. HOW TO REMOVE THE PICK UP ROLLER

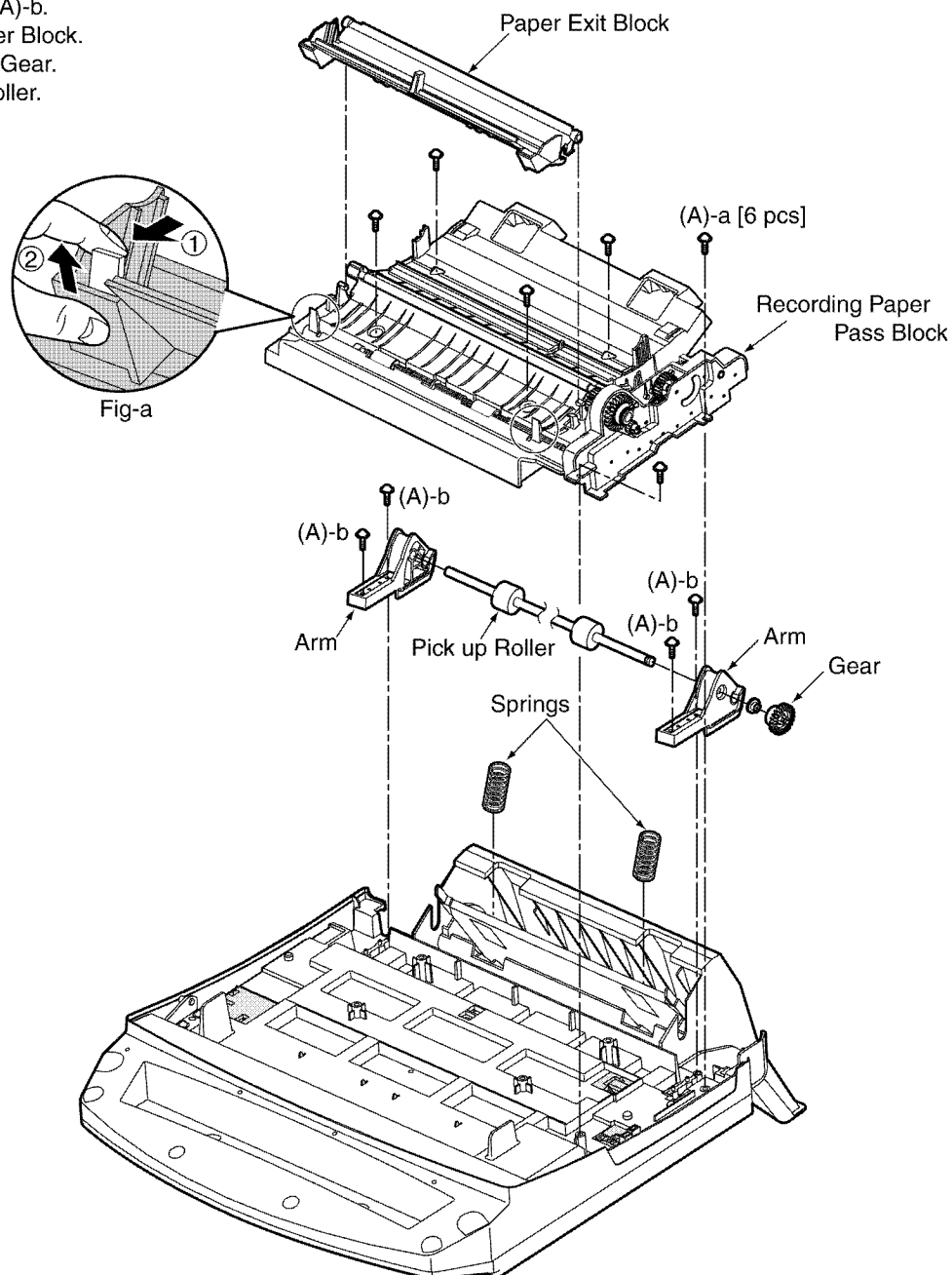
PROCEDURE: A-1 --> A-2 --> C-1

Ref. No. C-1

- 1) Remove the 2 Springs at first.
- 2) Release the both side of Hooks and open the Paper Exit Block. (Fig-a)
- 3) Remove the 6 screws (A)-a.

The 2 screws are under the Paper Exit Block.

- 4) Remove the Recording Paper Pass Block.
- 5) Pull up the Paper Exit Block.
- 6) Remove the 4 screws (A)-b.
- 7) Lift up the Pick up Roller Block.
- 8) Remove the Arms and Gear.
- 9) Remove the Pick up Roller.



5.2.15. HOW TO REMOVE THE EXIT ROLLER AND PLATEN ROLLER

PROCEDURE: A-1 --> A-2 --> C-1 --> C-2

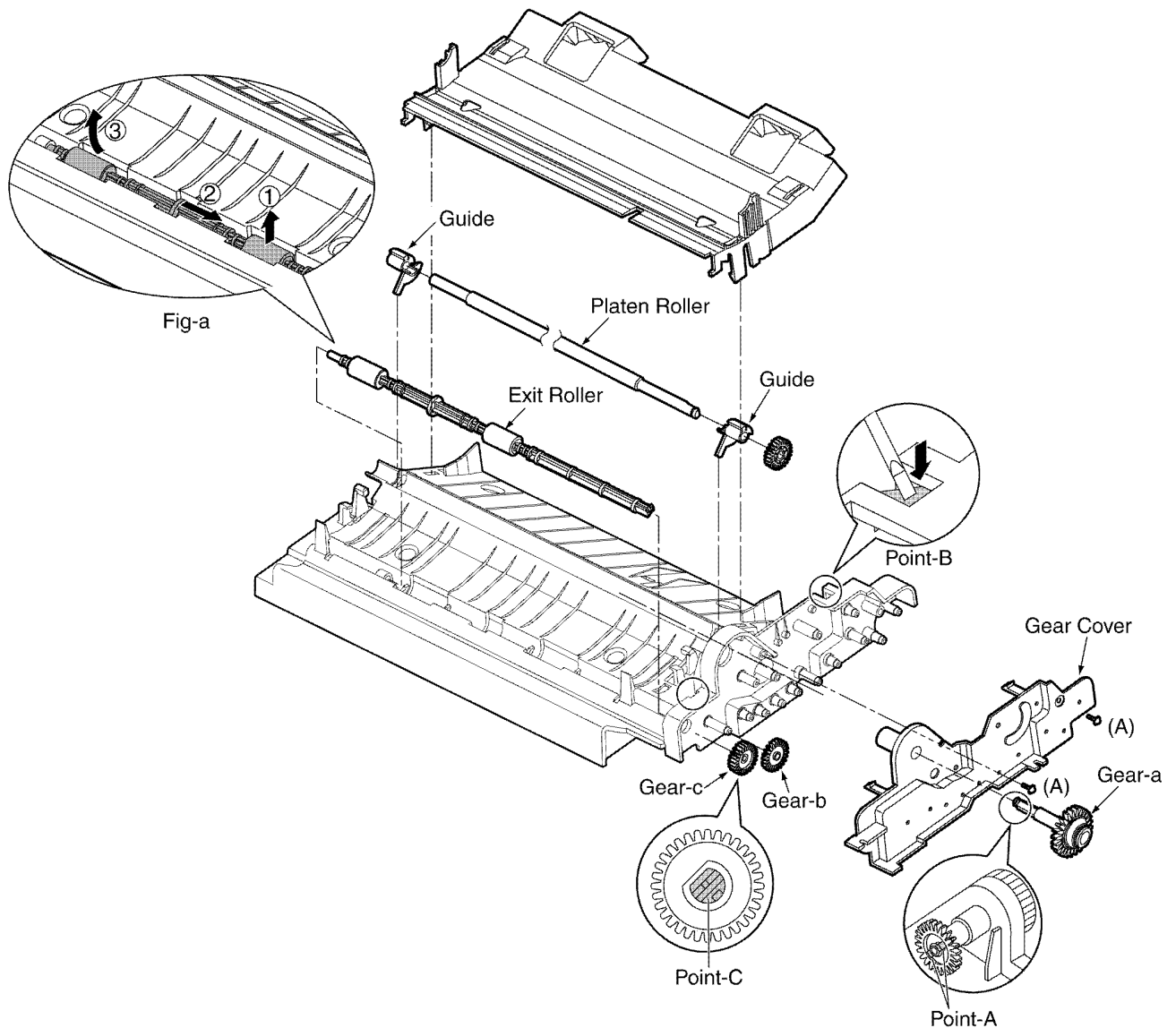
Ref. No. C-2

Exit Roller

- 1) Remove the 2 screws (A).
- 2) Release the Lock at the point-A.
- 3) Remove the Gear-a.
- 4) Release the Locks at the point-B.
- 5) Remove the Gear Cover.
- 6) Remove the Gear-b.
- 7) Release the Lock at the point-C.
- 8) Remove the Gear-c.
- 9) Remove the Exit Roller. (Fig-a)

Platen Roller

- 1) Release the both of Guides.
- 2) Remove the Platen Roller.

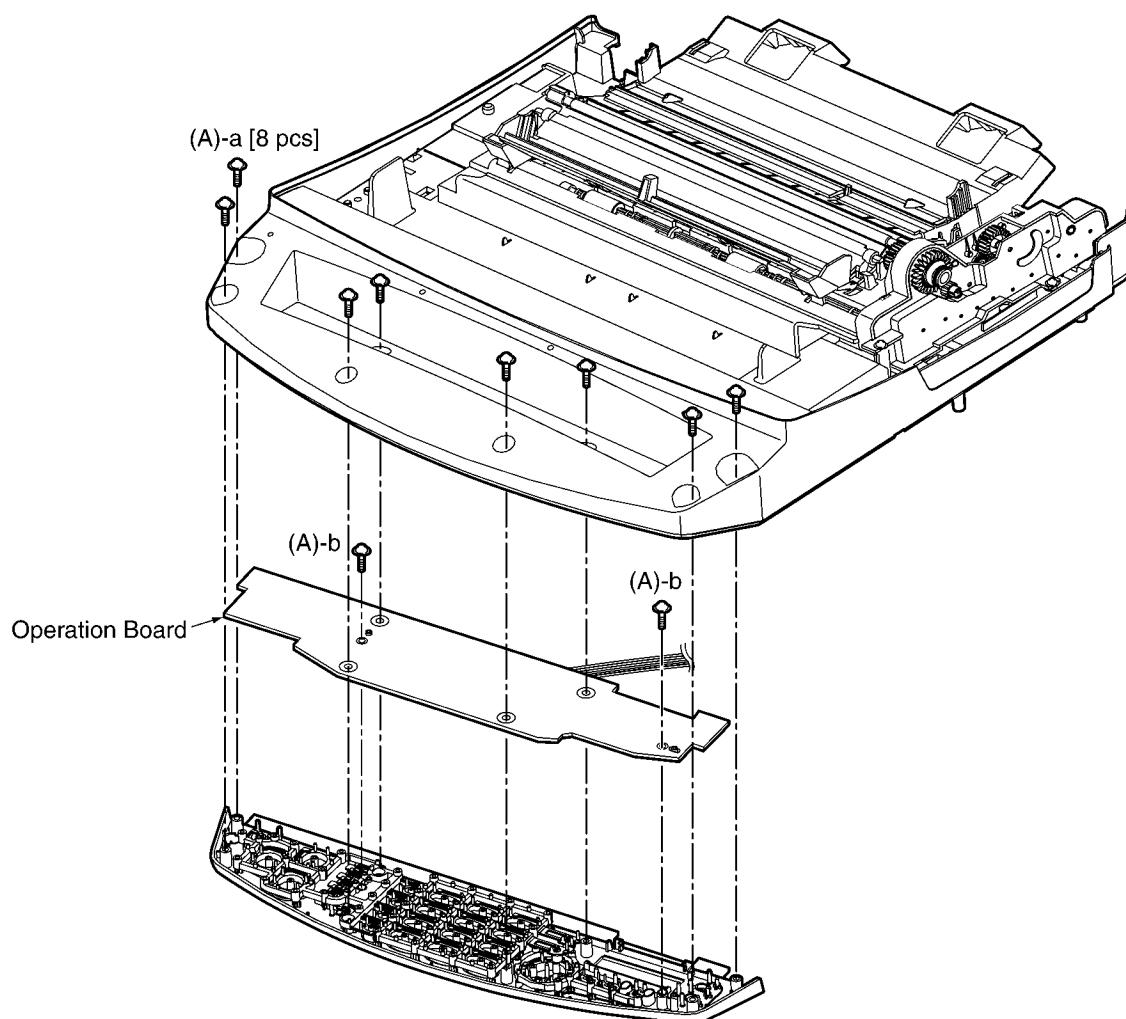


5.2.16. HOW TO REMOVE THE OPERATION BOARD

PROCEDURE: A-1 --> A-2 --> C-3

Ref. No. C-3

- 1) Remove the 8 screws (A)-a.
- 2) Remove the 2 screws (A)-b.
- 3) Remove the Operation Board.

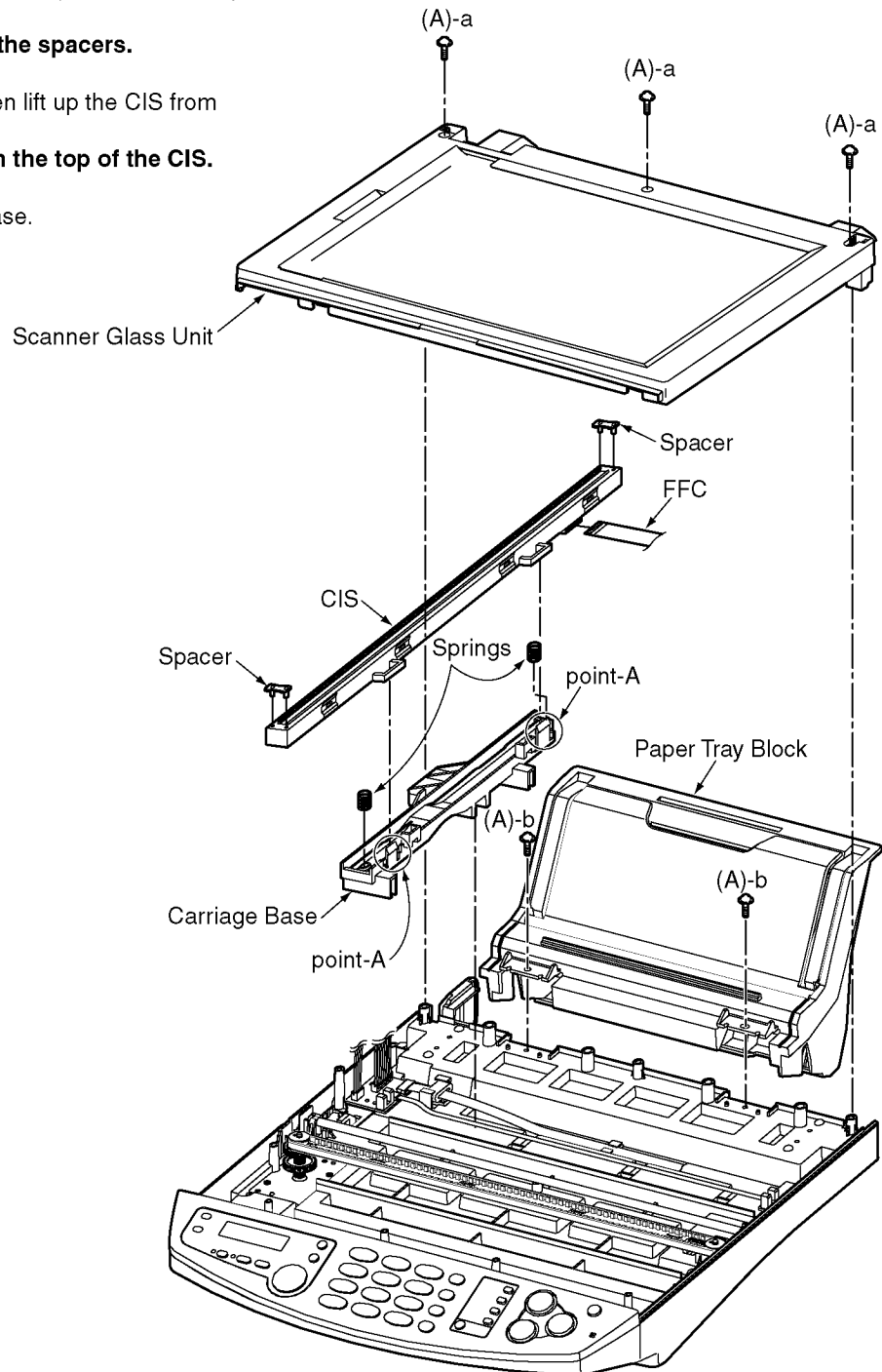


5.2.17. HOW TO REMOVE THE SCANNER GLASS UNIT, CIS AND PAPER TRAY BLOCK

PROCEDURE: A-1 --> A2 --> C-1 --> C4

Ref. No. C-4

- 1) Remove the 3 screws (A)-a.
- 2) Lift up the Scanner Glass Unit.
- 3) Remove the 2 screws (A)-b.
- 4) Remove the Paper Tray Block after removed Pick Up Roller. (See Ref No. C-1)
- 5) Remove the 2 Spacers.
- *Take care not to lose the spacers.**
- 6) Remove the FFC.
- 7) Unhook the points-A, then lift up the CIS from the Carriage Base.
- *Take care not to touch the top of the CIS.**
- 8) Remove the Springs.
- 9) Release the Carriage Base.

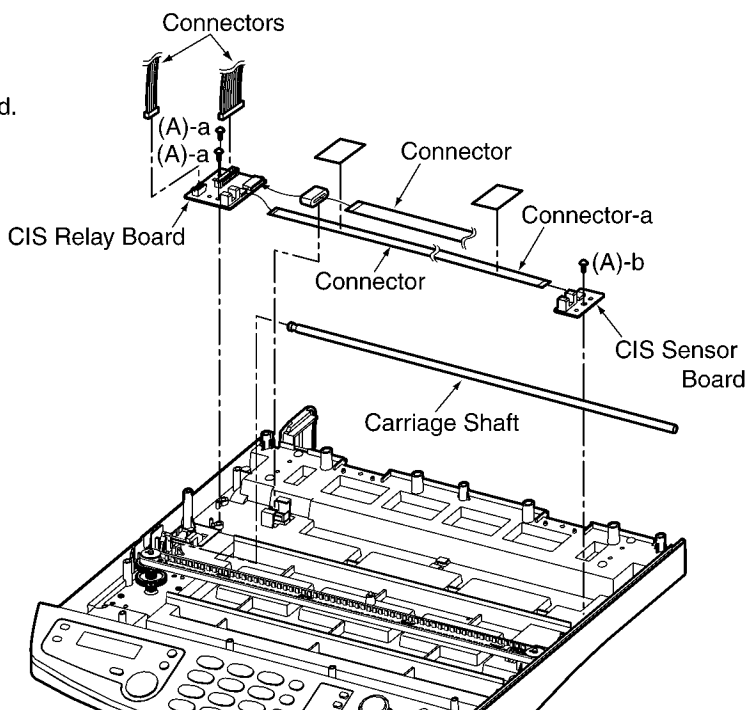


5.2.18. HOW TO REMOVE THE CIS RELAY BOARD AND CIS SENSOR BOARD

PROCEDURE: A-1 --> A-2 --> C-4 --> C-5

Ref. No. C-5

- 1) Remove the all Connectors on the CIS Relay Board.
- 2) Remove the 2 screws (A)-a.
- 3) Remove the CIS Relay Board.
- 4) Disconnect the Connector-a from the CIS Sensor Board.
- 5) Remove the screw (A)-b.
- 6) Remove the CIS Sensor Board.
- 7) Remove the Carriage Shaft.

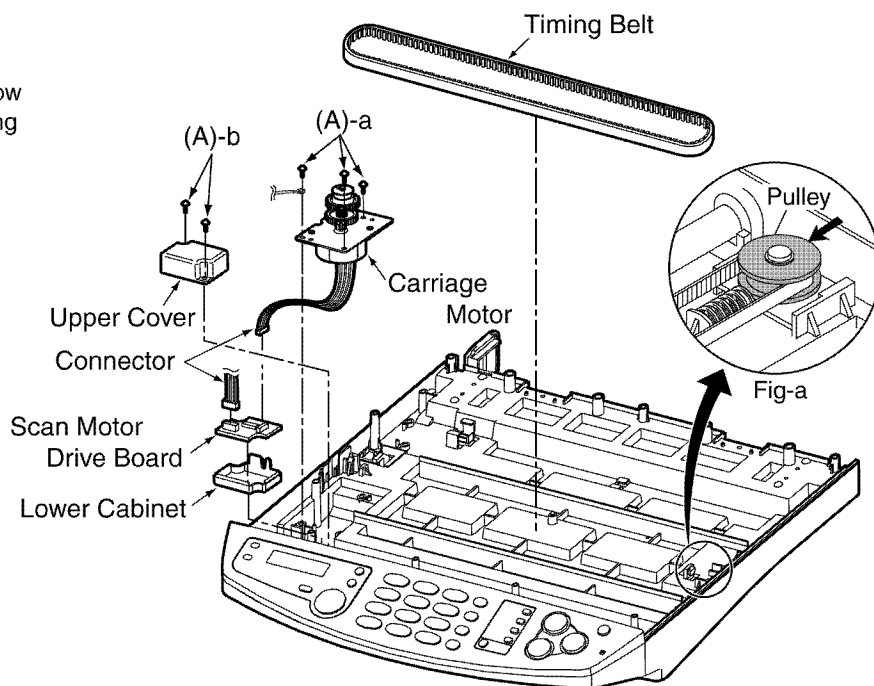


5.2.19. HOW TO REMOVE THE CARRIAGE MOTOR AND SCAN MOTOR DRIVE BOARD

PROCEDURE: A-1 --> A-2 --> C-4 --> C-6

Ref. No. C-6

- 1) Push the Pulley in the direction of arrow as shown in Fig-a to remove the Timing Belt.
- 2) Remove the 3 screws (A)-a.
- 3) Remove the Carriage Motor.
- 4) Remove the 2 screws (A)-b.
- 5) Remove the Upper Cover.
- 6) Remove the 2 Connectors.
- 7) Remove the Scan Motor Drive Board.
- 8) Remove the Lower Cover.

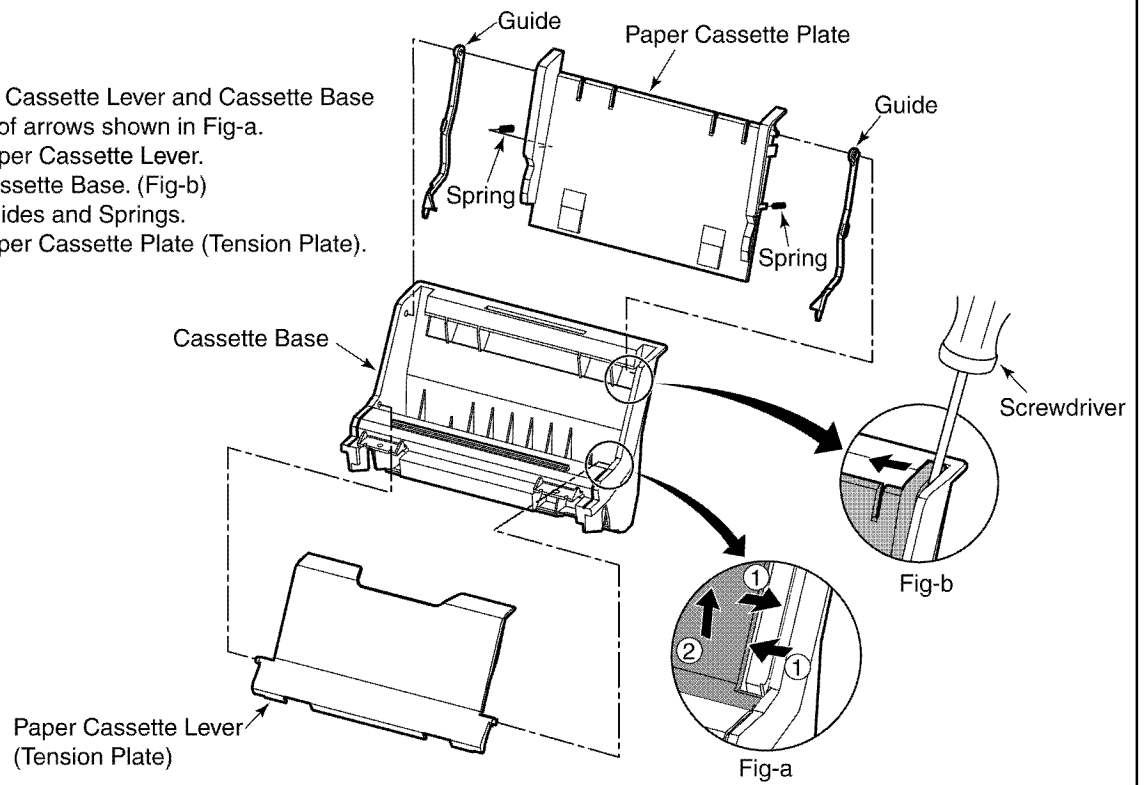


5.2.20. HOW TO REMOVE THE COMPONENT PARTS OF PAPER TRAY BLOCK

PROCEDURE: A-1 --> A-2 --> C-1 --> C-4 --> C-7

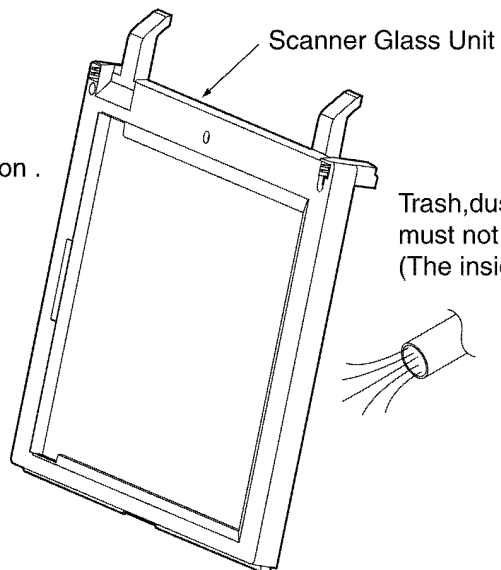
Ref. No. C-7

- 1) Push the Paper Cassette Lever and Cassette Base in the direction of arrows shown in Fig-a.
- 2) Remove the Paper Cassette Lever.
- 3) Remove the Cassette Base. (Fig-b)
- 4) Remove the Guides and Springs.
- 5) Remove the Paper Cassette Plate (Tension Plate).

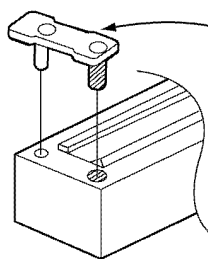


5.3. NOTE FOR ASSEMBLING

Assemble after air blow implementation .



Trash,dust,dirt fingerprint,and so on must not adhere to the back of glass.
(The inside of the set.)

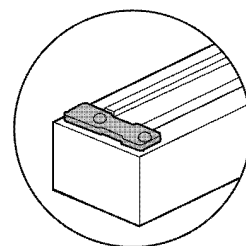


*Diameter: bigger

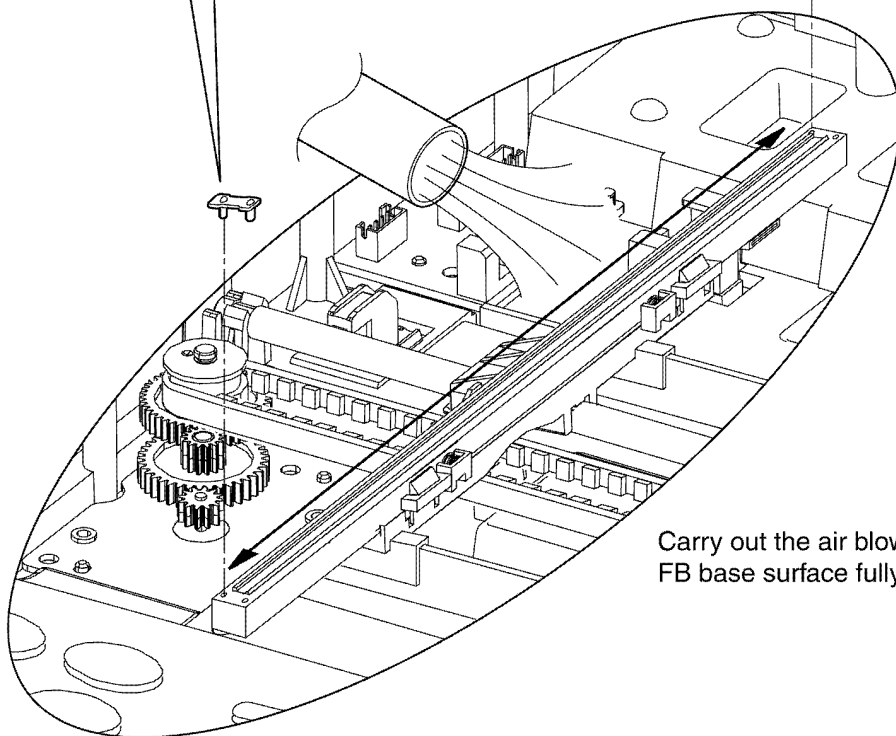
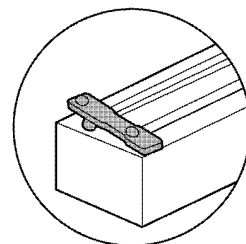
Pay attention to the direction of the installation.

*Assemble after the air blow of CIS.

OK

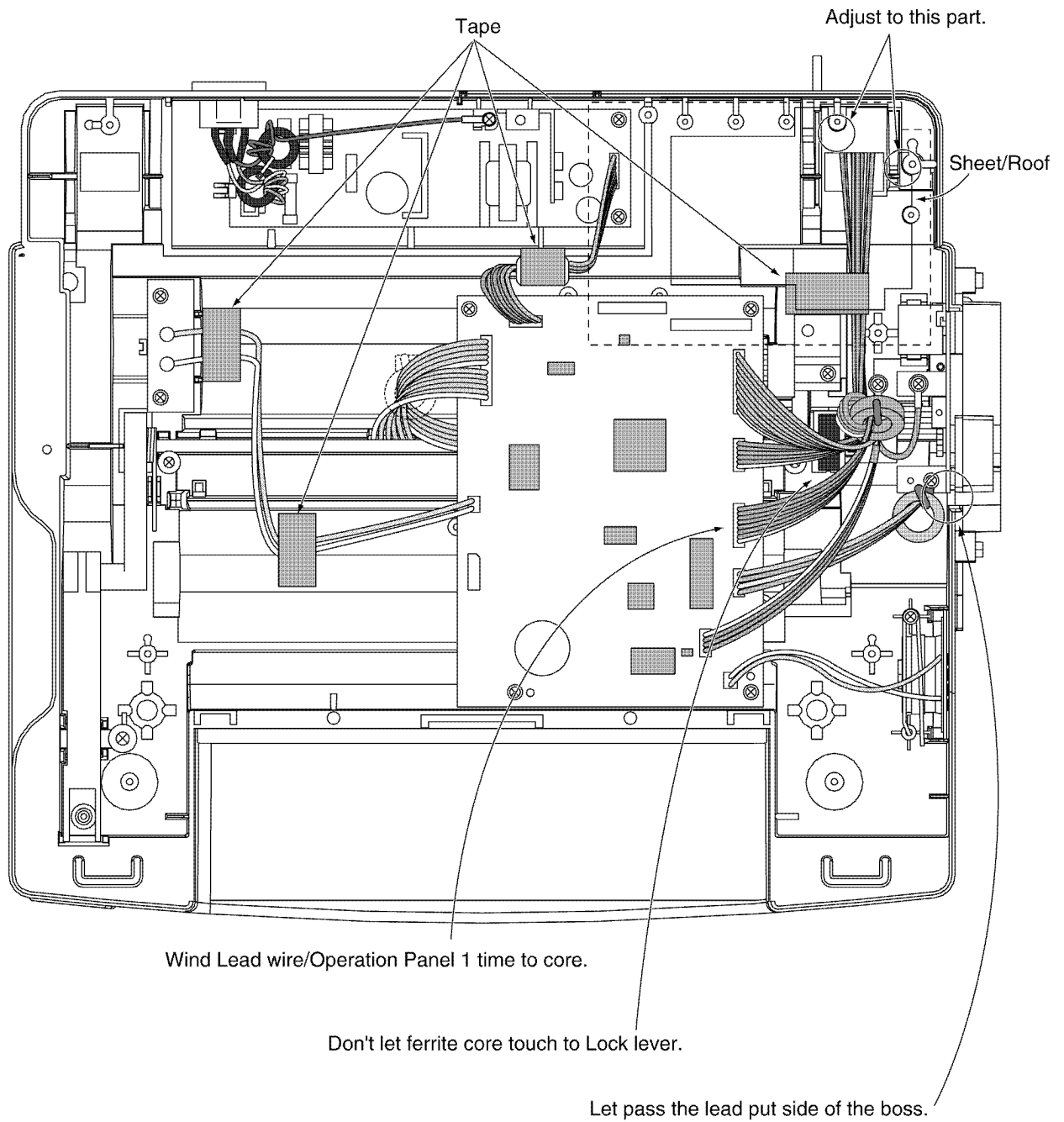


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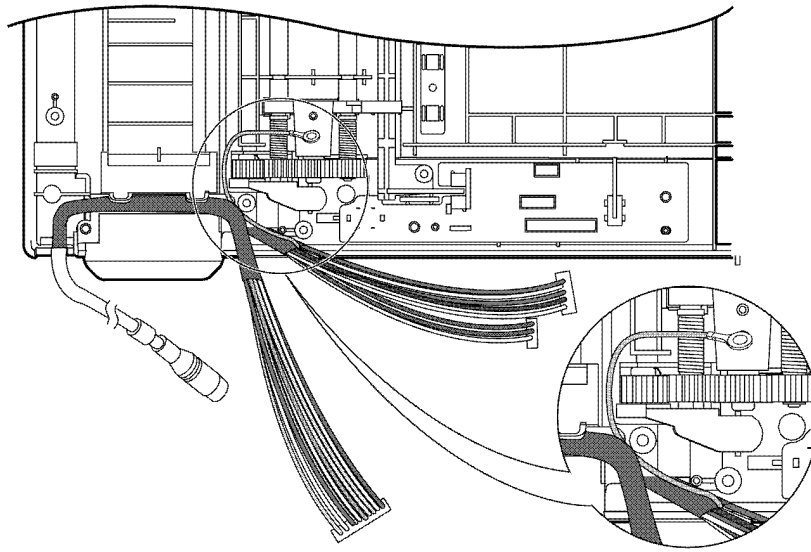


Carry out the air blow of the CIS reading surface and FB base surface fully.

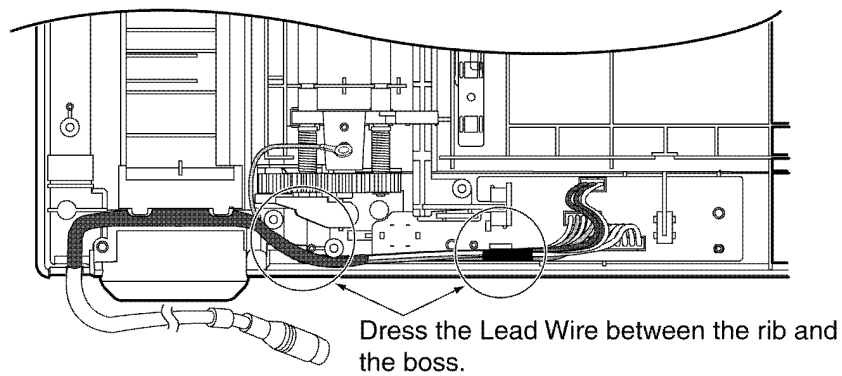
5.4. INSTALLATION POSITION OF THE LEAD



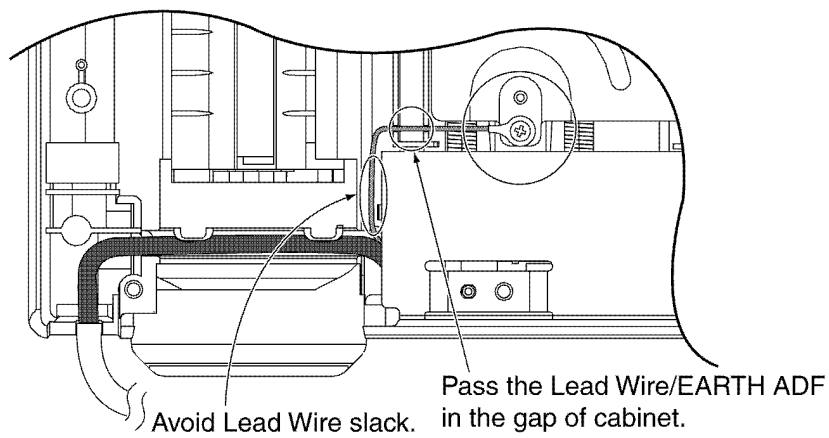
- The dressing method of Lead Wire/EARTH ADF

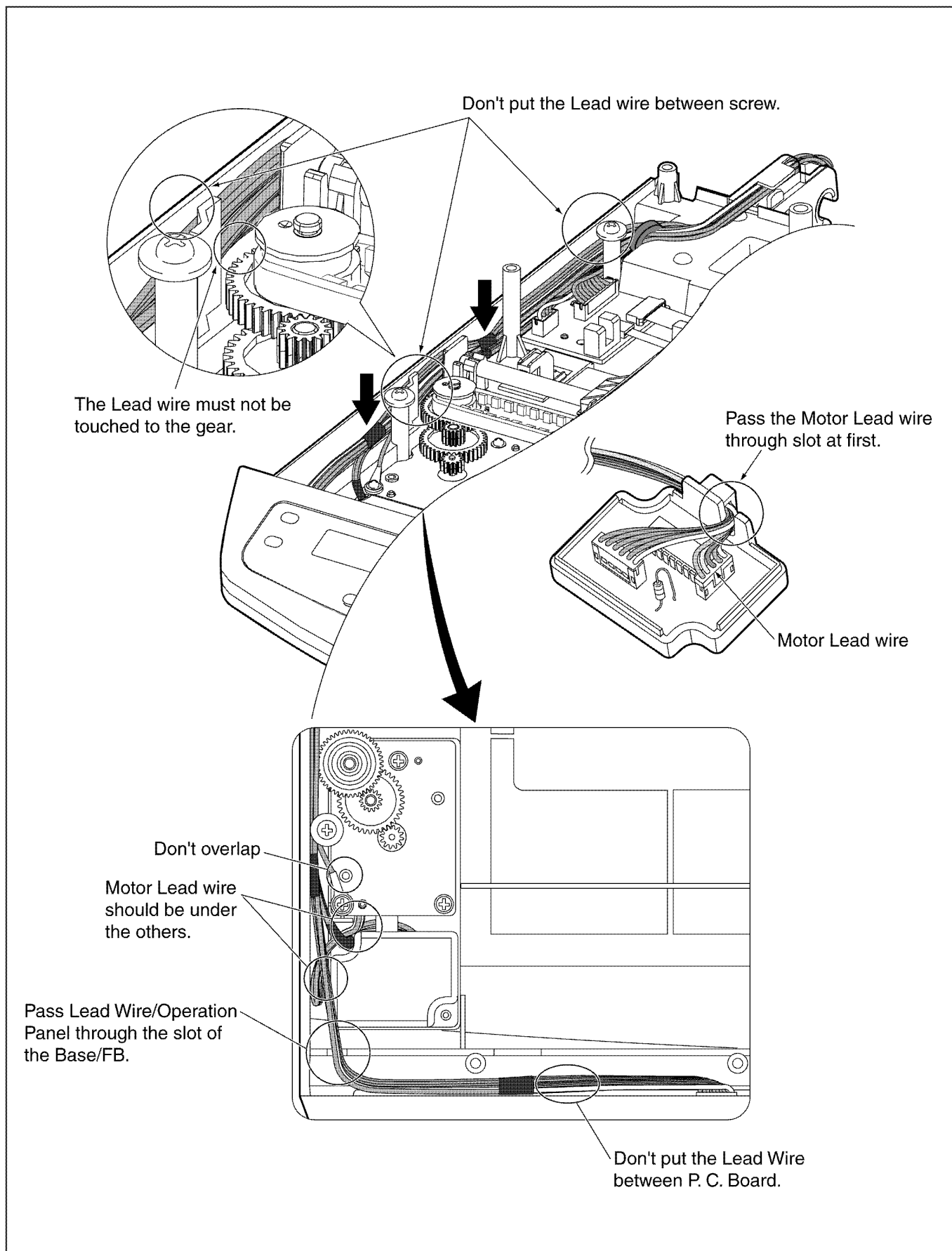


- The dressing method of Lead Wire



- The dressing method of Lead Wire/EARTH ADF





6 TROUBLESHOOTING GUIDE

6.1. USER RECOVERABLE ERRORS

If the unit detects a problem, one or more of the following messages will appear on the display.

The explanations given in the [] are for servicemen only.

DISPLAY MESSAGE	CAUSE AND REMEDY
CALL SERVICE	There is something wrong with the unit.
CARRIAGE ERROR  RELEASE SHIPPING LOCK	The shipping lock is locked. Unlock the shipping lock. If the display messages still remain after unlocking, there is something wrong with the carriage sensor.
CHECK ADF CABLE	The ADF cable is not connected correctly. Check the connection.
CHECK DOCUMENT	- The document was not fed into the unit properly. Reinsert the document. If misfeeding occurs frequently, clean the document feeder rollers and try again. (Refer to DOCUMENT FEEDER ROLLERS (P.22).) - Attempted to transmit a document longer than 600 mm. Press the [STOP] to remove the document. Divide the document into two or more sheets and try again.
CHECK MEMORY	The memory (telephone numbers, parameters, etc.) has been erased. Re-program. [The backup lithium battery on the top of the digital board may be low or dead, so check it.]
CHECK PAPER	- The recording paper is not installed or the unit has run out of paper. Install paper and press [SET] to clear the message. - The recording paper is not fed into the unit properly. Reinstall paper and press [SET] to clear the message. (Refer to RECORDING PAPER (P.13).) - The recording paper has jammed near the recording paper entrance. Clear the jammed paper and press [SET] to clear the message. Do not install folded or heavily curled paper. (Refer to RECORDING PAPER JAM (P.25).)
CLOSE ADF COVER	The ADF cover is open. Close it.
COVER OPEN	The front cover is open. Close it.
DIRECTORY FULL	There is no space to store new entries in navigator directory. Erase unnecessary entries.
FAX IN MEMORY	The unit has a document in memory. See the other displayed message instructions to print out the document.
FAX MEMORY FULL	- The memory is full of received documents due to lack of recording paper or a recording paper jam. Install paper or clear the jammed paper. (Refer to RECORDING PAPER JAM (P.16).) - When performing memory transmission, the document being stored exceeds the memory capacity of the unit. Transmit the entire document manually.
FILM EMPTY	- The film is empty. Replace the film with a new one. (Refer to INK FILM - INSTALLING / REPLACING (P.25).) - The ink film is slack. Tighten it and install again. (Refer to RECORDING PAPER JAM (P.16).)
FILM NEAR EMPTY	The remaining film is low. Prepare a new film. (Refer to INK FILM - INSTALLING / REPLACING (P.25).)
MEMORY FULL	When making a copy, the document being stored exceeds the memory capacity of the unit. Press [STOP] to clear the message. Divide the document into sections.
MODEM ERROR	There is something wrong with the modem circuit.
NO FAX REPLY	The other party's fax machine is busy or has run out of recording paper. Try again.

DISPLAY MESSAGE	CAUSE AND REMEDY
OPEN CABINET CHECK FILM SLACK ↕ OPEN CABINET CHECK FILM TYPE	• The ink film is empty. Replace the ink film with a new one. (Refer to INK FILM - INSTALLING / REPLACING (P.25).) • The ink film is not installed. Install it. (Refer to INK FILM - INSTALLING / REPLACING (P.25).) • The ink film is slack. Tighten it. (Refer to INK FILM - INSTALLING / REPLACING (P.25).) • The fax machine is installed near appliance such as TV or speaker which generate an intense magnetic field.
PAPER JAMMED	• A recording paper jam occurred. Clear the jammed paper. [If the printout jams, please refer to RECORDING PAPER JAM (P.16).]
PLEASE WAIT	• The unit is checking that there is no slack on the ink film. Wait for a moment while the check completes.
POLLING ERROR	• The other party's fax machine does not provide the polling function. Check with the other party.
REDIAL TIME OUT	• The other party's fax machine is busy or has run out of recording paper. Try again.
REMOVE DOCUMENT	• The document is jammed. Remove the jammed document. (Refer to DOCUMENT JAMS - SENDING (P.27).) • [Alternately, turn off service code #559 to enable sending of documents longer than 600 mm] (Refer to SERVICE FUNCTION TABLE (P.55).)
TRANSMIT ERROR	• A transmission error occurred. Try again.
UNIT OVERHEATED	• The unit is too hot. Let the unit cool down.

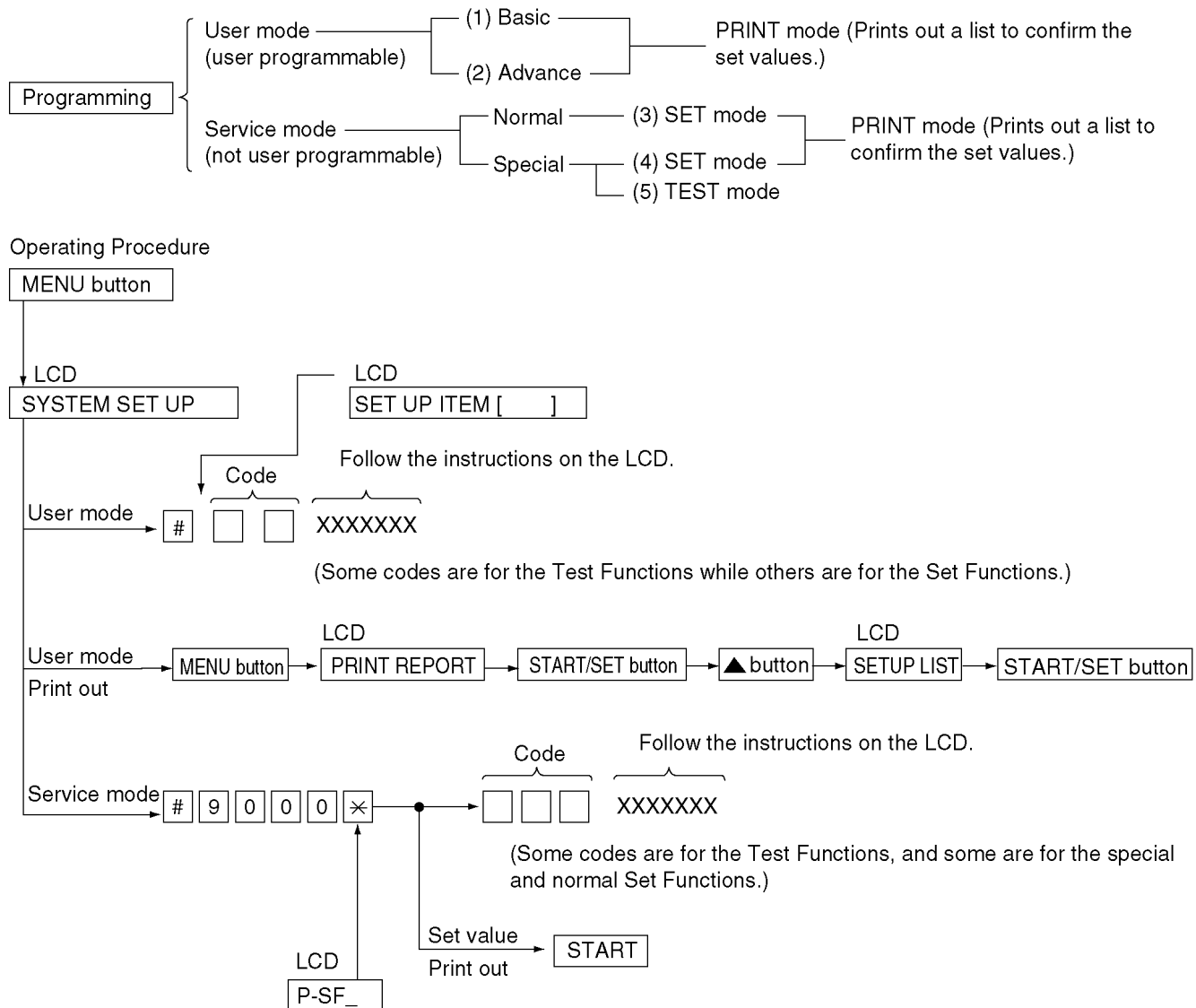
6.2. PROGRAMMING AND LISTS

The programming functions are used to program the various features and functions of the machine, and to test the machine. This facilitates communication between the user and the service man while programming the unit.

6.2.1. OPERATION

There are 2 basic categories of programming functions, the User Mode and the Service Mode. The Service Mode is further broken down into the normal and special programs. The normal programs are those listed in the Operating Instructions and are available to the user. The special programs are only those listed here and not displayed to the user. In both the User and Service Modes, there are Set Functions and Test Functions. The Set Functions are used to program various features and functions, and the Test Functions are used to test the various functions. The Set Functions are accessed by entering their code, changing the appropriate value, then pressing the SET key. The Test Functions are accessed by entering their code and pressing the key listed on the menu. While programming, to cancel any entry, press the STOP key.

6.2.2. OPERATION FLOW



6.2.3. SERVICE FUNCTION TABLE

Code	Function	Set Value	Effective Range	Default	Remarks
501	Pause time set	X 100 msec	001~600	30	-----
502	Flash time	X 10 ms	01~99	70	-----
503	Dial speed select	1:10 pps 2:20 pps	1, 2	1	-----
520	CED frequency select	1:2100 Hz 2:1100 Hz	1, 2	1	-----
521	International mode select	1:ON 2:OFF	1, 2	1	-----
522	Auto standby select	1:ON 2:OFF	1, 2	1	The resolution reverts to the default when transmission is complete.
523	Receive equalizer select	1: 0 km 2: 1.8 km 3: 3.6 km 4: 7.2 km	1~4	1	When the telephone station is far from the unit or reception cannot be performed correctly, adjust accordingly.
524	Transmission equalizer select	1: 0 km 2: 1.8 km 3: 3.6 km 4: 7.2 km	1~4	1	When the telephone station is far from the unit or transmission cannot be performed correctly, adjust accordingly.
550	Memory clear: To reset the value to the default one, except the top margin (853).				"START" input
551	ROM check				See TEST FUNCTIONS (P.57).
552	DTMF single tone test	1:ON 2:OFF	1, 2	2	See TEST FUNCTIONS (P.57).
553	Monitor on FAX communication select	1:OFF 2:PHASE B 3:ALL	1~3	1	Sets whether to monitor the line signal with the unit's speaker during FAX communication or not.
554	Modem test				See TEST FUNCTIONS (P.57).
555	Scan check				See TEST FUNCTIONS (P.57).
556	Motor test			0	See TEST FUNCTIONS (P.57).
557	LED test				See TEST FUNCTIONS (P.57).
558	LCD test				See TEST FUNCTIONS (P.57).
559	Document jam detection select	1:ON 2:OFF	1, 2	1	See DOCUMENT JAMS - SENDING (P.27).
561	KEY test				See TEST FUNCTIONS (P.57).
570	BREAK % select	1:61% 2:67%	1, 2	1	Sets the % break of pulse dialing according PBX.
571	ITS auto redial time set	X number of times	00~14	05	Selects the number of times that ITS is redialed (not including the first dial).
572	ITS auto redial line disconnection time set	X second	001~999	065	Sets the interval of ITS redialing.
573	Remote turn-on ring number set	X number of rings	01~99	10	Sets the number of rings before the unit starts to receive a document in the TEL mode.
590	FAX auto redial time set	X number of times	00~14	05	Selects the number of redial times during FAX communication (not including the first dial).
591	FAX auto redial time disconnection time set	X second	001~999	065	Sets the FAX redial interval during FAX communication.
592	CNG transmit select	1:OFF 2:ALL 3:AUTO	1~3	2	Lets you select the CNG output during FAX transmission. ALL: CNG is output at phase A. AUTO: CNG id output only when automatic dialing is performed. OFF: CNG id not output at phase A. Refer to SOMETIME THERE IS A TRANSMIT PROBLEM (P.84).
593	Time between CED and 300bps	1:75 msec 2:500 msec 3:1 sec	1~3	1	-----
594	Overseas DIS detection select	1:detects at the 1st time 2:detects at the 2st time	1, 2	1	-----
595	Receive error limit value set	X Number of times	001~999	100	Sets the number of acceptable error lines when the FAX reconstructs the received data. Refer to RECEIVE PROBLEM (P.85).
596	Transmit level set	X dBm	- 15~00	-10	Selects the FAX transmission level. Refer to SOMETIME THERE IS A TRANSMIT PROBLEM (P.84) and RECEIVE PROBLEM (P.85).
598	Receiving sensitivity	43= -43 dBm	20~48	40	Used when there is an error problem.
599	ECM Frame size	1:256 / 2:64	1,2	1	-----
717	Transmit speed selection	1:14400BPS 2:12000BPS 3:9600BPS 4:7200BPS 5:4800BPS 6:2400BPS	1~6	1	Adjusts the speed to start training during FAX transmission. Refer to SOMETIME THERE IS A TRANSMIT PROBLEM (P.84).

Code	Function	Set Value	Effective Range	Default	Remarks
718	Receive speed selection	1:14400BPS 2:12000BPS 3:9600BPS 4:7200BPS 5:4800BPS 6:2400BPS	1~6	1	Adjusts the speed to start training during FAX reception. Refer to RECEIVE PROBLEM (P.85).
722	Redial tone detect	1:ON 2:OFF	1, 2	1	Sets the tone detection mode after redialing.
745	Power ON film feed	1:ON 2:OFF	1, 2	1	When the power is turned on, the film is wound to take up any slack.
763	CNG detect time for friendly reception	1:10 sec 2:20 sec 3:30 sec	1~3	3	Selects the CNG detection tone of friendly reception.
771	T1 timer	1:35 sec 2:60 sec	1, 2	1	Sets a higher value when the response from the other party needs more time during FAX transmission.
774	T4 timer	X 100 msec	00~99	00	Use this function when delay occurs in the line and communication (ex. Mobile comm) does not work well.
815	Sensor & Vox check				See TEST FUNCTIONS (P.57).
852	Print test pattern				See TEST FUNCTIONS (P.57).
853	Top margin		1~9	5	-----
880	History list				See HISTORY (Example of a printed out list) (P.63).
881	Journal 2 list				See PRINTOUT EXAMPLE (P.89).
882	Journal 3 list				See PRINTOUT EXAMPLE (P.89).

6.3. TEST FUNCTIONS

The codes listed below can be used to perform simple checks of some of the unit's functions. When complaints are received from customers, they provide an effective tool for identifying the locations and causes of malfunctions.

Test Mode	Type of Mode	Code	Function										
		Operation after code input											
MOTOR TEST	Service Mode	“5” “5” “6”	Rotates the transmission and reception motor to check the operation of the motor. 13: FAX TX / Reading memory 14: Document feed 23: Recording paper is fed 33: List / FAX RX print, pull back recording paper 43: Copy 05: Recording paper feed (Test a recording paper feeding operation by shifting from 23 to 33). Press [STOP] button to quit.										
		START											
MODEM TEST	Service Mode	“5” “5” “4”	Telephone line circuit is connected automatically, output the following signals on the circuit line. 1) OFF 2) 14400bps 3) 12000bps 4) 96V17 5) 72V17 6) 9600bps 7) 7200bps 8) 4800bps 9) 2400bps 10) 300bps 11) 2100Hz 12) 1100Hz										
		START											
ROM CHECK	Service Mode	“5” “5” “1”	Indicates the version and checks the sum of the ROM.										
		START											
SCAN CHECK	Service Mode	“5” “5” “5”	Turns on the LEDs of the CIS and operates the read systems.										
		START											
LED CHECK	Service Mode	“5” “5” “7”	Turns on the LED on the Operation Board.										
		START											
LCD CHECK	Service Mode	“5” “5” “8”	Checks the LCD indication. Illuminates all the dots to check if they are normal.										
		START											
DTMF SINGLE TEST	Service Mode	“5” “5” “2”	Outputs the DTMF as single tones. Used to check the frequencies of the individual DTMF tones. Refer to DTMF SINGLE TONE TRANSMIT SELECTION (P.58).										
		1....ON 2....OFF											
KEY CHECK	Service Mode	“5” “6” “1”	Checks the button operation. Indicates the button code on the LCD while the button is pressed. Refer to BUTTON CODE TABLE (P.58).										
		START (any key)											
FACTORY SET	Service Mode	“5” “5” “0”	Clears the memory where the users can store data.										
		START											
PRINT TEST PATTERN	Service Mode	“8” “5” “2”	Prints out the test pattern. Used mainly at the factory to test the print quality. You can select 1~4. (See PRINT TEST PATTERN (P.59).)										
		START											
SENSOR CHECK & VOX CHECK	Service Mode	“8” “1” “5”	If you enter this mode and operate sensor levers with your hands, the LCD display of the related sensor (or switch) turns ON / OFF. Also, when copying a document, the related sensor will turn ON / OFF. For each sensor's operation, refer to SENSORS AND SWITCHES SECTION (P.138). LCD DISPLAY: <table><tr><td>Do</td><td>Sn</td><td>Co</td><td>Pt</td><td>Vx</td></tr><tr><td>Fb</td><td>As</td><td>Cr</td><td>Cl</td><td></td></tr></table> Do: Document set switch :Paper inserted. Turns on when a document is inserted. Sn: Document top switch :At the read position, turns on when the front cover is opened and the sensor lever is pressed directly. Co: Cover switch :Cover open. Turns on and off when the front cover is opened and closed. Pt: Paper top sensor :Sensor on. Turns on when the front cover is opened and the sensor lever is pressed directly. Vx: Vox signal :Detection signal for the tone on the line. Turns on when there is a tone signal on the line. Fb: Flat bed cover switch :Document cover open or close. As: ADF cover switch :ADF cover open or close. Cr: ADF home sensor switch :Sensor ON/OFF. C[]: FB home sensor switch :Sensor ON/OFF.	Do	Sn	Co	Pt	Vx	Fb	As	Cr	Cl	
Do	Sn	Co	Pt	Vx									
Fb	As	Cr	Cl										

Note:

The numbers in the boxes (XXX) indicate the keys to be input for the various test modes.

6.3.1. DTMF SINGLE TONE TRANSMIT SELECTION

When set to ON (=1), the 12 keys and transmission frequencies are as shown.

key	High Frequency (Hz)	key	Low Frequency (Hz)
"1"	697	"5"	1209
"2"	770	"6"	1336
"3"	852	"7"	1477
"4"	941	"8"	1633

When set to OFF (=2), the 12 keys and transmission frequencies are as shown.

High (Hz) Low (Hz)	1209	1336	1477
697	"1"	"2"	"3"
770	"4"	"5"	"6"
852	"7"	"8"	"9"
941	"X"	"0"	"#"

Note:

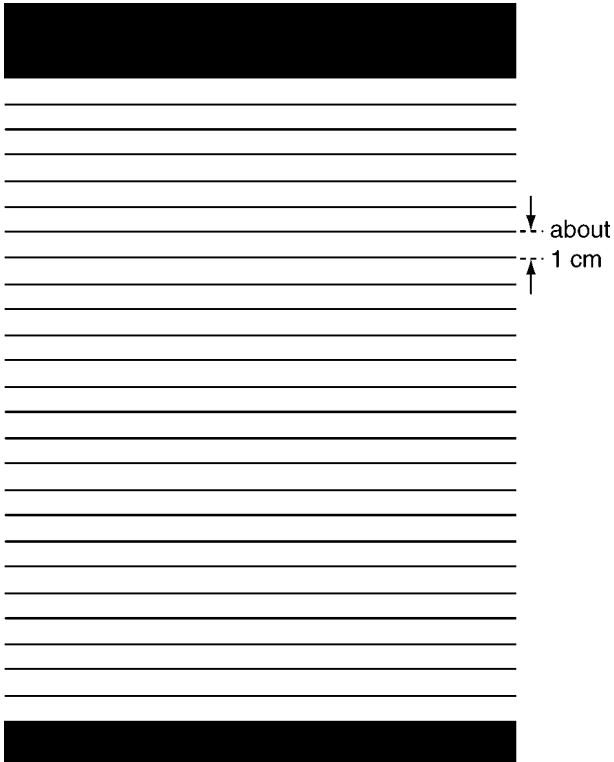
After performing this check, do not forget to turn the setting off.
Otherwise, dialing in DTMF signal will not work.

6.3.2. BUTTON CODE TABLE

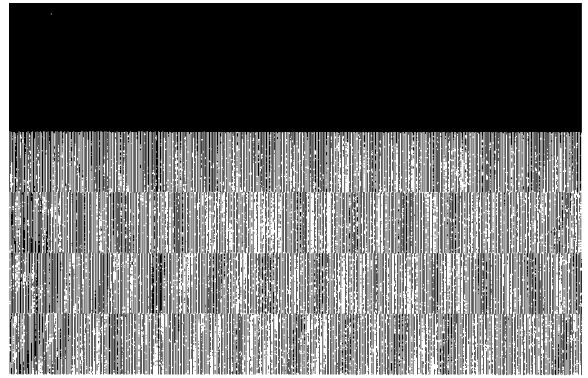
Code	Button Name	Code	Button Name	Code	Button Name	Code	Button Name
02	RESOLUTION	31	1	3B	X	64	STATION 1
04	FAX/START/SET	32	2	3C	#	65	STATION 2
05	LOWER	33	3	3D	REDIAL PAUSE	66	STATION 3
06	COPY	34	4	3E	FLASH		
08	MONITOR	35	5	47	PRINT REPORT		
0A	MUTE	36	6	4E	-		
0C	RECEIVE MODE	37	7	1E	[▶] NEXT		
20	MENU	38	8	1F	[◀] PREV		
22	HELP	39	9				
25	[+] VOLUME	3A	0	00	NO INPUT		
26	[-] VOLUME			01	STOP		

6.3.3. PRINT TEST PATTERN

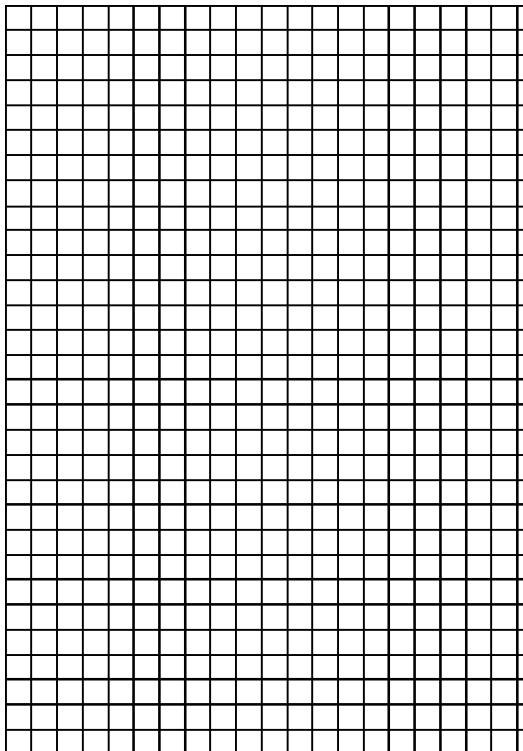
1. Platen roller



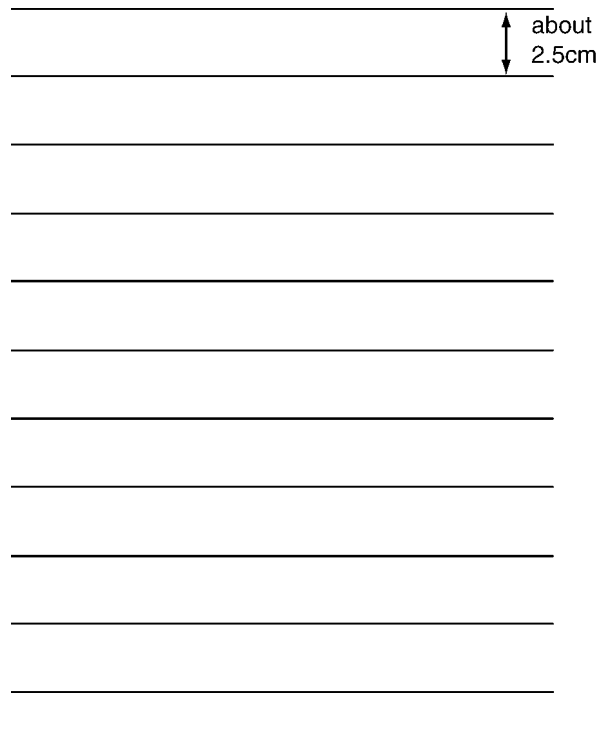
3. Thermal head 1 dot



2. Left margin / Top margin



4. Use this test pattern to confirm the torque limiter for ink film and platen roller timing



6.4. REMOTE PROGRAMMING

If, after the call is connected, the customer describes the situation and it is determined that the problem can be corrected by making parameter changes, this function makes it possible to change parameters such as the user code and service code from another fax (using DTMF tones). Therefore, travel to the customer's location is not required. However, it is not possible to change all the parameters remotely (**PROGRAM MODE TABLE**(P.61)). The function used to accomplish this is remote programming.

First, in order to check the current status of the service code parameter, print out the setup list (code: 991) and the service list (code: 999) from the customer's fax machine.

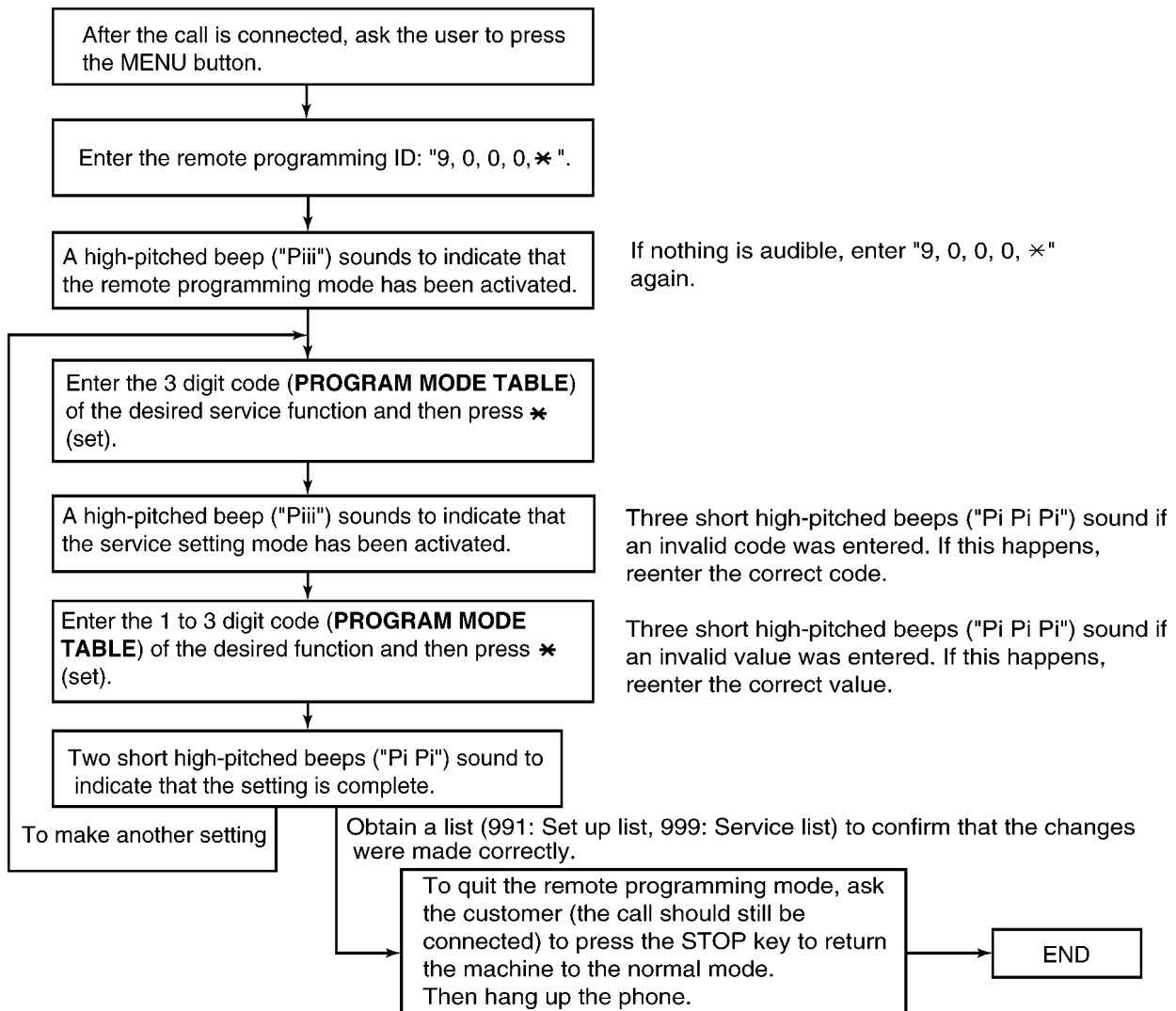
Based on this, the parameters for the desired codes can be changed.

The procedure for changing and listing parameters is described on **ENTERING THE REMOTE PROGRAMMING MODE AND CHANGING SERVICE CODES**(P.60). Also, before exiting the remote programming mode, it is advisable to obtain a new list to confirm that the changes were made correctly.

Hint:

Since the connected telephone is in use during the remote programming mode, it may be helpful to ask the customer to switch to the speakerphone. This frees the customer from the need to remain right next to the fax while you are making parameter settings. When finished, inform the customer. Also note that in very noisy locations where the DTMF tones are not audible, the remote programming function will not work.

6.4.1. ENTERING THE REMOTE PROGRAMMING MODE AND CHANGING SERVICE CODES



CROSS REFERENCE:

PROGRAM MODE TABLE (P.61)

6.4.2. PROGRAM MODE TABLE

Code	Function	Set Value	Default	Remote Setting
001	Set date and time	mm/dd/yy hh:mm	Jan/01/2002	NG
002	Your logo	-----	None	NG
003	Your fax number	-----	None	NG
004	Transmission report mode	1:ERROR / 2:ON / 3:OFF	ERROR	OK
006	FAX ring count	1 to 5 rings (for ext. tam)	1	OK
012	Remote TAM activation	1:ON / 2:OFF	OFF / ID=11	OK
013	Dialing mode	1:PULSE / 2:TONE	TONE	OK
016	Paper Size	1:A4 / 2:LETTER	A4	OK
017	Ringer Pattern	1:A / 2:B / 3:C	A	OK
022	Auto journal print	1:ON / 2:OFF	ON	OK
023	Overseas mode	1:NEXT FAX / 2:ERROR / 3:OFF	OFF	OK
025	Delayed transmission	1:ON / 2:OFF	OFF	NG
031	Distinctive ring	1:ON / 2:OFF	OFF	OK
032	Fax ring pattern	1:B-D / 2:A / 3:B / 4:C / 5:D	B-D	OK
034	Quick scan	1:ON / 2:OFF	OFF	OK
036	Rx reduction	1:72% / 2:86% / 3:92% / 4:100%	92%	OK
039	LCD contrast	1:Normal / 2:Darker	Normal	OK
041	Remote FAX activation code	1:ON / 2:OFF	ON ID=*9	OK
044	Receive alert	1:ON / 2:OFF	ON	OK
046	Friendly receive	1:ON / 2:OFF	ON	OK
058	Original setting	1:NORMAL/ 2:LIGHT/ 3:DARKER	NORMAL	OK
068	ECM section	1:ON / 2:OFF	ON	OK
076	FAX tone	1:ON / 2:OFF	ON	OK
080	Set default	1:YES / 2:NO	NO	NG
501	Pause time set	001~600 x 100msec	030msec	OK
502	Flash time	01~99 x 10ms	70ms	OK
503	Dial speed	1:10pps / 2:20 pps	10pps	OK
520	CED frequency select	1:2100Hz / 2:1100Hz	2100Hz	OK
521	International mode select	1:ON / 2:OFF	ON	OK
522	Auto standby select	1:ON / 2:OFF	ON	OK
523	Receive equalizer select	1:0km / 2:1.8km / 3:3.6km / 4:7.2km	0km	OK
524	Transmission equalizer select	1:0km / 2:1.8km / 3:3.6km / 4:7.2km	0km	OK
550	Memory clear	-----	-----	NG
551	ROM check	-----	-----	NG
552	DTMF signal tone test	1:ON / 2:OFF	OFF	OK
553	Monitor on FAX communication	1:OFF / 2:Phase B / 3:ALL	OFF	OK
554	Modem test	-----	-----	NG
555	Scanner test	-----	-----	NG
556	Motor test	-----	-----	NG
558	LCD test	-----	-----	NG
559	Document jam detection	1:ON / 2:OFF	ON	OK
561	Key test	-----	-----	NG
570	Break % select	1:61% / 2:67%	61%	OK
571	ITS auto redial time set	00~14	05	OK
572	ITS auto redial line disconnection time set	001~999sec	065sec	OK
573	Remote turn-on ring number	01~99	10	OK
590	FAX auto redial time set	00~14	05	OK
591	FAX auto redial line disconnection time set	001~999sec	065sec	OK
592	CNG transmit select	1:OFF / 2:ALL / 3:AUTO	ALL	OK
593	Time between CED and 300 bps	1:75ms / 2:500ms / 3:1sec	75ms	OK
594	Overseas DIS detection	1:1st / 2:2nd	1st	OK
595	Receive error limit value	001~999	100	OK
596	Transmit level set	-15~00dBm	-10dBm	OK
598	Receiving Sensitivity	20~48	40	OK
599	ECM Frame size	1:256 / 2:64	256byte	OK
717	Transmit speed select	1:14400/2:12000/ 3:9600/ 4:7200/ 5:4800/ 6:2400	14400bps	OK
718	Receive speed select	1:14400/2:12000/ 3:9600/ 4:7200/ 5:4800/ 6:2400	14400bps	OK
722	Redial tone detect	1:ON / 2:OFF	ON	OK
745	Power on film feed	1:ON / 2:OFF	ON	OK
763	CNG detect time for friendly reception	1:10s / 2:20s / 3:30s	30s	OK
771	T1 timer	1:35s / 2:60s	35s	OK
774	T4 timer	00~99 x 100ms	00ms	OK
815	Sensor & VOX test	-----	-----	NG

Code	Function	Set Value	Default	Remote Setting
844	Original setting	1:Normal / 2:Light / 3:Darker	Normal	NG
852	Print test pattern	-----	-----	NG
853	Top margin	1~9	---	OK
880	History list	1:Start	-----	NG
881	Journal 2	-----	-----	NG
882	Journal 3	-----	-----	NG
991	Setup list	1:Start	-----	OK
994	Journal list	1:Start	-----	OK
995	Journal 2 list	1:Start	-----	OK
996	Journal 3 list	1:Start	-----	OK
998	History list	1:Start	-----	OK
999	Service list	1:Start	-----	OK

OK means “can set”.

NG means “can not set”.

Note:

Refer to **SERVICE FUNCTION TABLE** (P.55) for descriptions of the individual codes.

Example:

If you want to set value in the “004 Transmission report mode”, press the dial key number 1, 2 or 3 corresponding to the Set Value you want to select. (1:ERROR/2:ON/3:OFF)

6.4.3. HISTORY (Example of a printed out list)

【 HISTORY 】

[E 9 7 1 R N] — (1) [3 6 0 5] — (2)
 [N O N E] — (3)
 [N O N E] — (4)
 [N O N E] — (5)
 (6) — [0 0 0 0] [0 1] — (7) [0 1] — (8) [2 0 0 2] — (9) [0 0 0 0] — (10)
 (11) — [0 0 0 0] [0 0 0 0] — (12)
 (13) — [0 0 0 0] [0 0 0 0] — (14) [N O N E] — (15) [N O N E] — (16) [F A X] — (17)
 Factory use only [0 0 0 0] [0 0 0 0] [T O N E] — (18) [9 2 %] — (19) [0 0 0 0 1] — (20)
 (21) — [0 0 0 0] [0 0 0 0] — (22) [0 0 0 0] — (23) [0 0 0 0] — (24) [N O N E] — (25)
 (26) — [N O N E] [N O N E] — (27) [N O N E] — (28) [N O N E] — (29)
 (30) — [0 0 0] (31) — [0 0 0] (32) — [0 0 0 0] [N O N E] — (33)
 (36) — [0 0 0 0] [0 0 0 0] — (37) [0 0 0 0] — (38) [0 0 0 0] — (39)
 (42) — [0 0 0 0] [0 0 0 0] — (43) [0 0 0 0] — (44) [0 0 0 0] — (45) (40) — [0 0 0 0] [0 0 0 0] — (41)
 [0 0 0 0] — (46)

NAME _____ DATE _____ DEALER _____ FILM _____
 CUSTOMER COMPLAINT _____
 SURVEY RESULT : OKOK (UNKNOWN/DESIGN/EDUC) DEFECT (PART/WORKER/DESIGN)
 ABUSE (CUST/DEALER/SHIP) NEW (OPEN/NOT)
 PHONE SURVEY RESULT.

Note:

See the following descriptions of this report. Item No. (1) ~ (46) are corresponding to the listed items in **DESCRIPTIONS OF THE HISTORY REPORT**(P.64).

6.4.3.1. DESCRIPTIONS OF THE HISTORY REPORT

(1) ROM VERSION

FLASH ROM version

(2) SUM

FLASH ROM internal data calculation.

(3) YOUR LOGO

The user logo recorded in the unit. If it is not recorded, NONE will be displayed.

(4) YOUR TELEPHONE NUMBER

The user telephone number recorded in the unit. If it is not recorded, NONE will be displayed.

(5) FAX PAGER NUMBER

If you program a pager number into the unit, the pager number will be displayed here.

(6) FACTORY - CUSTOMER

This shows how many days from factory production until the user turns ON the unit.

(7) MONTH

The shows the very first month, date, year and time set by the user after they purchased the unit.

(8) DAY

The shows the very first month, date, year and time set by the user after they purchased the unit.

(9) YEAR

The shows the very first month, date, year and time set by the user after they purchased the unit.

(10) TIME

The shows the very first month, date, year and time set by the user after they purchased the unit.

(11) USAGE TIME

The amount of time the unit has been powered ON.

(12) FACTORY - NOW

This shows how many days from factory production until the user prints out this history list.

(13) TEL MODE

The amount of time the TEL mode setting was used.

(14) FAX MODE

The amount of time the FAX mode setting was used.

(15) TEL/FAX MODE

The amount of time the TEL/FAX mode setting was used.

(16) ANS/FAX MODE

The amount of time the ANS/FAX mode setting was used.

(17) FINAL RECEIVE MODE

The last set receiving mode by the user.

(18) TONE/PULSE SELECTION

The most recently used setting used, either TONE or PULSE.

(19) RECEIVE REDUCTION

The compression rate when receiving.

(20) SETTING NO. OF DIRECTORY

The recorded directory stations (one touch dial).

(21) NUMBER OF COPY

The number of pages copied.

(22) NUMBER OF RECEIVE

The number of pages received.

(23) NUMBER OF SENDING

The number of pages sent.

(24)~(29) Not Used

(30) NUMBER OF PRINTING WARNING LIST

The number of warning lists printed until now.

(31) NUMBER OF PRINTING HELP

The number of help lists printed until now.

(32) NUMBER OF DIVIDED PRINTING IN FAX RECEPTION

The number of faxes received that were divided into more than one sheet since the unit was purchased.

(33)~(35) Not used.

(36) FAX MODE

Means the unit received a fax message in the FAX mode.

(37) MAN RCV

Means the unit received a fax message by manual operation.

(38) FRN RCV

Means the unit received a fax message by friendly signal detection.

(39) VOX

Means the unit detected silence or no voice.

(40) RMT DTMF

Means the unit detected DTMF (Remote Fax activation code) entered remotely.

(41) PAL DTMF

Means the unit detected DTMF (Remote Fax activation code) entered by a parallel connected telephone.

(42) TURN-ON

Means the unit started to receive after 10 rings. (Remote Turn On: Service Code #573)

(43) TIME OUT

Means the unit started to receive after Ring Time Out in the EXT-TAM or TEL/FAX mode.

(44) IDENT

Means the unit detected Ring Detection.

(45) CNG OGM

Means the unit detected the CNG while it was sending the Dummy Ring Back Tone in the TEL/FAX mode, or while answering a call in the EXT-TAM mode. Or means the unit detected the CNG while it was sending the OGM in the ANS/FAX mode.

(46) CNG ICM

Means the unit detected the CNG while it was recording the ICM in the ANS/FAX mode.

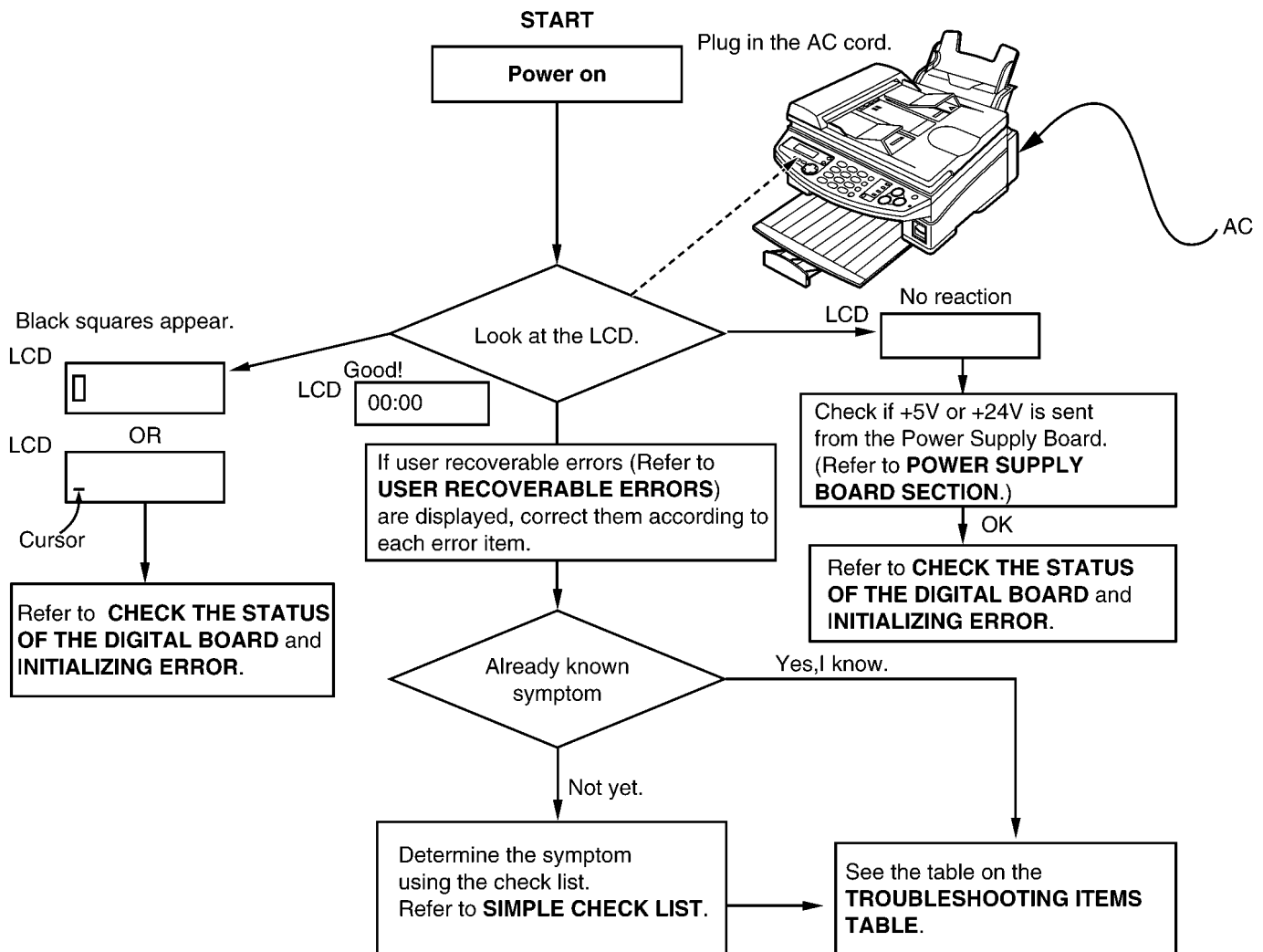
6.5. TROUBLESHOOTING DETAILS

6.5.1. OUT LINE

Troubleshooting is for recovering quality and reliability by determining the broken component and replacing, adjusting or cleaning it as required. First, determine the problem then decide the troubleshooting method. If you have difficulty finding the broken part, determine which board is broken. (For example: the Digital PCB, Analog PCB, etc.) The claim tag from a customer or dealer may use different expressions for the same problem, as they are not a technician or engineer. Using your experience, test the problem area corresponding to the claim. Also, returns from a customer or dealer often have a claim tag. For these cases as well, you need to determine the problem. Test the unit using the simple check list on **SIMPLE CHECK LIST** (P.66). Difficult problems may be hard to determine, so repeated testing is necessary.

6.5.2. STARTING TROUBLESHOOTING

Determine the symptom and the troubleshooting method.



CROSS REFERENCE:

USER RECOVERABLE ERRORS (P.52)

TROUBLESHOOTING ITEMS TABLE (P.66)

SIMPLE CHECK LIST (P.66)

CHECK THE STATUS OF THE DIGITAL BOARD (P.100)

INITIALIZING ERROR (P.101)

POWER SUPPLY BOARD SECTION(P.114)

6.5.3. TROUBLESHOOTING ITEMS TABLE

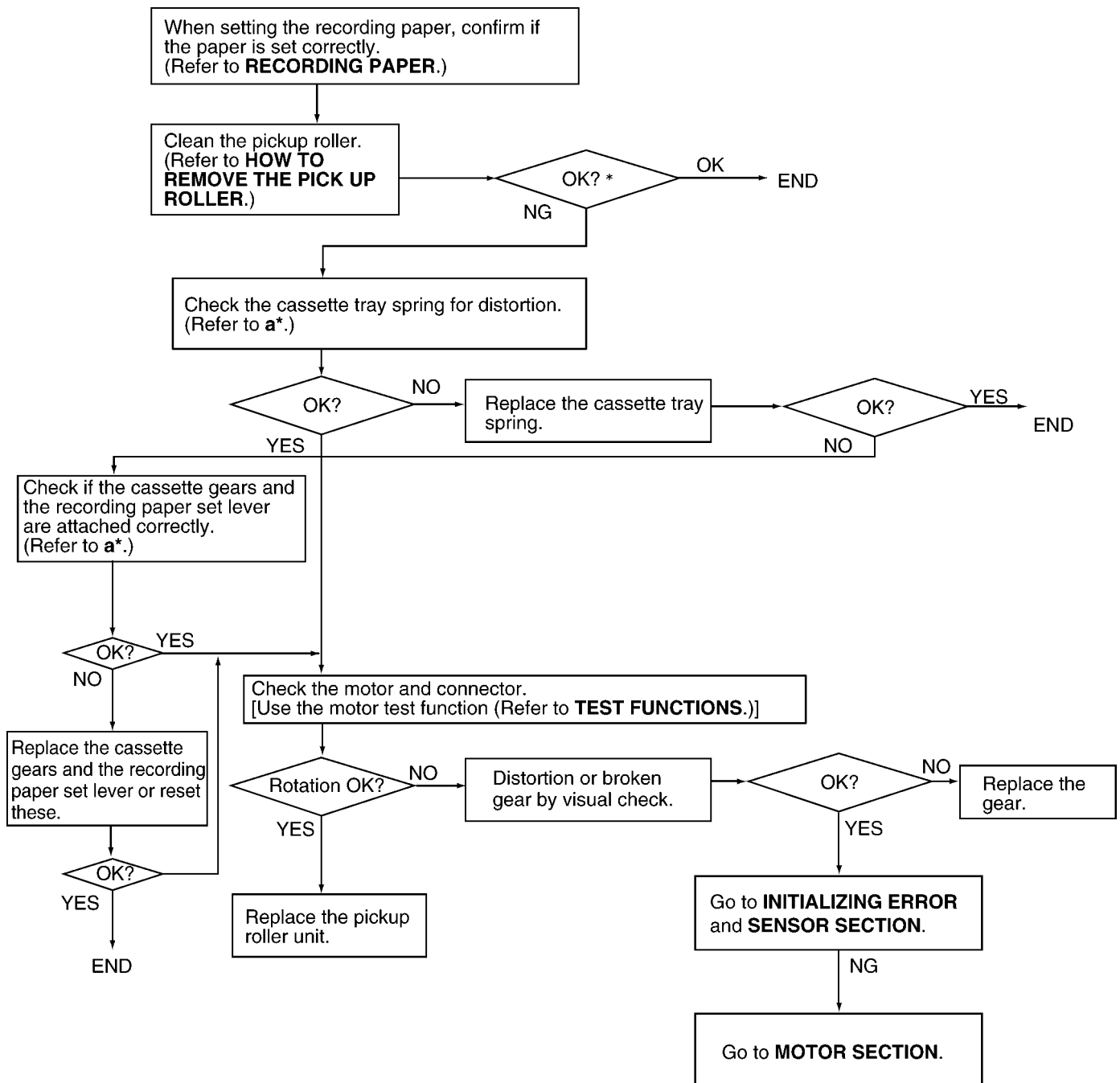
ITEM	SYMPTOM	REFERENCE
Recording paper feed	The recording paper does not feed.	See THE RECORDING PAPER DOES NOT FEED (P.67).
	Paper jammed	See PAPER JAMMED (P.68).
	Multiple feed and skew	See MULTIPLE FEED AND SKEW (P.69).
	The sent fax data is skewed.	See THE SENT FAX DATA IS SKEWED (P.69).
	The received fax data is skewed.	See THE RECEIVED FAX DATA IS SKEWED (P.69).
	The received or copied data is expanded.	See RECEIVED OR COPIED DATA IS EXPANDED (P.70).
	A black page is copied.	See A BLANK PAGE IS COPIED (P.71).
	A blank page is received.	See A BLANK PAGE IS RECEIVED (P.73).
	Black or white vertical line	See BLACK OR WHITE VERTICAL LINE (P.73).
	Black or white lateral line on print out	See BLACK OR WHITE LATERAL LINE (P.74).
	An abnormal image is printed	See AN ABNORMAL IMAGE IS PRINTED (P.75).
ADF (Auto Document Feeder)	No document feed.	See NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED (P.76).
	Document jam	
	Multiple feed	
	Skew (ADF/Scanner Glass)	See SKEW (P.78).
	The sent fax is skewed	See THE SENT FAX DATA IS SKEWED (P.79).
	The received fax data is skewed	See THE RECEIVED FAX DATA IS SKEWED (P.79).
	The recording or copied data is expanded	See THE RECEIVED OR COPIED DATA IS EXPANDED (P.80).
	Black or white vertical line is copied	See BLACK OR WHITE VERTICAL LINE IS COPIED (P.80).
	Abnormal image is copied	See AN ABNORMAL IMAGE IS COPIED (P.81).
Communication FAX, TEL (Analog board)	Cannot communicate by fax. An error code is displayed.	See COMMUNICATION SECTION (P.82).
	Cannot talk. The DTMF tone doesn't work. The handset / monitor doesn't work, etc.	See ANALOG BOARD SECTION (P.103).
Operation panel	Keys are not accepted.	See OPERATION BOARD SECTION (P.105).
Sensor	If the electric circuit is the cause, the error message corresponding to the sensor will be displayed.	See SENSOR SECTION (P.106).

6.5.3.1. SIMPLE CHECK LIST

SERIAL NO.		DATE	
FUNCTION		JUDGEMENT	REFERENCE
FAX operation	Transmission	OK / NG	
	Receiving	OK / NG	
Copy operation	Copy by ADF	OK / NG	
	Copy by Flat Bed	OK / NG	
Telephone operation	Handset transceiver / receiver	OK / NG	
	MONITOR sound	OK / NG	
	Ringer sound	OK / NG	
	Dial operation	OK / NG	
	Volume operation	OK / NG	
	VOX detection	OK / NG	Service code #815 (Refer to TEST FUNCTIONS (P.57))
Operation Panel	Key check	OK / NG	Service code #561 (Refer to TEST FUNCTIONS (P.57))
	LED check	OK / NG	Service code #557 (Refer to TEST FUNCTIONS (P.57))
	LCD check	OK / NG	Service code #558 (Refer to TEST FUNCTIONS (P.57))
Sensor	Sensor check	OK / NG	Service code #815 (Refer to TEST FUNCTIONS (P.57))
Clock	Display changing	OK / NG	Is the time kept correctly? Check with another clock.
EXT. TAM	Handset transceiver / receiver	OK / NG	
	Remote control	OK / NG	

6.5.4. RECORDING PAPER FEED

6.5.4.1. THE RECORDING PAPER DOES NOT FEED



* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

a* : **UPPER PRINTER COVER SECTION AND PAPER TRAY SECTION** (P.174)

RECORDING PAPER (P.13)

HOW TO REMOVE THE PICK UP ROLLER(P.42)

TEST FUNCTIONS (P.57)

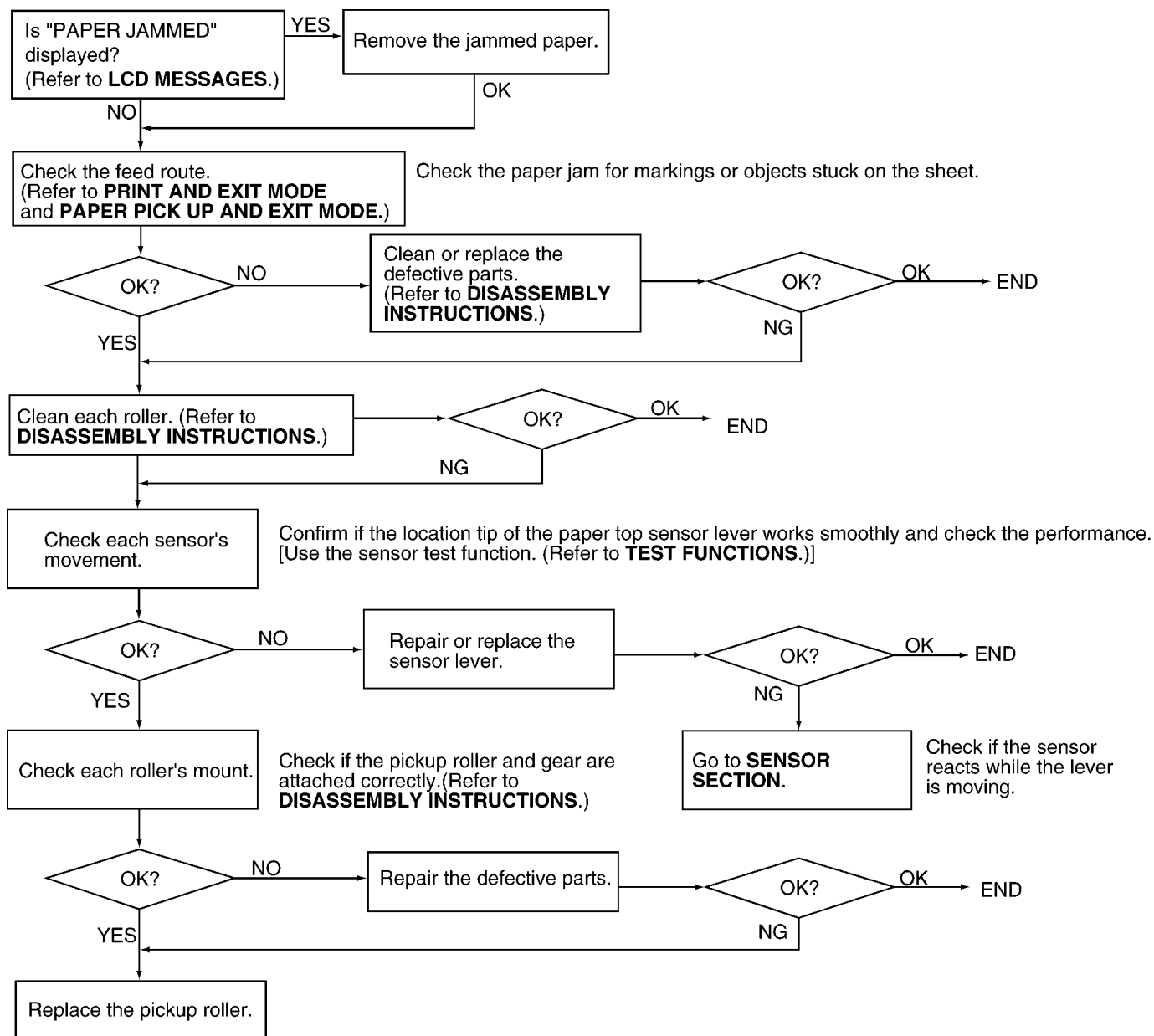
CHECK THE STATUS OF THE DIGITAL BOARD (P.100)

INITIALIZING ERROR (P.101)

SENSOR SECTION (P.106)

MOTOR SECTION (P.109)

6.5.4.2. PAPER JAMMED



CROSS REFERENCE:

PRINT AND EXIT MODE (P.20)

PAPER PICK UP AND EXIT MODE (P.20)

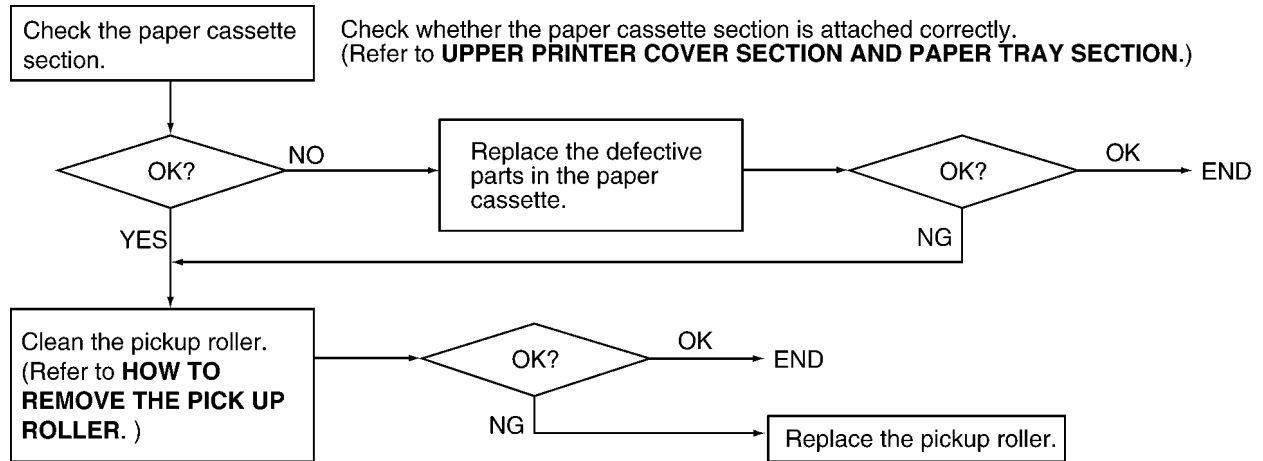
DISASSEMBLY INSTRUCTIONS (P.28)

TEST FUNCTIONS (P.57)

SENSOR SECTION (P.106)

SENSORS AND SWITCHES SECTION (P.138)

6.5.4.3. MULTIPLE FEED AND SKEW

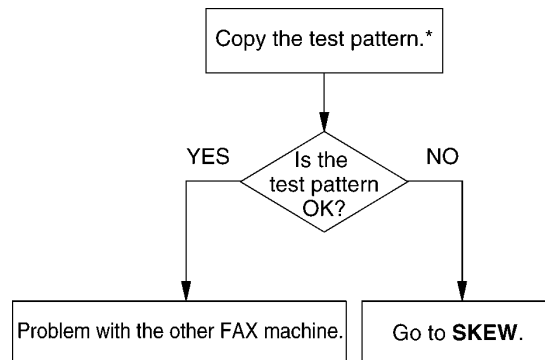


CROSS REFERENCE:

HOW TO REMOVE THE PICK UP ROLLER (P.42)

UPPER PRINTER COVER SECTION AND PAPER TRAY SECTION (P.174)

6.5.4.4. THE SENT FAX DATA IS SKEWED

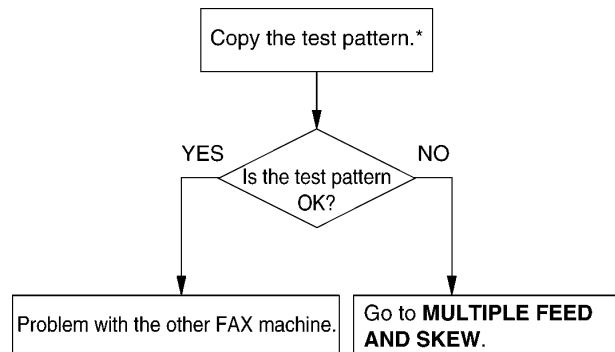


* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

SKEW (P.78)

6.5.4.5. THE RECEIVED FAX DATA IS SKEWED

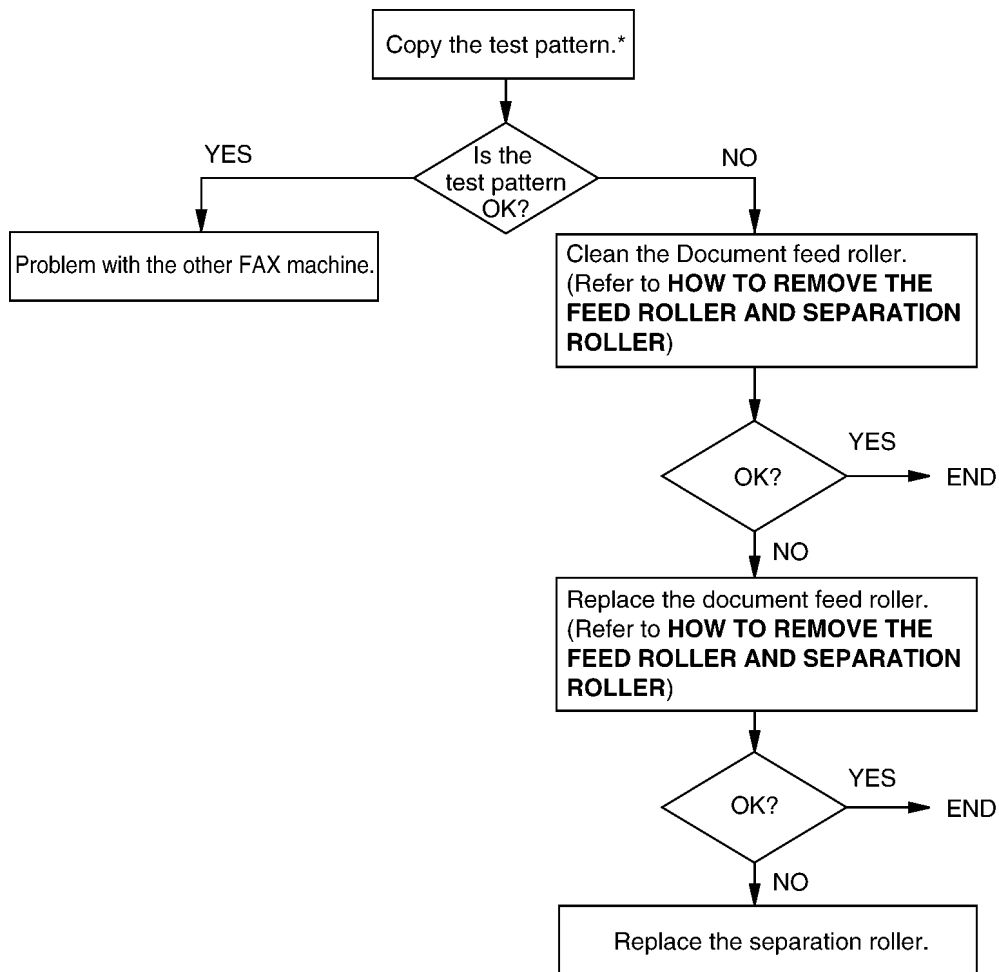


* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

MULTIPLE FEED AND SKEW (P.69)

6.5.4.6. RECEIVED OR COPIED DATA IS EXPANDED

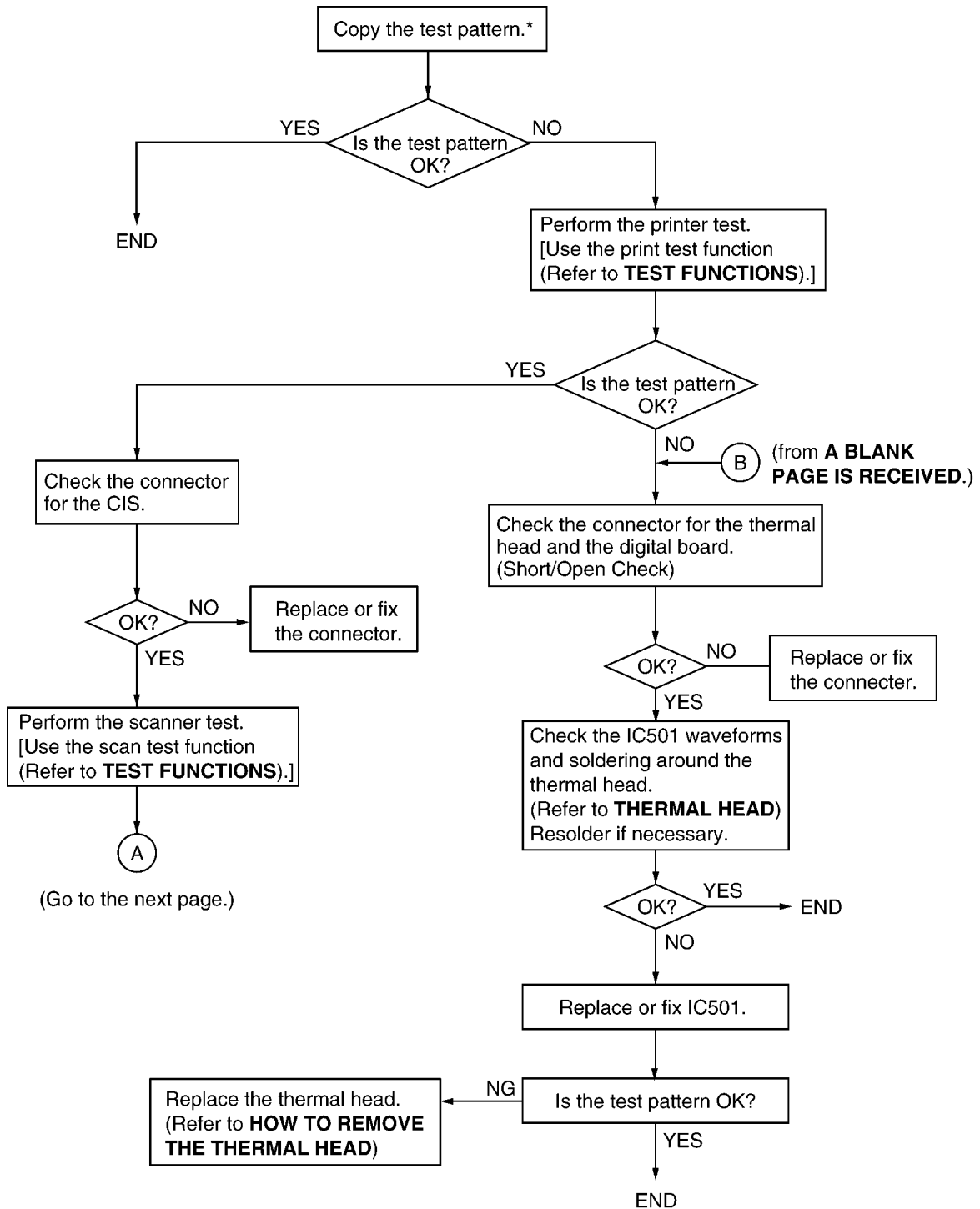


* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED, DOCUMENT JAM** and **MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

HOW TO REMOVE THE FEED ROLLER AND SEPARATION ROLLER (P.39)

6.5.4.7. A BLANK PAGE IS COPIED



* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

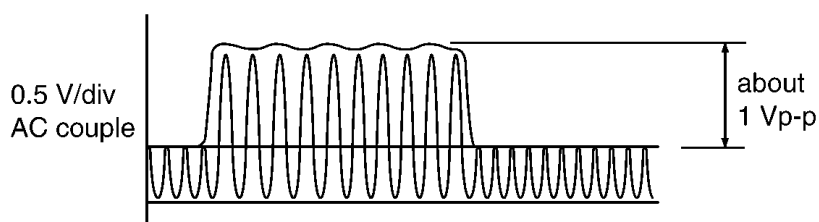
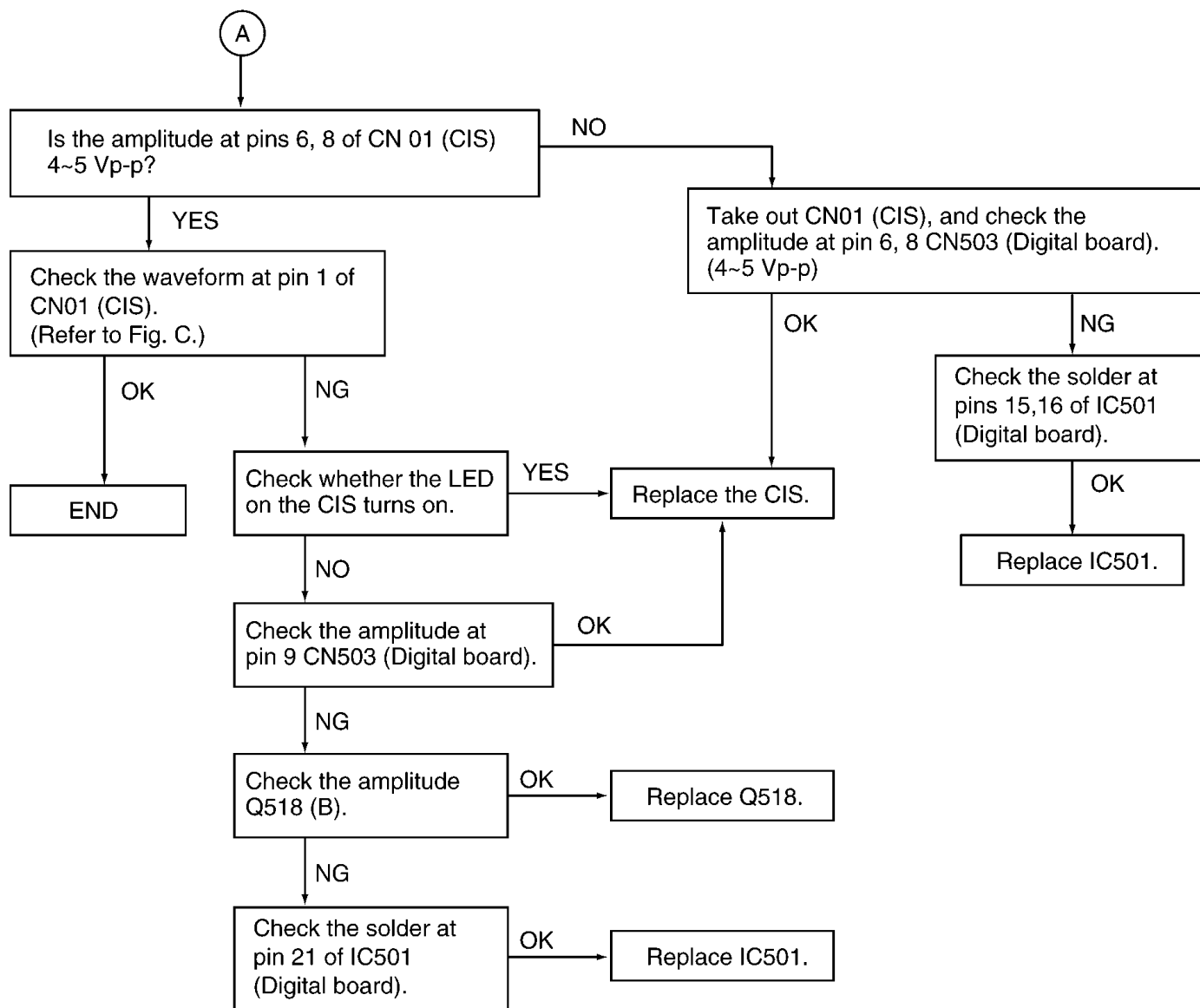
HOW TO REMOVE THE THERMAL HEAD (P.34)

TEST FUNCTIONS (P.57)

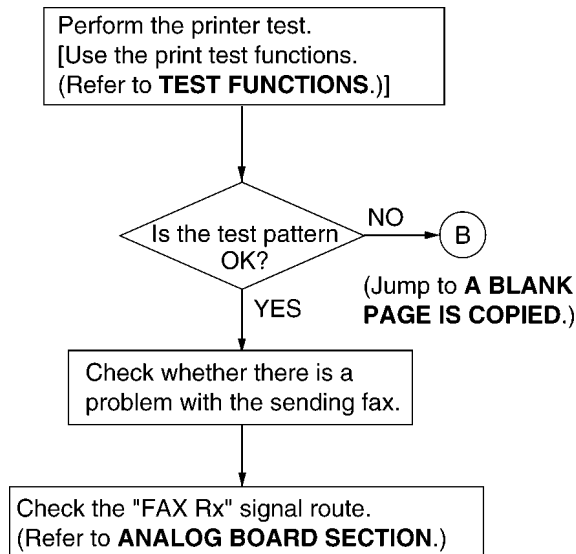
A BLANK PAGE IS RECEIVED (P.73)

THERMAL HEAD (P.113)

(From the previous)



6.5.4.8. A BLANK PAGE IS RECEIVED



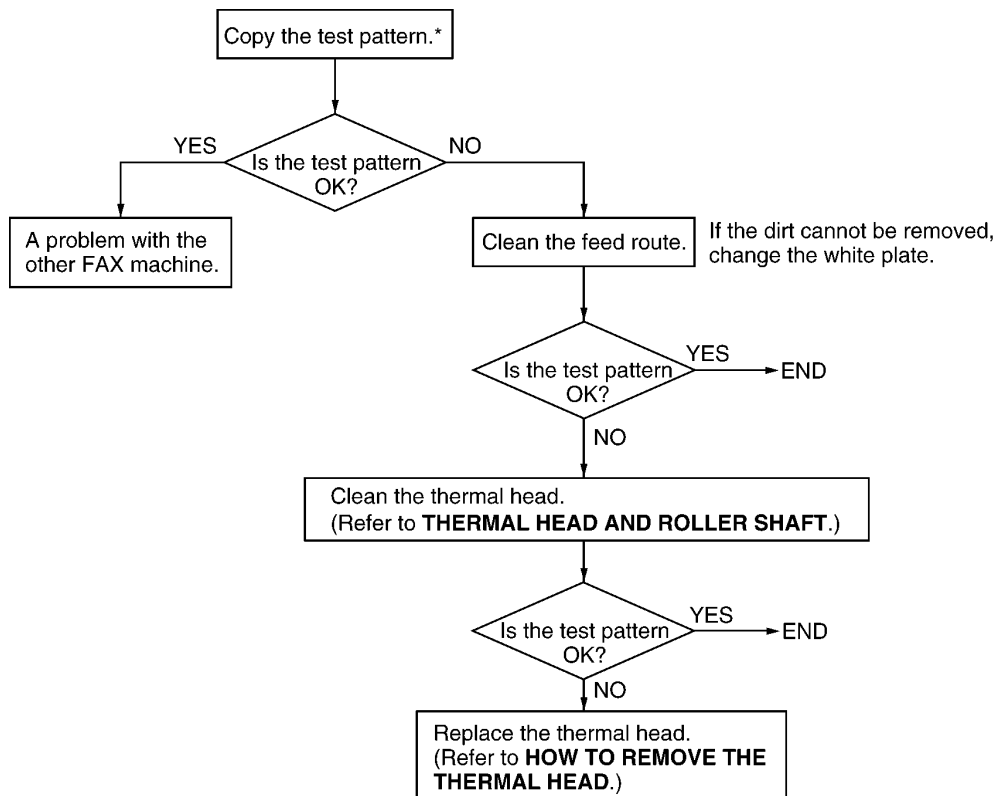
CROSS REFERENCE:

TEST FUNCTIONS (P.57)

A BLANK PAGE IS COPIED (P.71)

ANALOG BOARD SECTION (P.103)

6.5.4.9. BLACK OR WHITE VERTICAL LINE



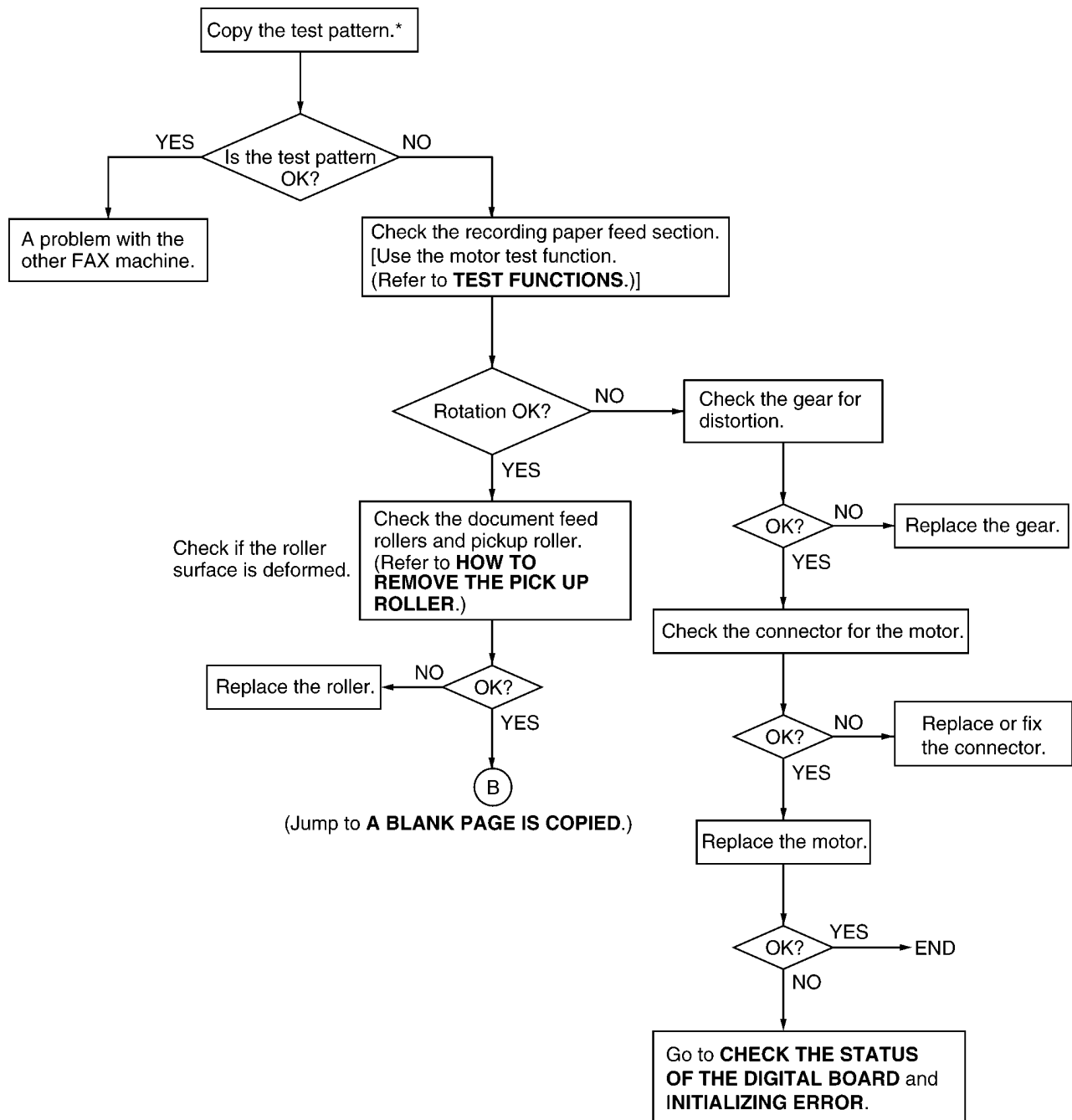
* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED**, **DOCUMENT JAM** and **MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

THERMAL HEAD AND ROLLER SHAFT (P.23)

HOW TO REMOVE THE THERMAL HEAD (P.34)

6.5.4.10. BLACK OR WHITE LATERAL LINE



* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED**, **DOCUMENT JAM** and **MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

HOW TO REMOVE THE PICK UP ROLLER (P.42)

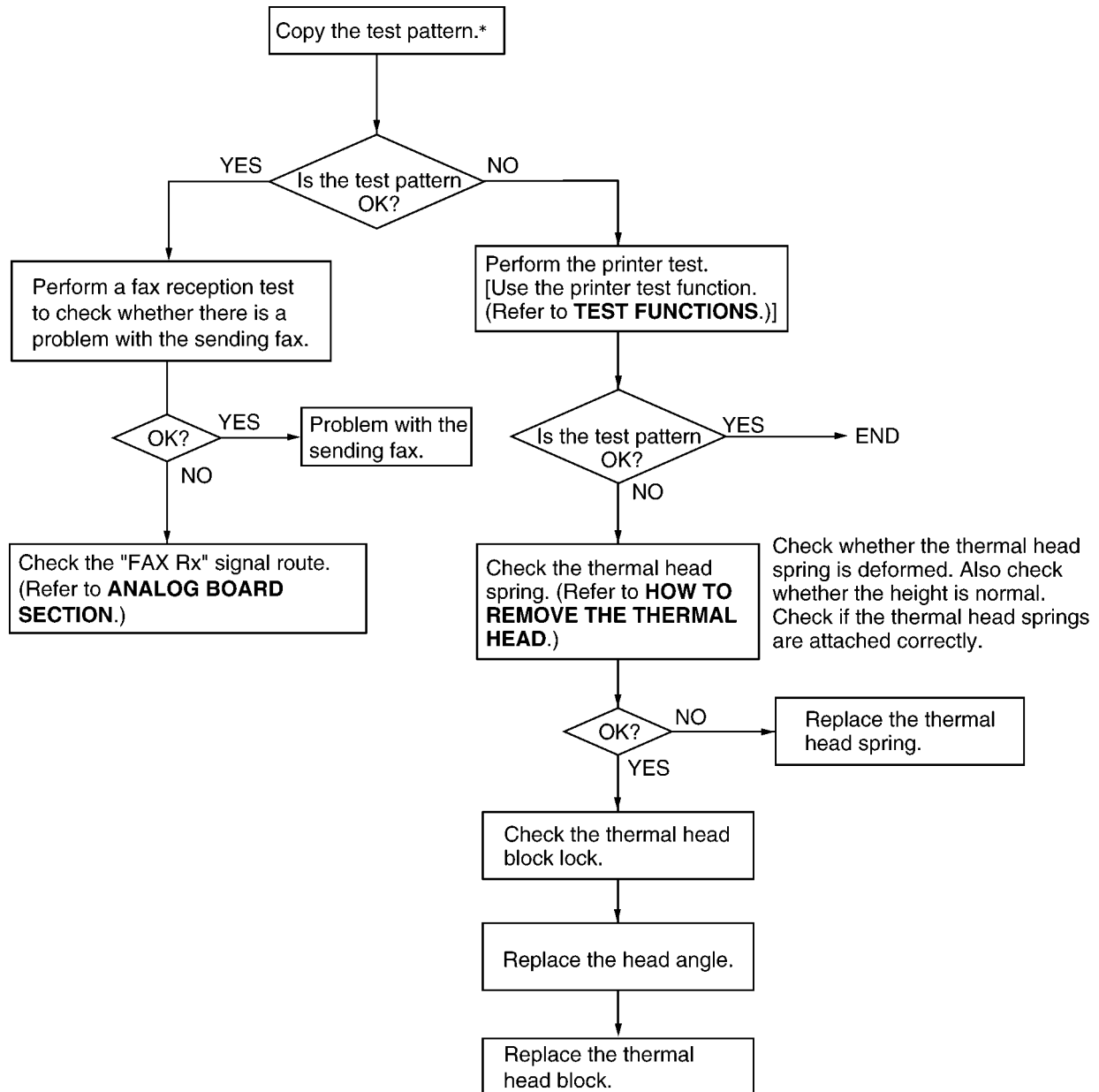
TEST FUNCTIONS (P.57)

A BLANK PAGE IS COPIED (P.71)

CHECK THE STATUS OF THE DIGITAL BOARD (P.100)

INITIALIZING ERROR (P.101)

6.5.4.11. AN ABNORMAL IMAGE IS PRINTED



* We recommend making a copy of the Fig. b document in **NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED**(P.76) and using it.

CROSS REFERENCE:

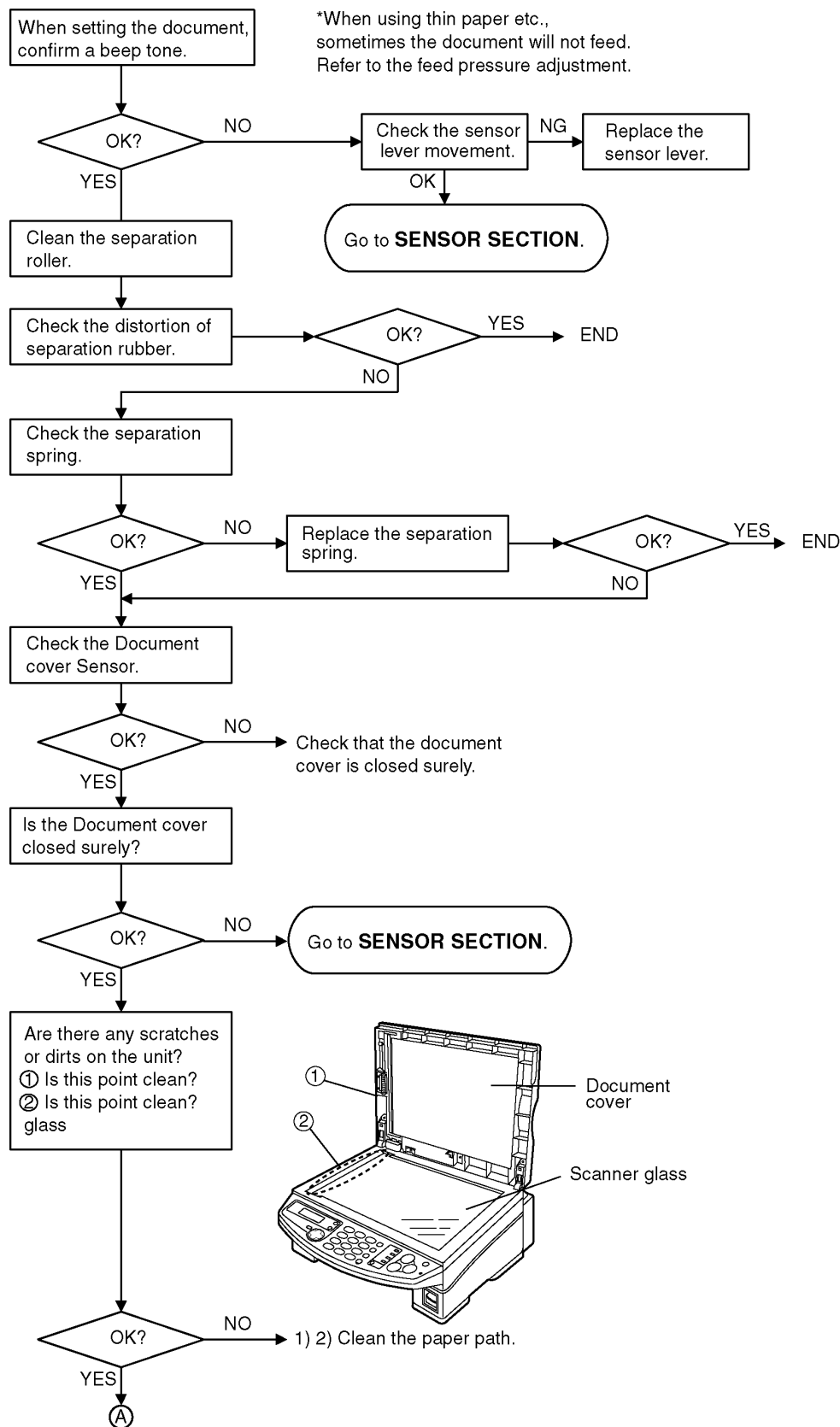
HOW TO REMOVE THE THERMAL HEAD (P.34)

TEST FUNCTIONS (P.57)

ANALOG BOARD SECTION (P.103)

6.5.5. ADF (Auto document feed) SECTION

6.5.5.1. NO DOCUMENT FEED, DOCUMENT JAM and MULTIPLE DOCUMENT FEED



CROSS REFERENCE:

SENSOR SECTION (P.106)

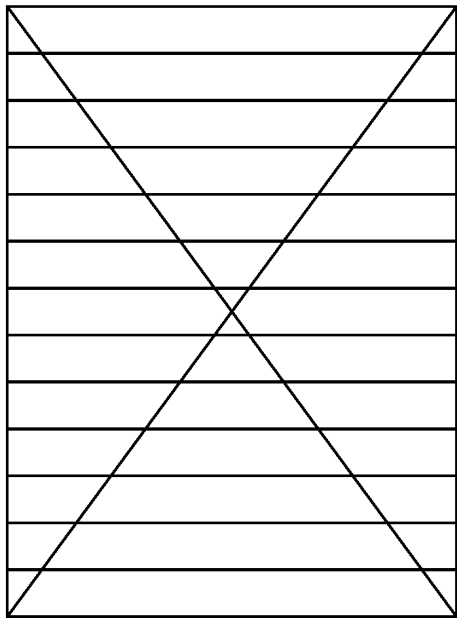
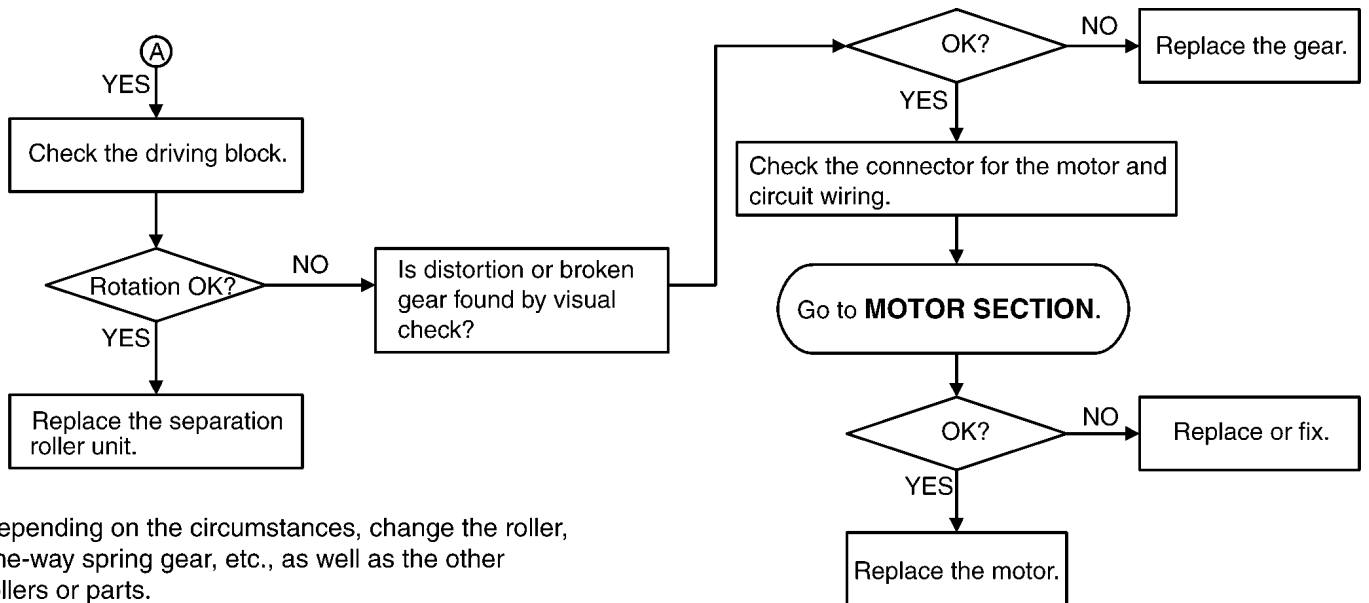


Fig. b

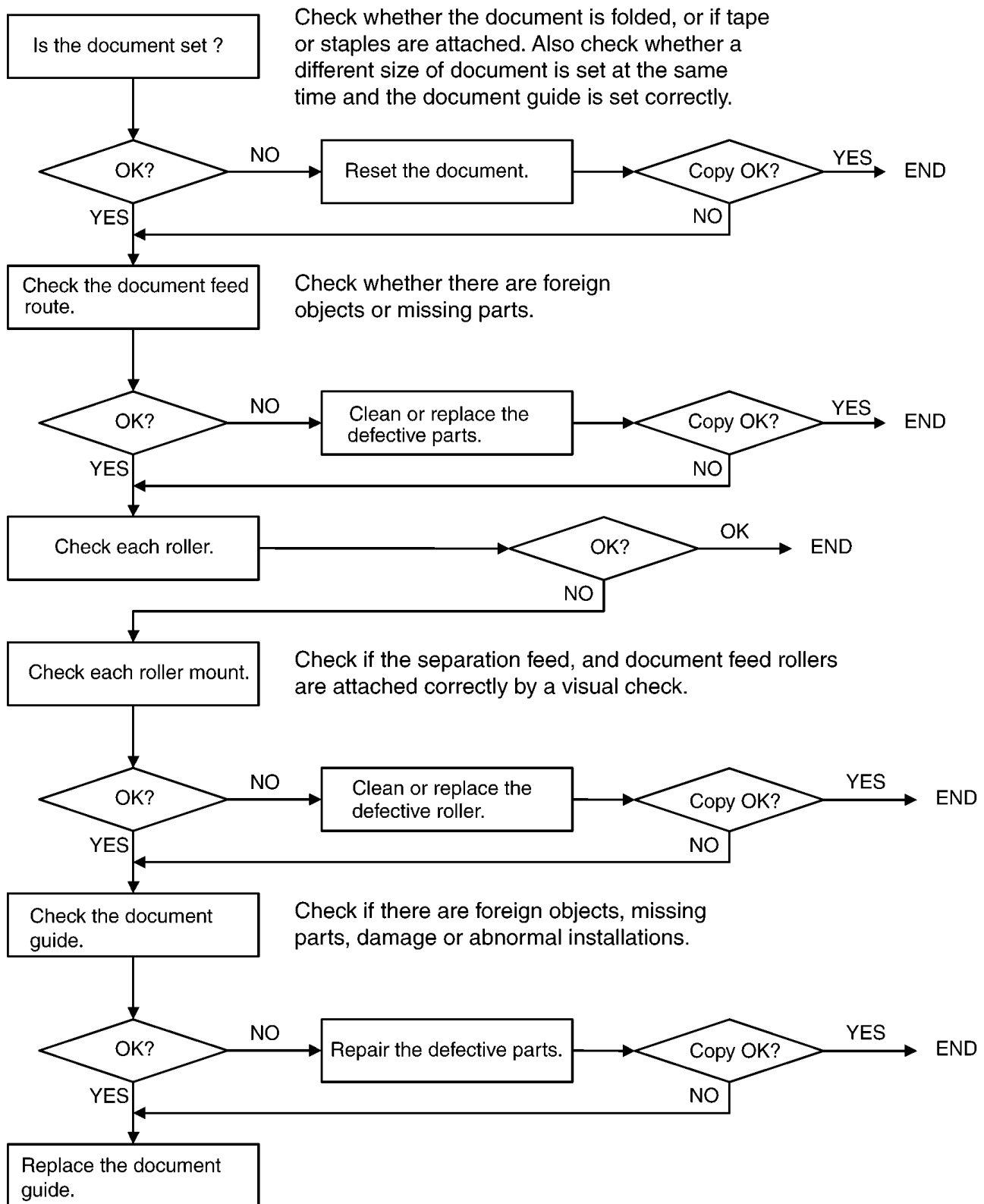
When confirming if the characters are extended or distorted on, if the feed problem occurs, use this test chart. (Fig. b)

CROSS REFERENCE:

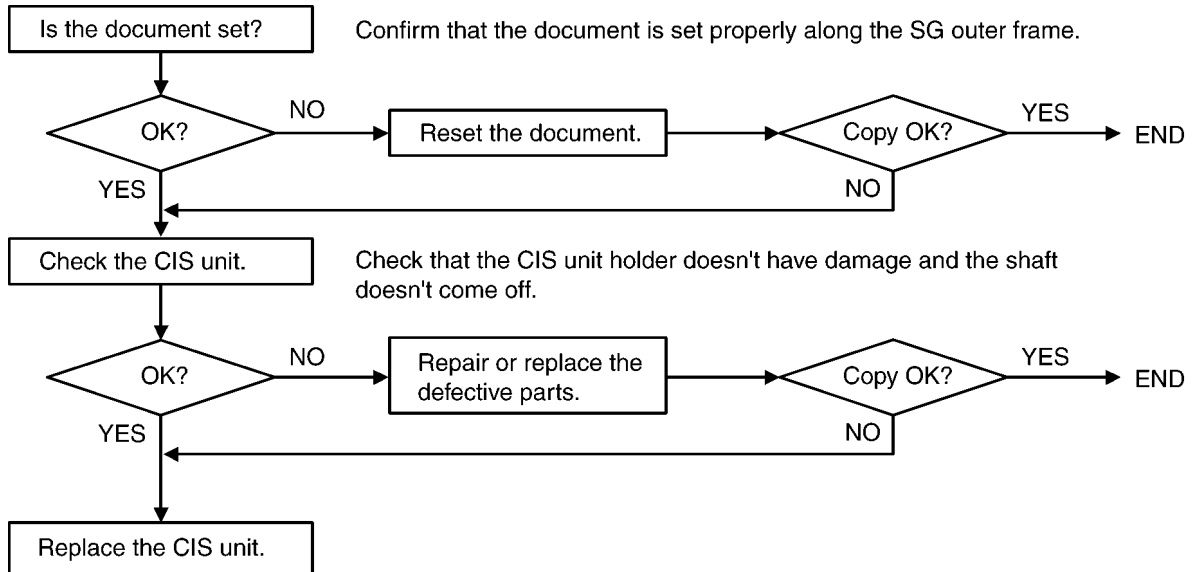
MOTOR SECTION (P.109)

6.5.5.2. SKEW

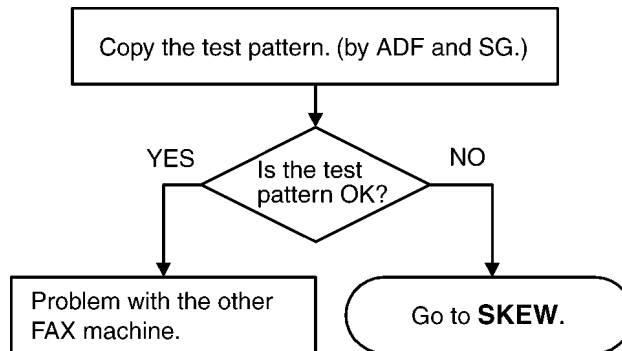
6.5.5.2.1. ADF



6.5.5.2.2. SCANNER GLASS



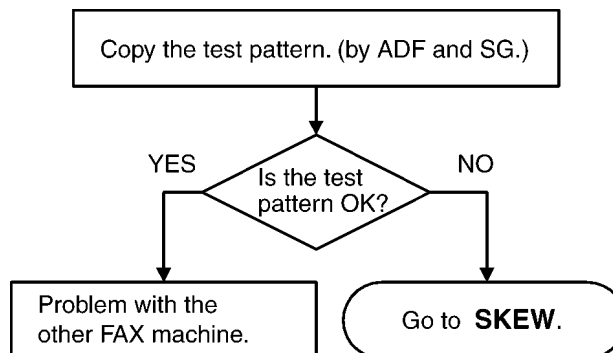
6.5.5.3. THE SENT FAX DATA IS SKEWED



CROSS REFERENCE:

SKEW (P.78)

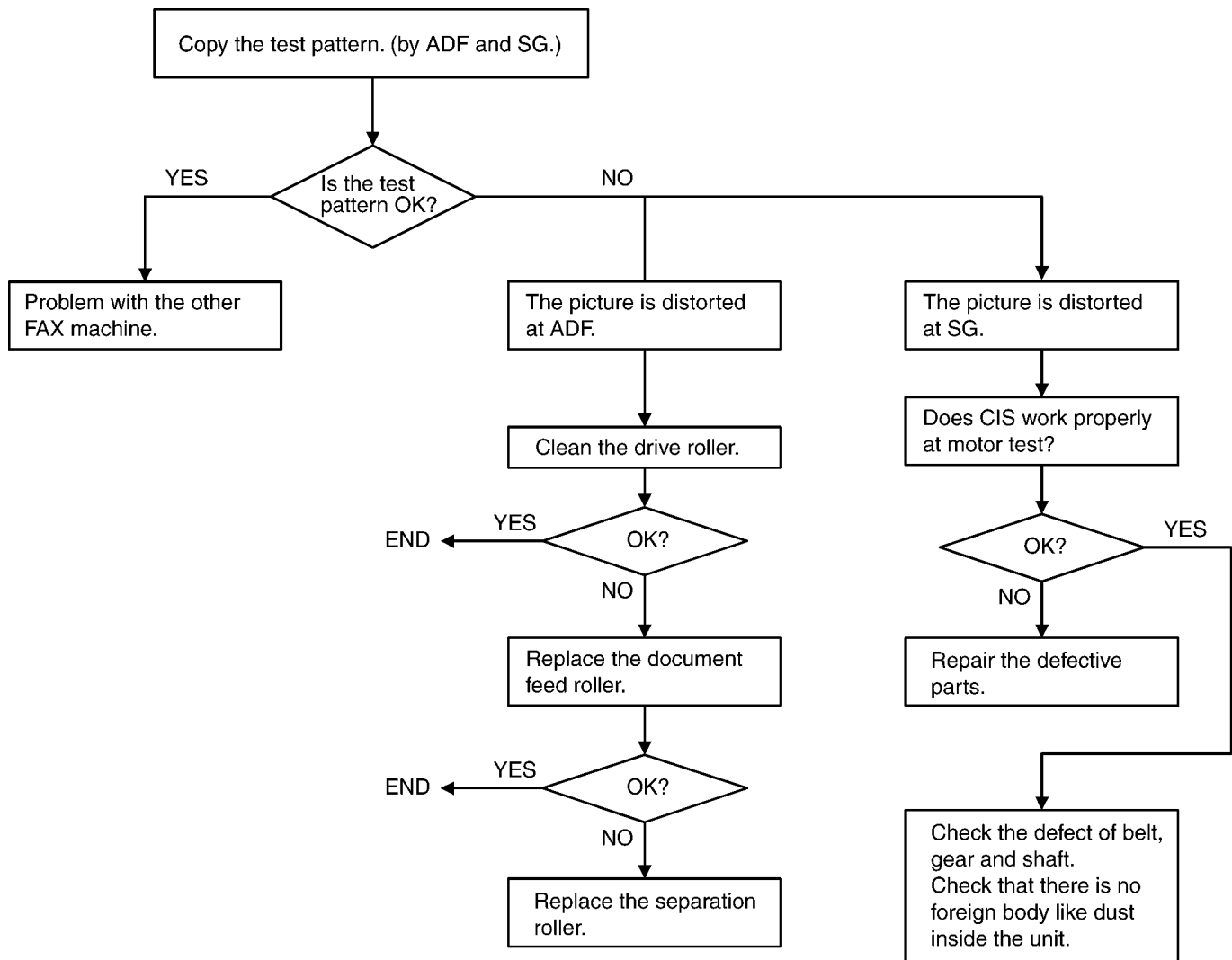
6.5.5.4. THE RECEIVED FAX DATA IS SKEWED



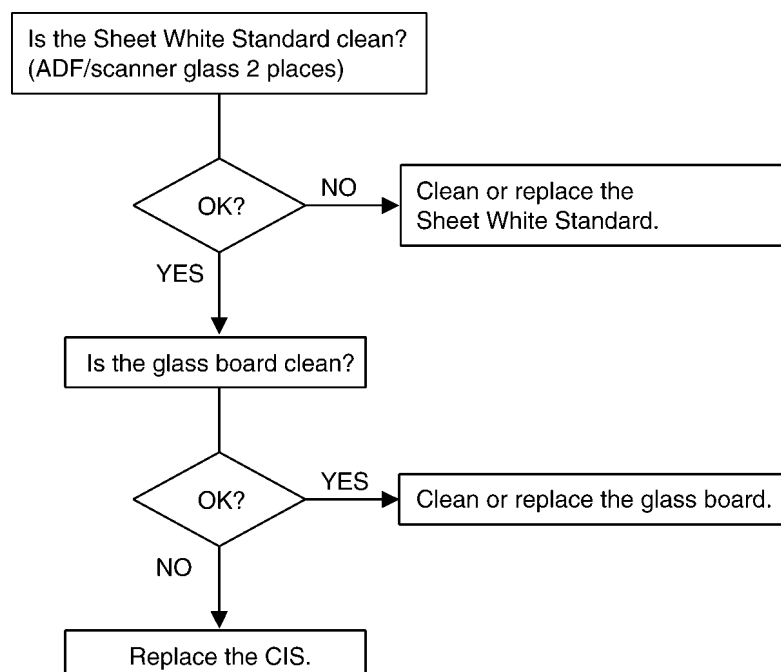
CROSS REFERENCE:

MULTIPLE FEED AND SKEW (P.69)

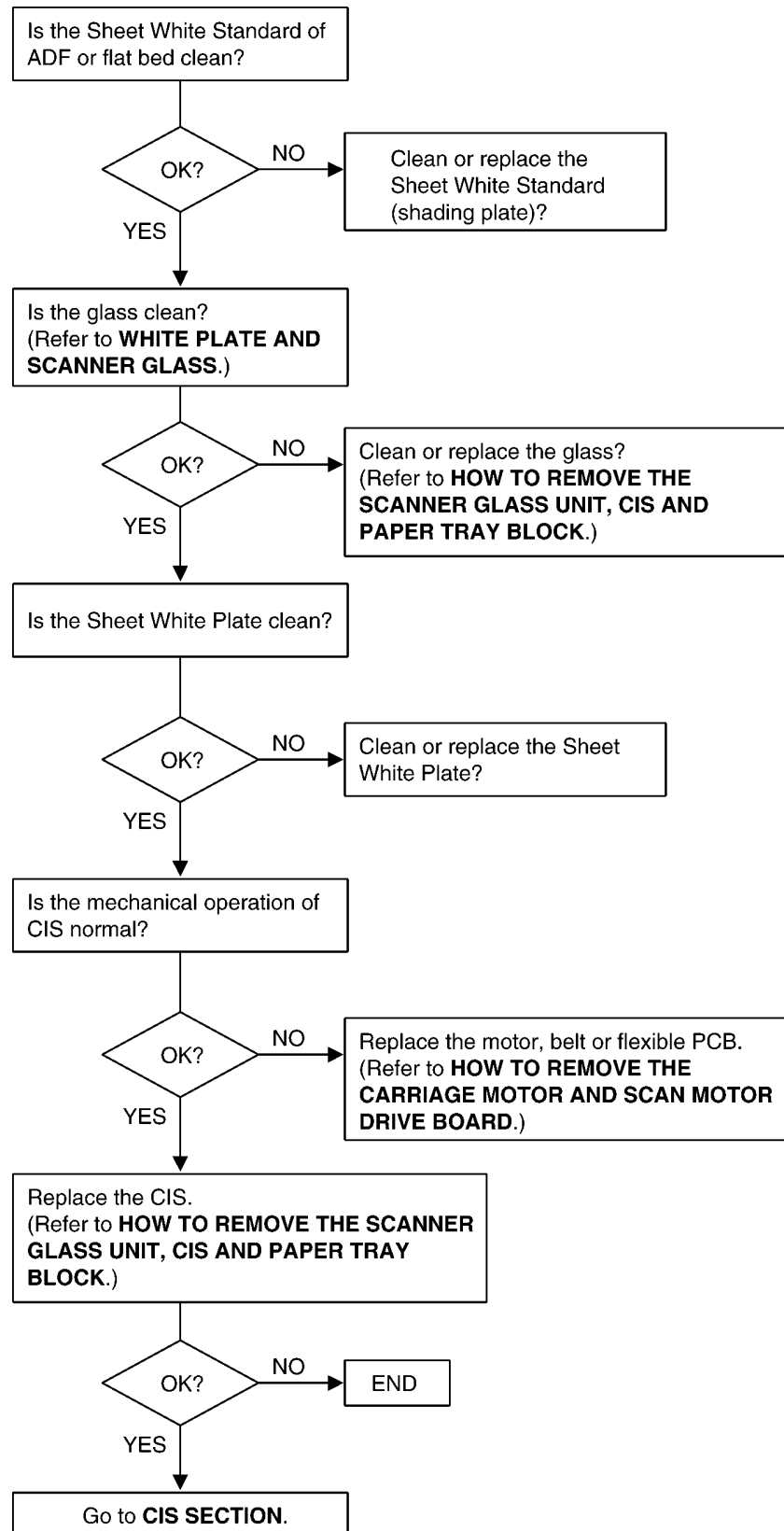
6.5.5.5. THE RECEIVED OR COPIED DATA IS EXPANDED



6.5.5.6. BLACK OR WHITE VERTICAL LINE IS COPIED



6.5.5.7. AN ABNORMAL IMAGE IS COPIED



CROSS REFERENCE:

WHITE PLATE AND SCANNER GLASS (P.22)

HOW TO REMOVE THE SCANNER GLASS UNIT, CIS AND PAPER TRAY BLOCK (P.45)

HOW TO REMOVE THE CARRIAGE MOTOR AND SCAN MOTOR DRIVE BOARD (P.46)

CIS (Contact Image Sensor) SECTION (P.112)

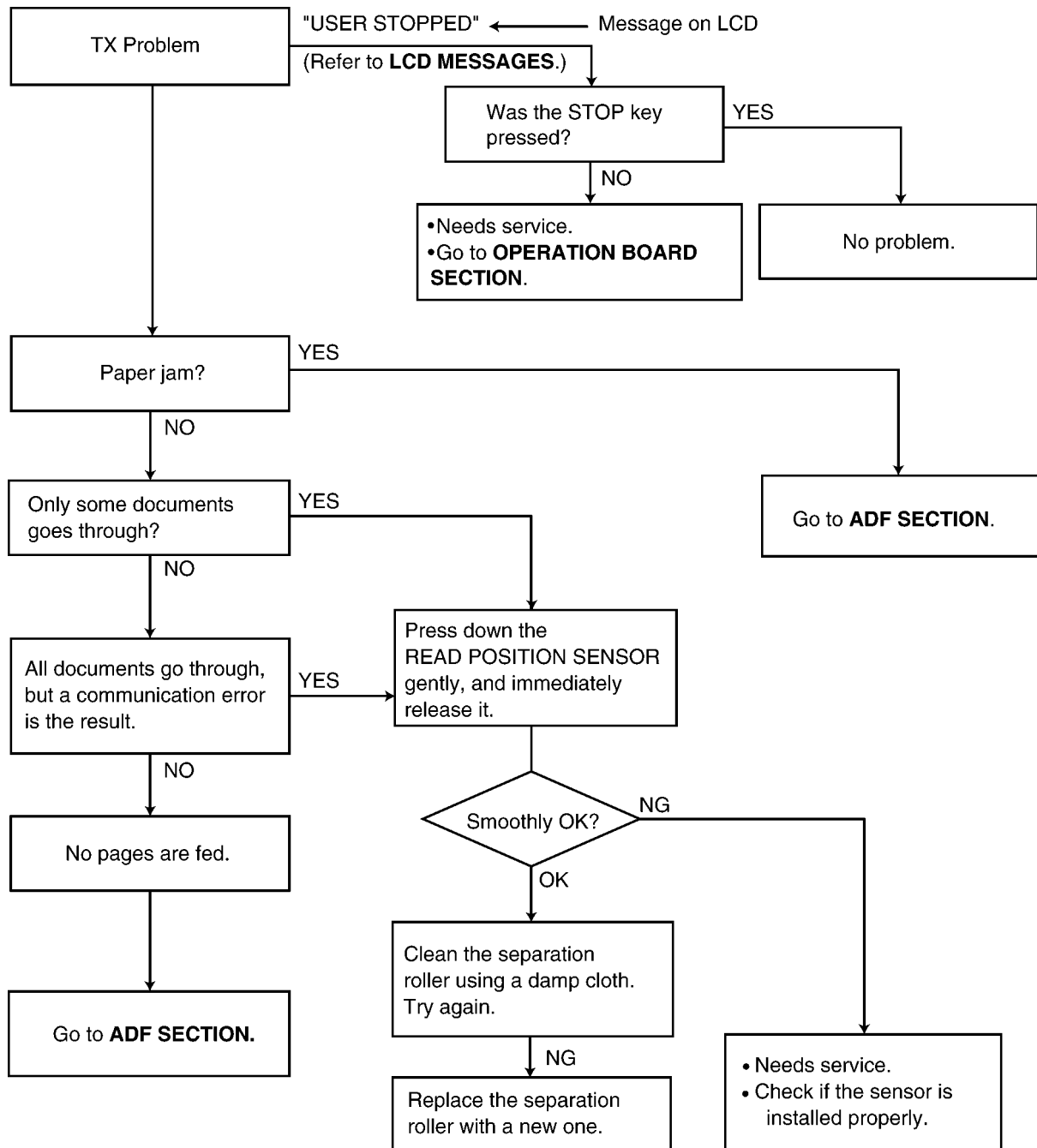
6.5.6. COMMUNICATION SECTION

Find the problem in the table shown below, and refer to the corresponding troubleshooting procedure in **DEFECTIVE FACSIMILE SECTION** (P.83).

No.	Symptom	Content	Possible cause
1	The paper dose not feed properly when faxing. (Copying is also not possible.)	Troubleshooting	Problem with the feeding mechanism. (Refer to TRANSMIT PROBLEM (P.83).)
2	The fax transmits successsfully one time and fails another. (Copying is also possible.)	Troubleshooting	Problem with the service line or with the receiver's fax. (Refer to SOMETIME THERE IS A TRANSMIT PROBLEM (P.84).)
3	The fax receives successsfully one time and fails another. (Copying is also possible.)	Troubleshooting	Problem with the service line or with the transmitter's fax. (Refer to RECEIVE PROBLEM (P.85).)
4	The fax completely fails to transmit or receive. (Copying is also possible.)	Troubleshooting	Problem with the electric circuit. (Refer to THE UNIT CAN COPY, BUT CANNOT TRANSMIT/RECEIVE (P.86).)
5	The fax fails either to transmit or receive when making a long distance or an international call. (Copying is also possible.)	Detailed description of the possible causes (Similar to troubleshooting items No.2 and No.3.)	Problem with the service line.
6	The fax image is poor when transmitting or receiving during a long distance or international call.		
7	No.1-No.5	The troubleshooting procedure for each error code will be printed on the communication result report.	(Refer to HOW TO OUTPUT THE JOURNAL REPORT (P.91).)

6.5.6.1. DEFECTIVE FACSIMILE SECTION

6.5.6.1.1. TRANSMIT PROBLEM

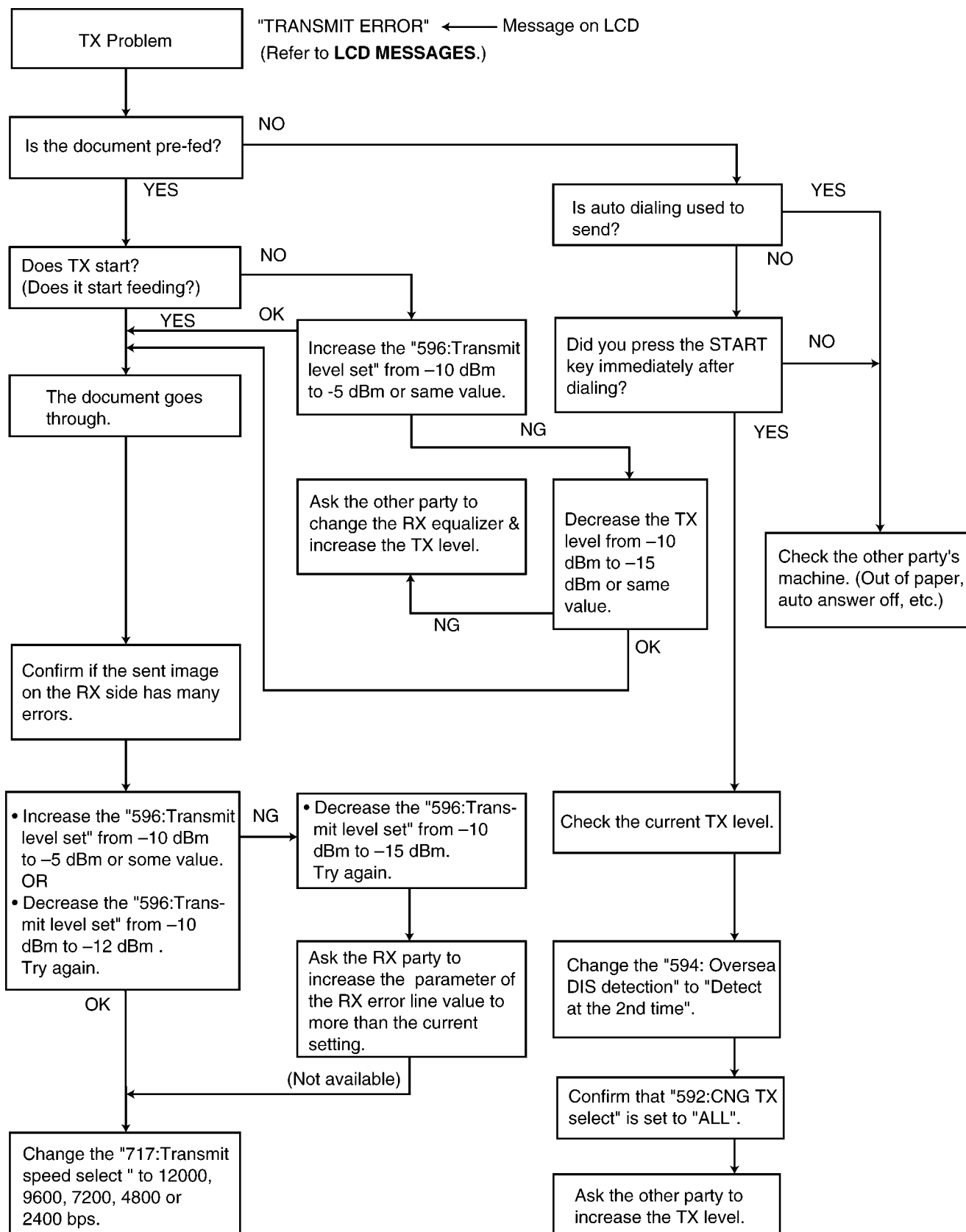


CROSS REFERENCE:

ADF (Auto document feed) SECTION (P.76)

OPERATION BOARD SECTION (P.105)

6.5.6.1.2. SOMETIME THERE IS A TRANSMIT PROBLEM



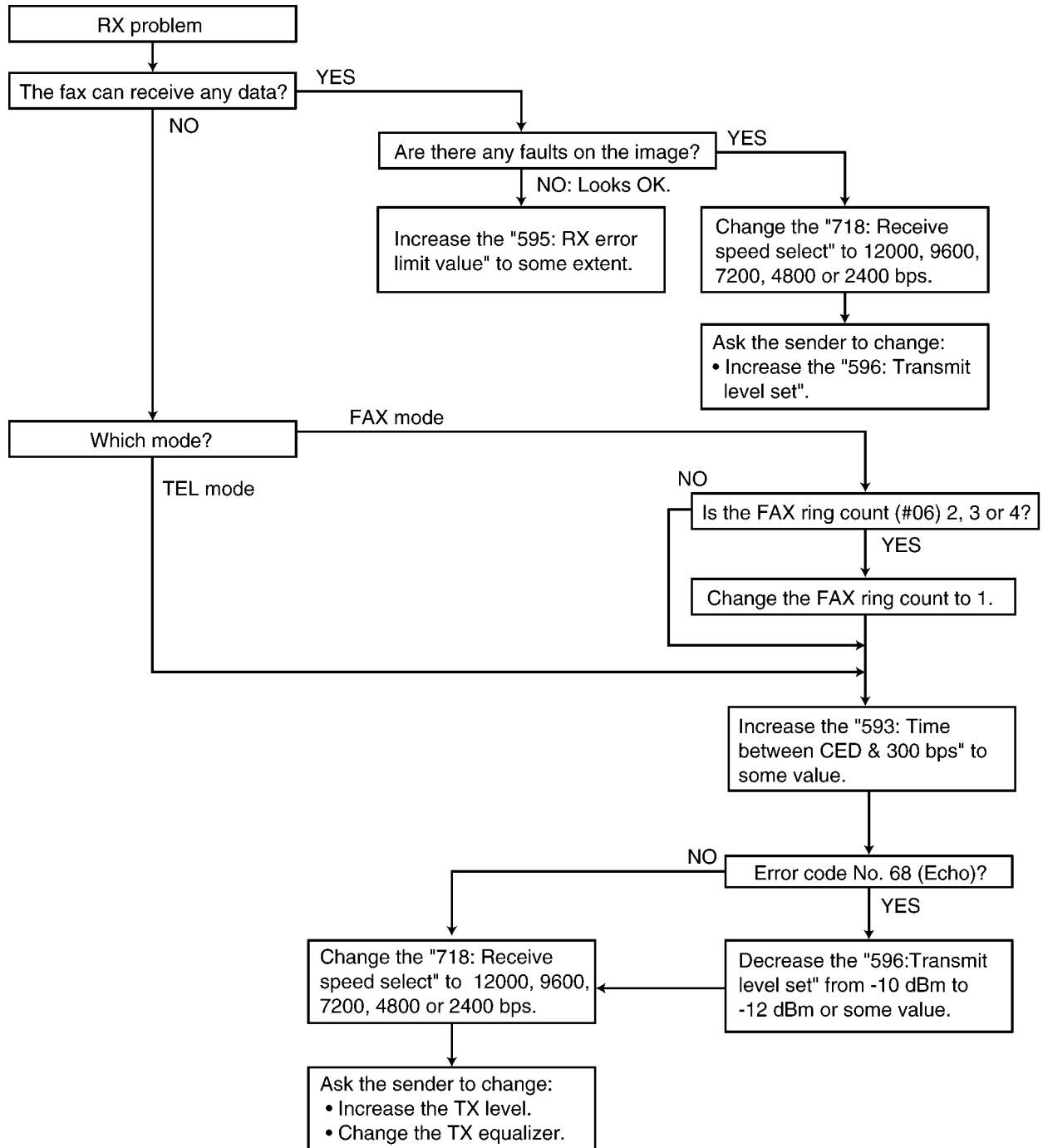
Note:

"596: Transmit level set" represents a service code. Refer to the **SERVICE FUNCTION TABLE** (P.55).

6.5.6.1.3. RECEIVE PROBLEM

Confirm the following before starting troubleshooting.

- Is the recording paper installed properly? Refer to the next page.



Note:

"596: Transmit level set" represents a service code. Refer to the **SERVICE FUNCTION TABLE** (P.55).

Remarks:

Regarding the reception problem, we have investigated the conceivable causes in the flow chart except for the software-related errors. However, some troubles may occur due to the software-related problems such as "OUT OF PAPER" when the fax switches to the memory receiving mode and the memory capacity becomes full of the unprintable data. In this case, error messages [MEMORY FULL] and its main cause, for example "CHECK PAPER" are displayed on the LCD. Once you solve the main problem, [MEMORY FULL] will be cancelled and the reception problem will be resolved.

LCD display messages indicating the error causes are shown below.

CHECK PAPER

COVER OPEN

UNIT OVERHEATED (COVER OPEN, etc.)...Reset the unit.

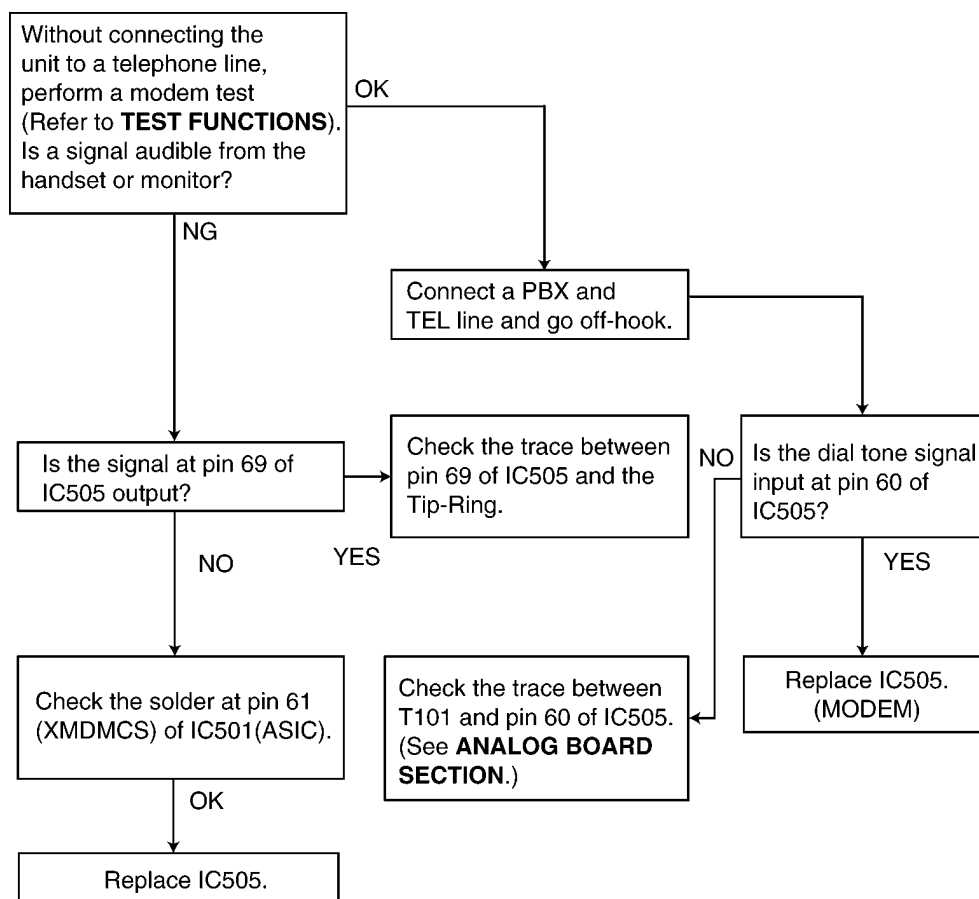
PAPER JAMMED

CHECK FILM

Please refer to **USER RECOVERABLE ERRORS** (P.52) for the above items.

Also, when it actually becomes a hardware deformity, please check each sensor. (Refer to **TEST FUNCTIONS** (P.57).)

6.5.6.1.4. THE UNIT CAN COPY, BUT CANNOT TRANSMIT/RECEIVE

**CROSS REFERENCE:**

TEST FUNCTIONS (P.57)

ANALOG BOARD SECTION (P.103)

6.5.7. SPECIAL SERVICE JOURNAL REPORTS

Journal 2 and Journal 3 shown below, which are special journals giving the additional detailed information about the latest 35 communications, can be printed by Service Code 881 or 882. Remote printing function for the journal reports (JOURNAL, JOURNAL 2 and JOURNAL 3) is also available for service technicians. (Refer to **PROGRAM MODE TABLE**(P.61).) The JOURNAL report only gives you basic information about a communication, but the other two journal reports provide different information on the same item (communication).

JOURNAL

Mar. 23 2002 09:51AM

YOUR LOGO :
YOUR FAX NO:

NO.	OTHER FACSIMILE	START TIME	USAGE TIME	MODE	PAGES	RESULT	*CODE
01	3332222	Jan. 21 02:14PM	00'45	SND	01	OK	
02	9998765	Jan. 21 03:17PM	00'58	SND	02	OK	
03	John	Jan. 21 05:18PM	00'48	RCV	01	OK	
04	555556677	Jan. 22 10:35AM	02'45	RCV	03	COMMUNICATION ERROR	(46)

JOURNAL 2

Mar. 23 2002 09:51AM

NO.	(1) RCV. MODE	(2) SPEED (CNT.)	(3) RESOLUTION	(4) RCV-TRIG. (CNT.)	(5) ERROR->MEMORY
01	TEL	9600BPS	STD.		
02	TEL	9600BPS	FINE		
03	FAX ONLY	7200BPS	STD.	FAX MOD	
04	FAX ONLY	9600BPS	STD.	CNG (0003)	

NO RESPONSE DISAPPEARED ON JOURNAL

NO.	START TIME	(1) RCV MODE	(4) RCV-TRIG (CNT.)
YOUR LOGO			
YOUR FAX NUMBER			

JOURNAL 3

Mar. 23 2002 09:51AM

NO.	(6) ENCODE	(7) MSLT	(8) EQM (RX)	(9) ERROR LINE (RX)	(10) MAKER CODE
01	MH	20msec	0000	00000	79
02	MH	20msec	0000	00000	00
03	MR	20msec	1200	00013	00
04	MR	20msec	0000	00000	00

HOW TO READ JOURNAL REPORTS:

Example:

- Look at **NO. 01** in the JOURNAL. If you want to know about the details about that item, see **NO. 01** in the JOURNAL 2 and the JOURNAL 3. You can get the following information.

- * MODE: Fax transmission
- * RCV. MODE: TEL
- * TX SPEED: 9.6 kbps
- * RESOLUTION: standard
- * ENCODE: MH
- * MAKER CODE: 79

- Look at **NO. 04** in the JOURNAL 2. CNG (0003) indicates that the CNG signal has been received three times since the purchase date.

For further details, see **JOURNAL 2** and **JOURNAL 3**.

6.5.7.1. JOURNAL 2

Refer to JOURNAL 2 in **PRINTOUT EXAMPLE**(P.89).

Journal 2 displays the additional detailed information about the last 35 communications.

Descriptions:

(1) RCV. MODE

Indicates which receive mode the unit was in when the unit received a fax message.

This information is also displayed when the unit transmitted a fax message.

(2) SPEED

Indicates the speed of the communication. If multiple pages are transmitted or received, it indicates the last page's communication speed. If there is a communication error, "?" is displayed.

(3) RESOLUTION

Indicates the resolution of the communication. If multiple pages are transmitted or received, it indicates the last page's resolution. If there is a communication error, "?" is displayed.

(4) RCV-TRIG. (CNT.)

Indicates the trigger that causes the unit to switch to the fax receive mode. The available options are listed in JOURNAL 2 in **PRINTOUT EXAMPLE**(P.89). The values in parentheses indicate how many times the trigger has been used. (For example, "0003" means three times.)

No.	Display	Function
1	FAX MODE	Means the unit received a fax message in the FAX mode.
2	MAN RCV	Means the unit received a fax message by manual operation.
3	RMT DTMF	Means the unit detected DTMF (Remote Fax activation code) entered remotely.
4	PAL DTMF	Means the unit detected DTMF (Remote Fax activation code) entered by a parallel connected telephone.
5	TURN-ON	Means the unit started to receive after 10 rings. (Remote Turn On: Service Code #573)
6	IDENT	Means the unit detected Ring Detection.

(5) ERROR→MEMORY

Indicates the reason why the unit received a fax message in memory.

If you look at No.11 in the JOURNAL 2 in **PRINTOUT EXAMPLE**(P.89), it shows the fax message was received in memory due to "PAPER OUT" error.

NO RESPONSE DISAPPEARED ON JOURNAL

The "**NO RESPONSE DISAPPEARED ON JOURNAL**" displays the information about the last 10 communications terminated by "No Response". (Some of the communications terminated by "No Response" were not displayed in the JOURNAL.)

When a fax transmission cannot be performed because the other party's unit is set to the TEL mode, "No response" will be printed.

6.5.7.2. JOURNAL 3

Refer to JOURNAL 3 in **PRINTOUT EXAMPLE**(P.89).

Description

(6) ENCODE

Compression Code: MH/MR/MMR

(7) MSLT

MSLT means Minimum Scan Line Time. Used only at the factory.

(8) EQM

EQM means Eye Quality Monitor. Used only at the factory.

(9) ERROR LINE (RX)

When an error occurs while receiving a fax, this shows the number of error lines.

(10) MAKER CODE

This shows a 2 digit code of the other party's fax machine brand.

0E: "KX" model

00: Unknown

79: "UF" model

19: "Xerox" model

6.5.7.3. PRINTOUT EXAMPLE

JOURNAL2

Mar. 25 2002 01:59PM

NO.	RCV. MODE	SPEED (CNT.)	RESOLUTION	RCV-TRIG. (CNT.)	ERROR->MEMORY
01	FAX ONLY	9600BPS	FINE.	FAX MOD	
02	FAX ONLY	9600BPS	STD.	FAX MOD	
03	FAX ONLY	9600BPS	FINE.		
04	FAX ONLY	9600BPS	FINE.	FAX MOD	
05	FAX ONLY	9600BPS	FINE.	FAX MOD	
06	FAX ONLY	9600BPS	FINE.	FAX MOD	
07	FAX ONLY	9600BPS	FINE.		
08	FAX ONLY	9600BPS	FINE.		
09	FAX ONLY	9600BPS	FINE.		
10	FAX ONLY	9600BPS	STD.	FAX MOD	
11	FAX ONLY	9600BPS	FINE.	FAX MOD	PAPER OUT
12	FAX ONLY	9600BPS	STD.	FAX MOD	
13	FAX ONLY	9600BPS	STD.		
14	FAX ONLY	?	?		
15	FAX ONLY	?	?		
16	FAX ONLY	?	?		
17	FAX ONLY	9600BPS	STD.		
18	FAX ONLY	9600BPS	FINE.	FAX MOD	
19	FAX ONLY	9600BPS	STD.	FAX MOD	
20	FAX ONLY	9600BPS	S-FINE.		
21	FAX ONLY	9600BPS	FINE.		
22	FAX ONLY	9600BPS	FINE.	FAX MOD	
23	FAX ONLY	?	?	FAX MOD	
24	FAX ONLY	9600BPS	STD.	FAX MOD	
25	FAX ONLY	9600BPS	STD.	FAX MOD	
26	FAX ONLY	9600BPS	FINE.	FAX MOD	
27	FAX ONLY	9600BPS	FINE.		
28	FAX ONLY	9600BPS	STD.	FAX MOD	
29	FAX ONLY	9600BPS	FINE.	FAX MOD	
30	FAX ONLY	9600BPS	S-FINE.	FAX MOD	
31	FAX ONLY	9600BPS	STD.	FAX MOD	
32	FAX ONLY	9600BPS	STD.	FAX MOD	
33	FAX ONLY	?	?	FAX MOD	
34	FAX ONLY	9600BPS	STD.	FAX MOD	
35	FAX ONLY	9600BPS	STD.	FAX MOD	

NO RESPONSE DISAPPEARED ON JOURNAL

NO.	START TIME	RCV. MODE	RCV-TRIG. (CNT.)

JOURNAL3

Mar. 25 2002 01:58PM

NO.	ENCODE	MSLT	EQM(RX)	ERROR LINE(RX)	MAKER CODE
01	MR	10msec	007A	00000	0E
02	MR	20msec	016B	00000	00
03	MH	10msec	0000	00000	00
04	MR	20msec	019B	00003	00
05	MR	20msec	0156	00011	00
06	MR	20msec	0113	00000	00
07	MR	5msec	0000	00000	79
08	MR	5msec	0000	00000	79
09	MR	0msec	0000	00000	19
10	MR	20msec	0100	00000	00
11	MR	10msec	0073	00000	0E
12	MR	20msec	012B	00000	00
13	MH	20msec	0000	00000	79
14	MH	20msec	0000	00000	00
15	MH	20msec	0000	00000	00
16	MH	20msec	0000	00000	00
17	MR	5msec	0000	00000	79
18	MR	10msec	00AB	00004	0E
19	MR	20msec	0124	00000	00
20	MR	20msec	0000	00000	00
21	MR	20msec	0000	00000	00
22	MR	20msec	0135	00000	00
23	MR	20msec	0000	00000	00
24	MR	20msec	01BC	00000	00
25	MR	20msec	01AC	00000	00
26	MR	20msec	020F	00000	00
27	MR	10msec	0000	00000	0E
28	MR	20msec	01DF	00000	00
29	MR	20msec	01EA	00000	00
30	MR	20msec	00CD	00000	00
31	MR	20msec	02F8	00000	0E
32	MR	10msec	04F8	00000	0E
33	MR	10msec	0000	00000	00
34	MR	20msec	03B6	00000	0E
35	MH	20msec	00E0	00000	00

6.5.7.4. HOW TO OUTPUT THE JOURNAL REPORT

1. Press the **[MENU]** button.
2. Press **[#]**, then **[8]** and **[4]**.
3. Press the **[SET]** button.
4. The report prints out.

JOURNAL							Jan. 20 2002 01:19PM
							YOUR LOGO :
							YOUR FAX NO:
NO.	OTHER FACSIMILE	START TIME	USAGE TIME	MODE	PAGES	RESULT	*CODE
01	2345678	Jan. 20 01:18PM	00'51	SND	00	COMMUNICATION ERROR	(43)

(3) SND: Sent directly.
 RCV: Received directly
 POLL, RCV: Polling Receive

(2) Communication message

(1) Error code message

(1) CODE	(2) RESULT	(3) MODE	SYMPTOM	Counter-measure*
	PRESSED THE STOP KEY	SND & RCV	Communication was interrupted by the STOP button.	
	DOCUMENT JAMMED	SND	The document paper is jammed.	
	NO DOCUMENT	SND	No document paper.	
	THE COVER WAS OPENED	SND & RCV	The cover is open.	
40	OTHER FAX NOT RESPONDING	SND	Transmission is finished when the T1 TIMER expires.	1
41	COMMUNICATION ERROR	SND	DCN is received after DCS transmission.	2
42	COMMUNICATION ERROR	SND	FTT is received after transmission of a 2400BSP training signal.	3
43	COMMUNICATION ERROR	SND	No response after post message is transmitted three times.	4
44	COMMUNICATION ERROR	SND	RTN and PIN are received.	5
46	COMMUNICATION ERROR	RCV	No response after FTT is transmitted.	6
48	COMMUNICATION ERROR	RCV	No post message.	7
49	COMMUNICATION ERROR	RCV	RTN is transmitted.	8
50	COMMUNICATION ERROR	RCV	PIN is transmitted (to PRI-Q).	8
51	COMMUNICATION ERROR	RCV	PIN is transmitted.	8
52	OTHER FAX NOT RESPONDING	RCV	Reception is finished when the T1 TIMER expires.	9
54	ERROR-NOT YOUR UNIT	RCV	DCN is received after DIS transmission.	11
58	COMMUNICATION ERROR	RCV	DCN is received after FTT transmission.	13
59	ERROR-NOT YOUR UNIT	SND	DCN responds to the post message.	14
64	COMMUNICATION ERROR	POLL, RCV	Polling is not possible.	
65	COMMUNICATION ERROR	SND	DCN is received before DIS reception.	2
65	COMMUNICATION ERROR	RCV	Reception is not EOP, EOM PIP, PIN, RTP or RTN.	2
68	COMMUNICATION ERROR	RCV	No response at the other party after MCF or CFR is transmitted.	13
70	ERROR-NOT YOUR UNIT	RCV	DCN is received after CFR transmission.	13
72	COMMUNICATION ERROR	RCV	Carrier is cut when the image signal is received.	16
75	MEMORY FULL	RCV	The document was not received due to memory full.	
79	CANCELED	SND	The multi-station transmission was rejected by the user.	
FF	COMMUNICATION ERROR	SND & RCV	Modem error. For the DCN, DCN, etc. abbreviations, refer to MODEM SECTION (P.157) .	12

SND=TRANSMISSION / RCV=RECEPTION

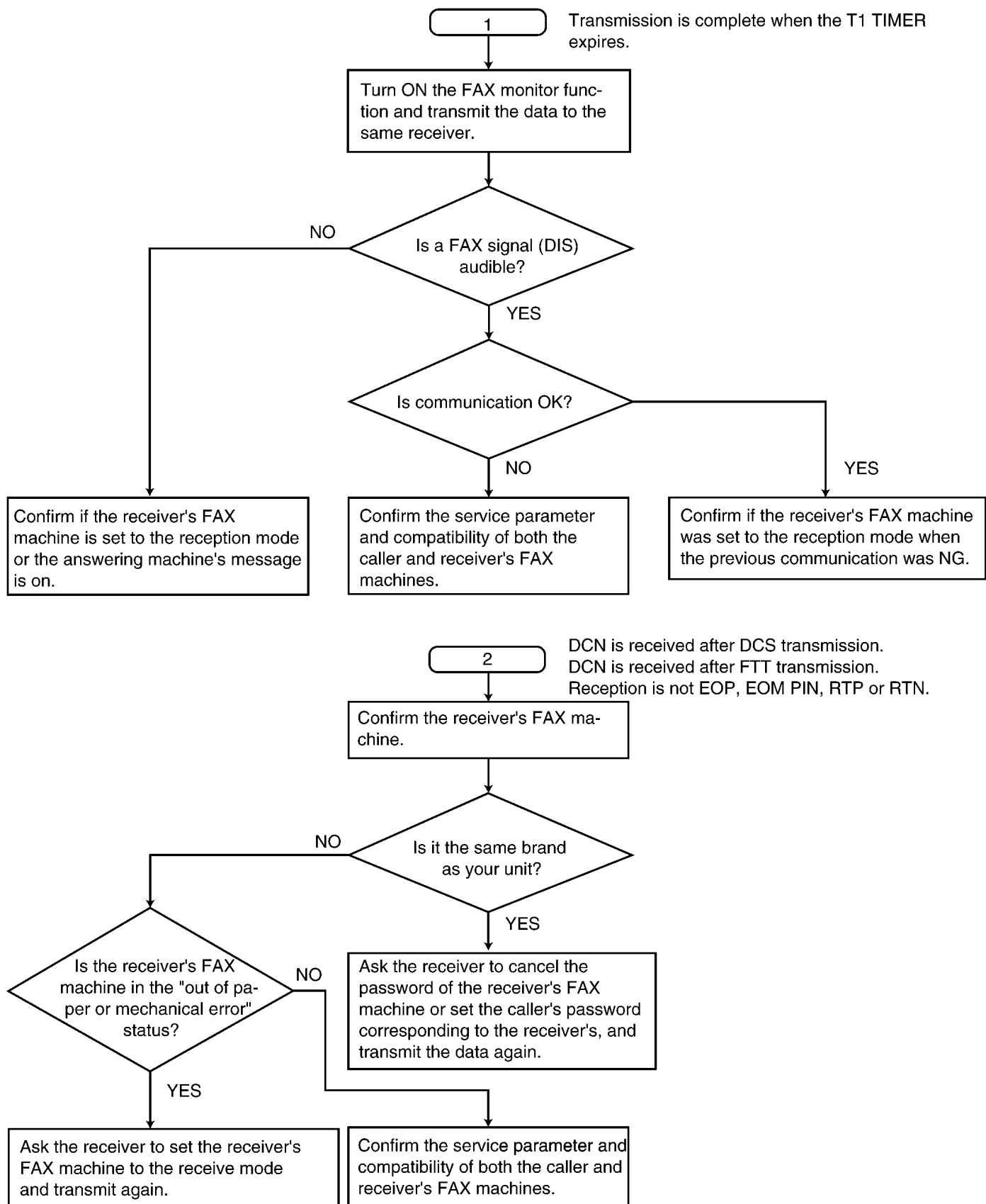
Most fax communication problems can be resolved by the following steps.

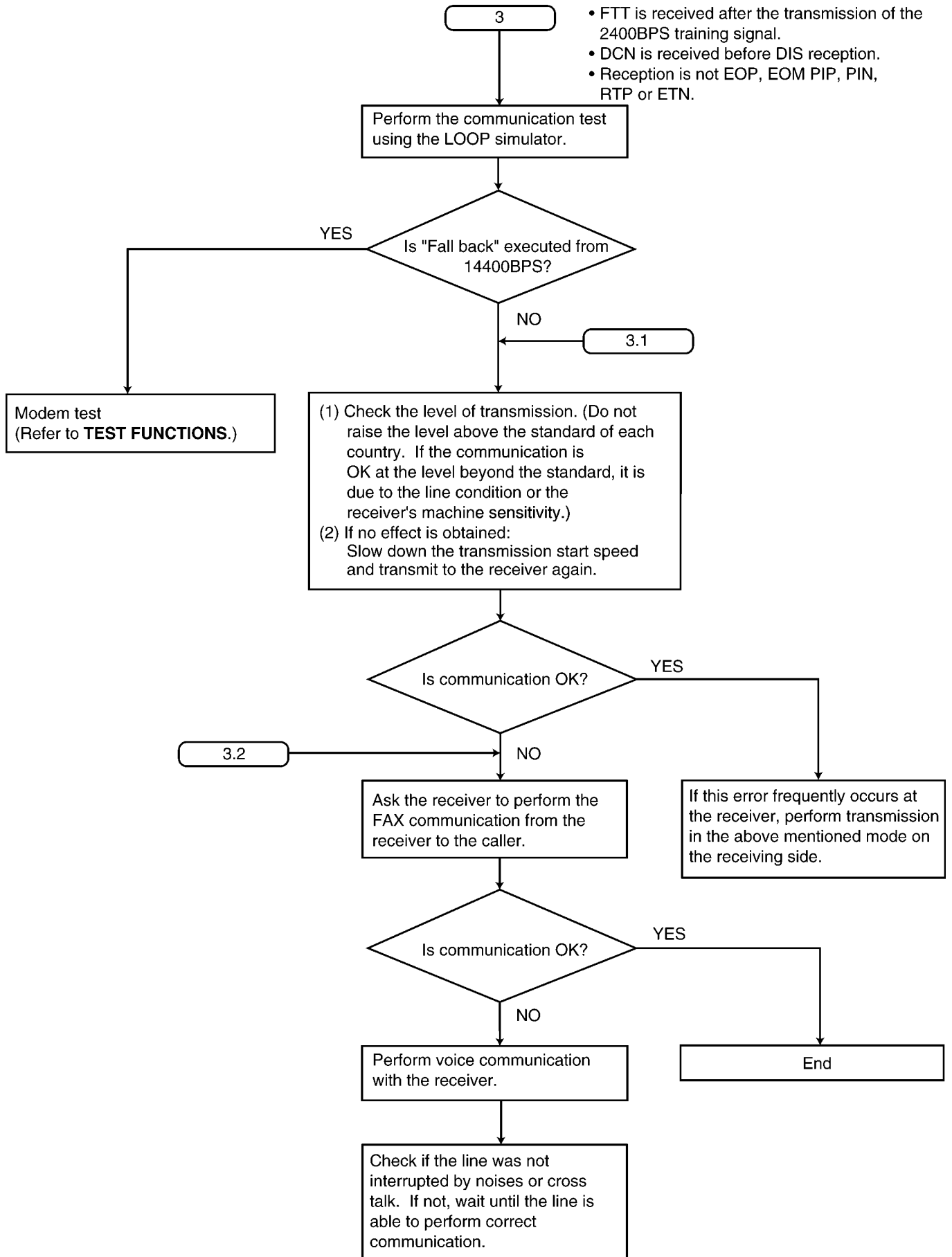
1. Change the transmit level. (Service code: 596, refer to **SERVICE FUNCTION TABLE(P.55)**.)
2. Change the TX speed/RX speed. (Service code: 717/718, refer to **SERVICE FUNCTION TABLE (P.55)**.)

Note*:

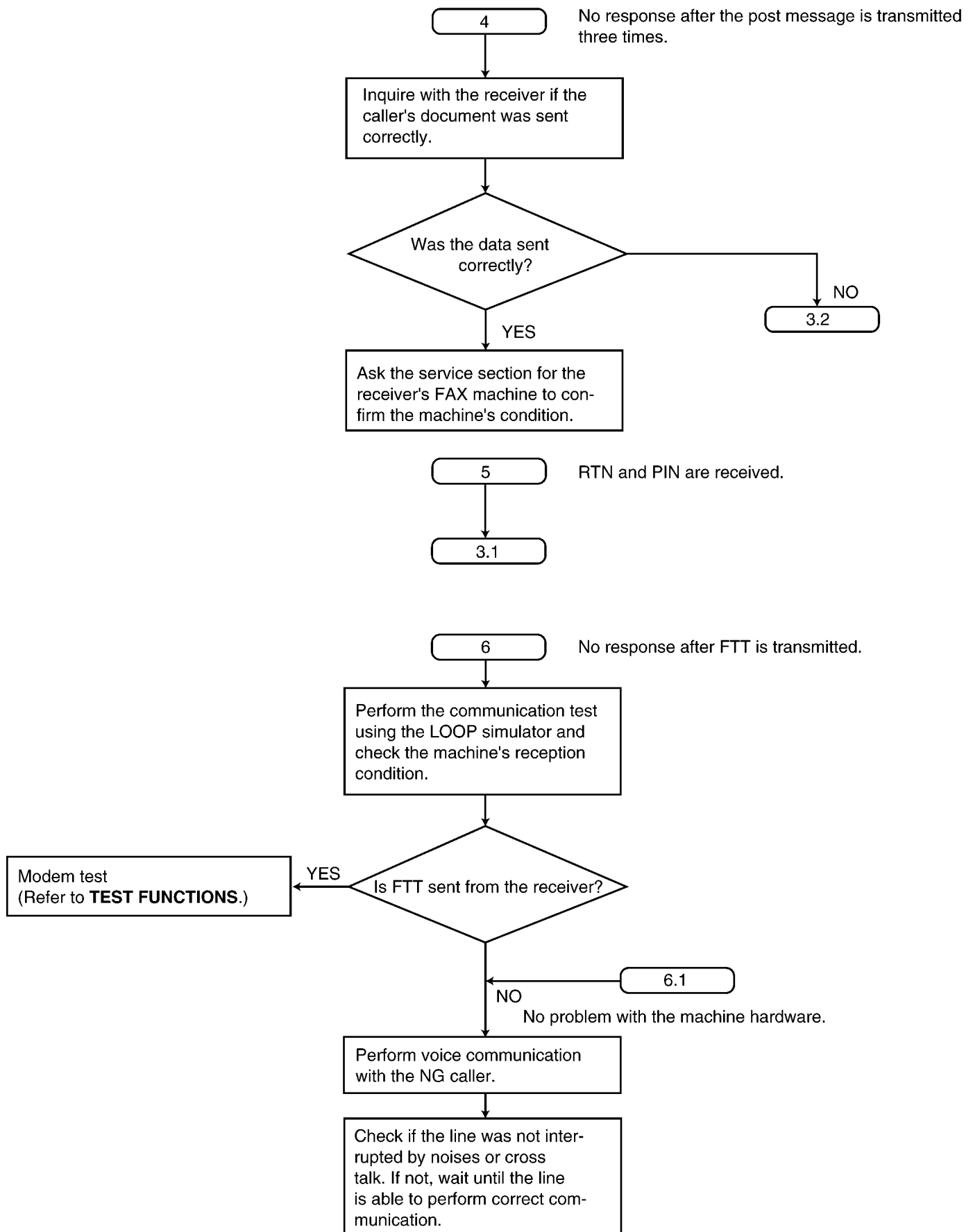
If the problem remains, see the following “**Countermeasure**” flow chart.

Countermeasure

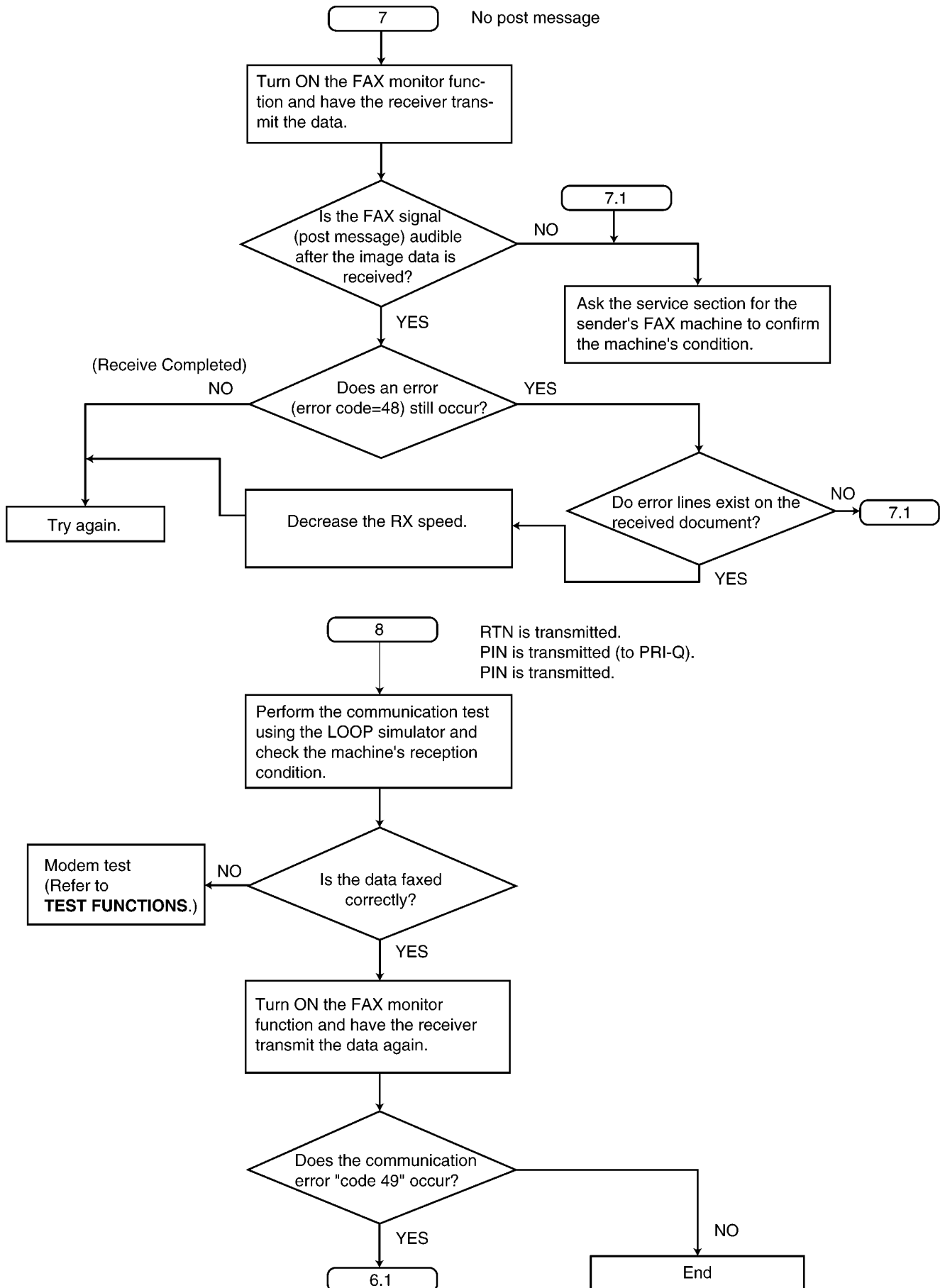




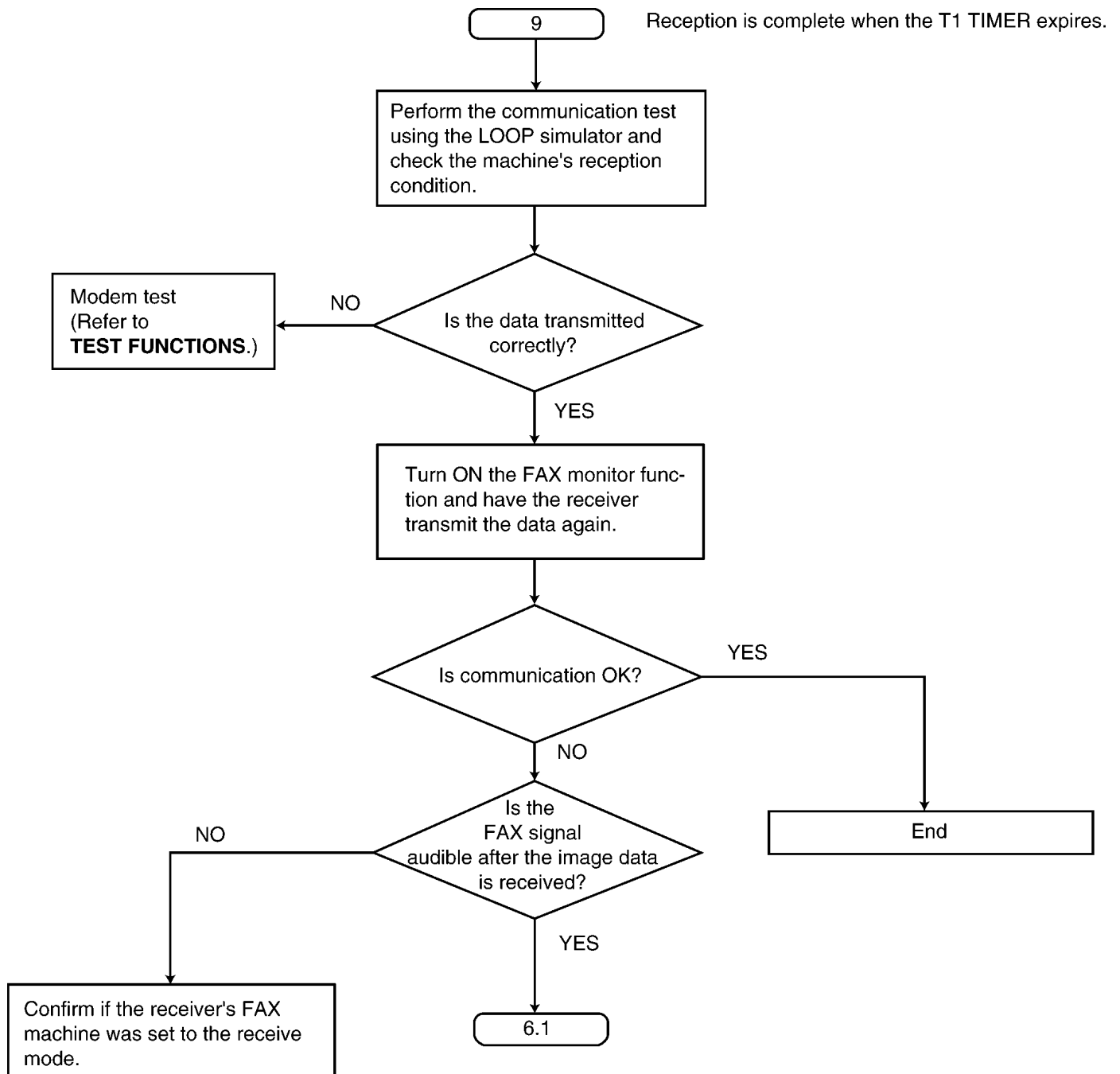
CROSS REFERENCE:
TEST FUNCTIONS (P.57)



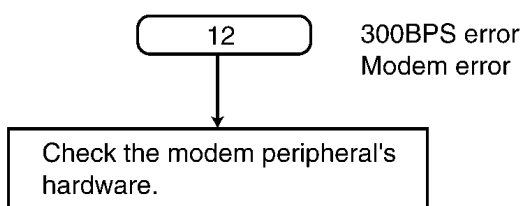
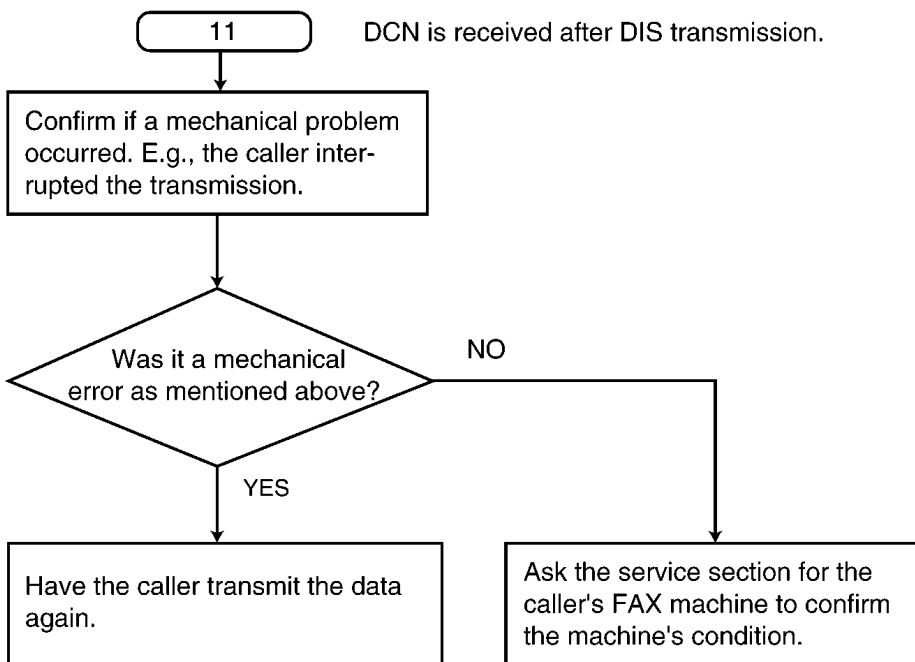
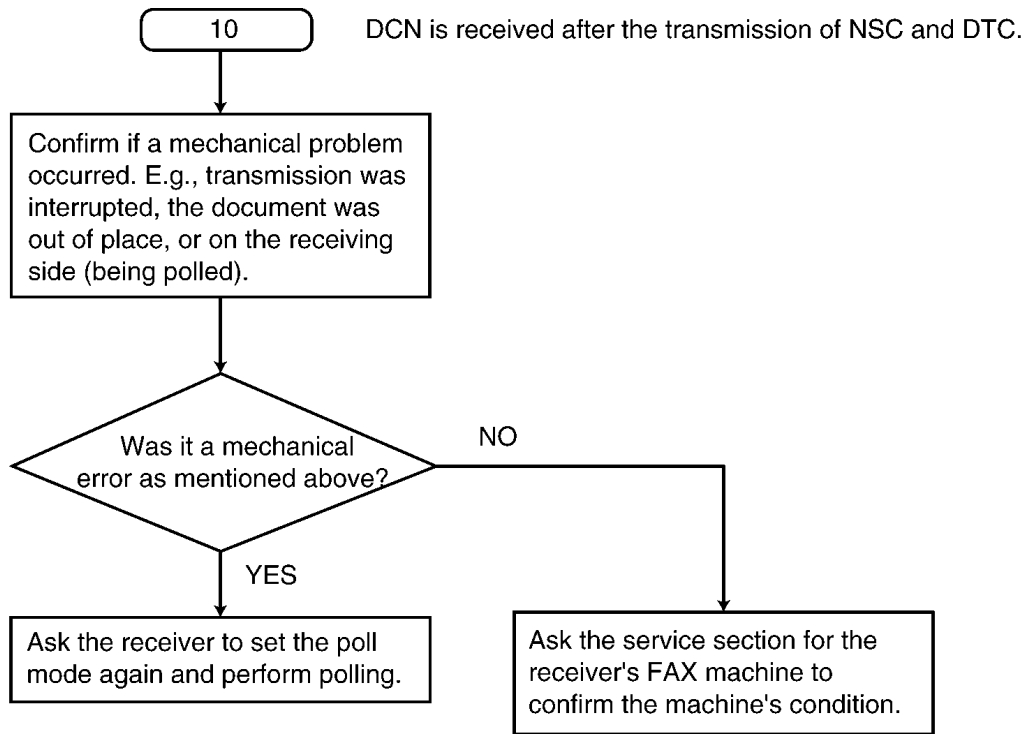
CROSS REFERENCE:
TEST FUNCTIONS (P.57)

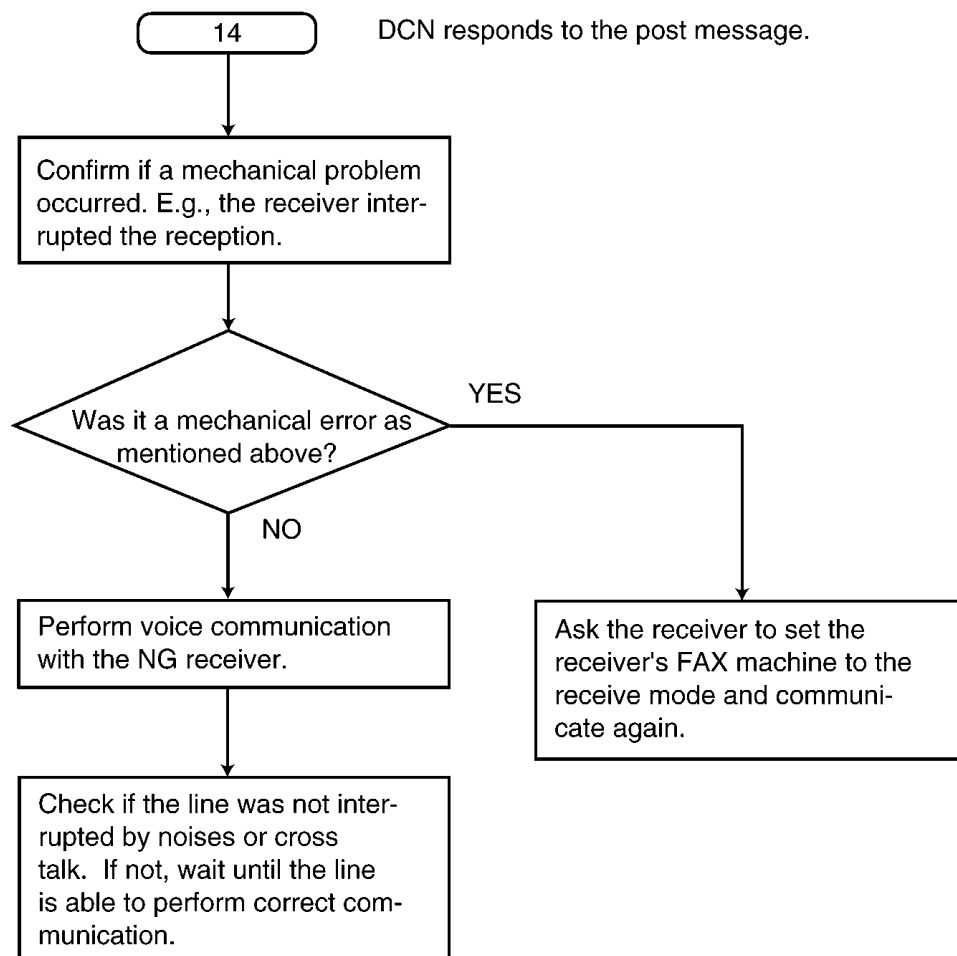
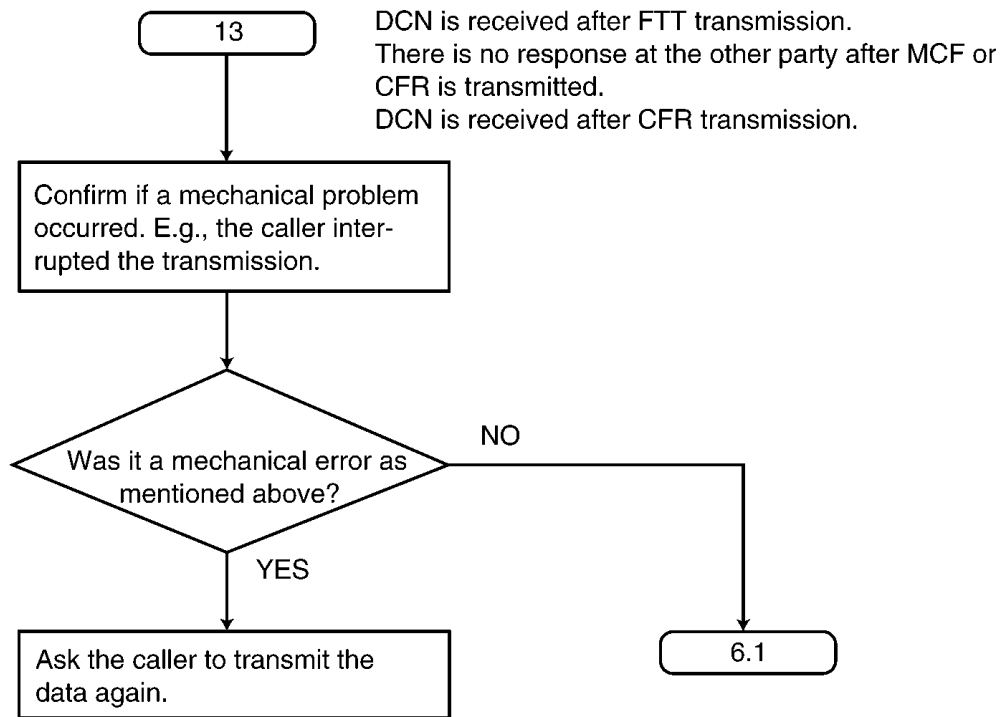


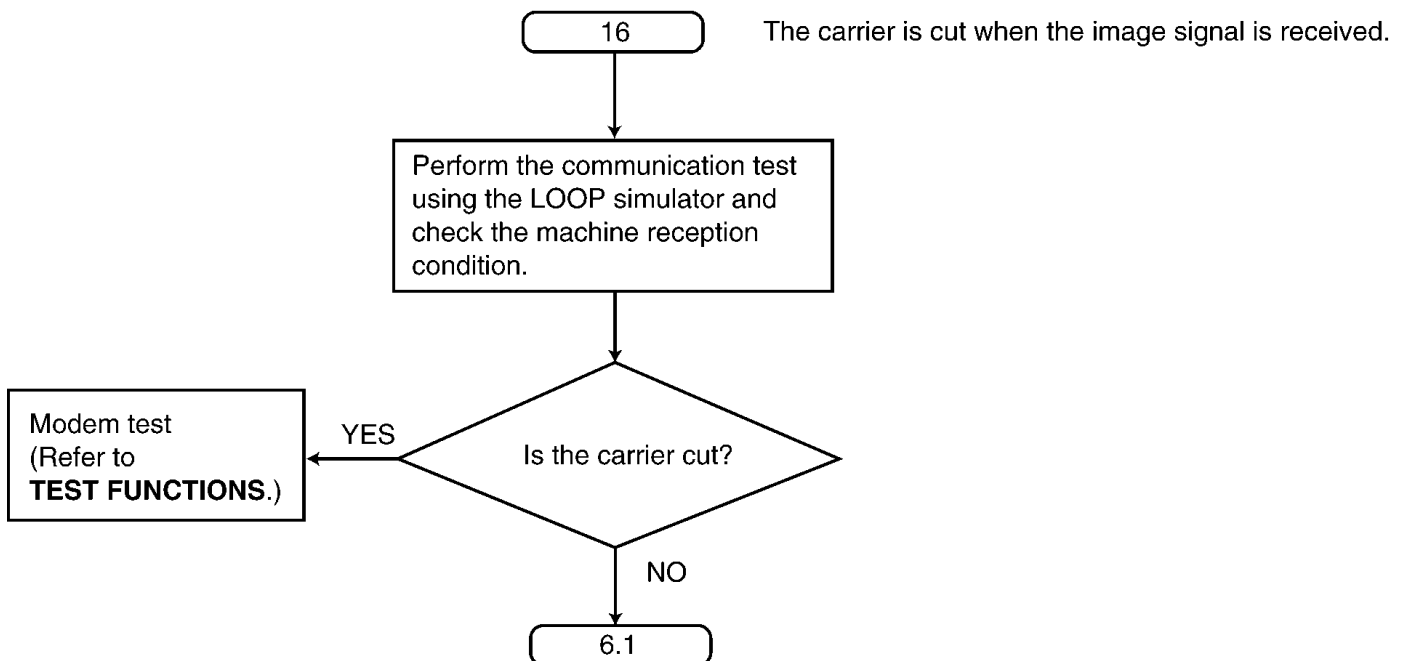
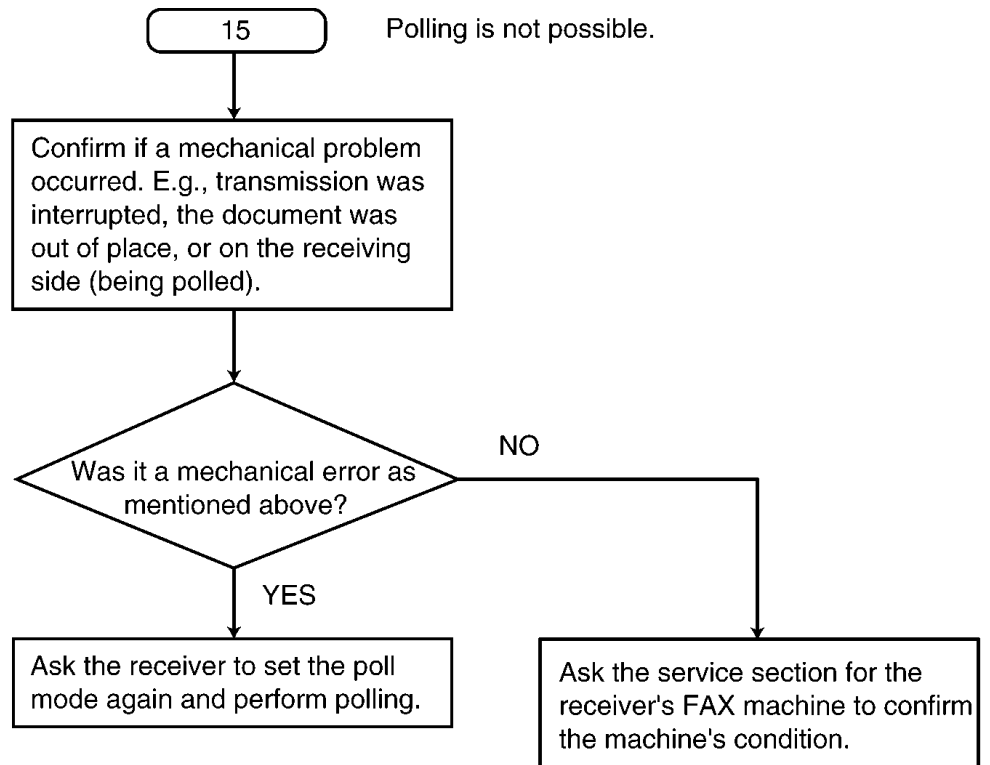
CROSS REFERENCE:
TEST FUNCTIONS (P.57)



CROSS REFERENCE:
TEST FUNCTIONS (P.57)



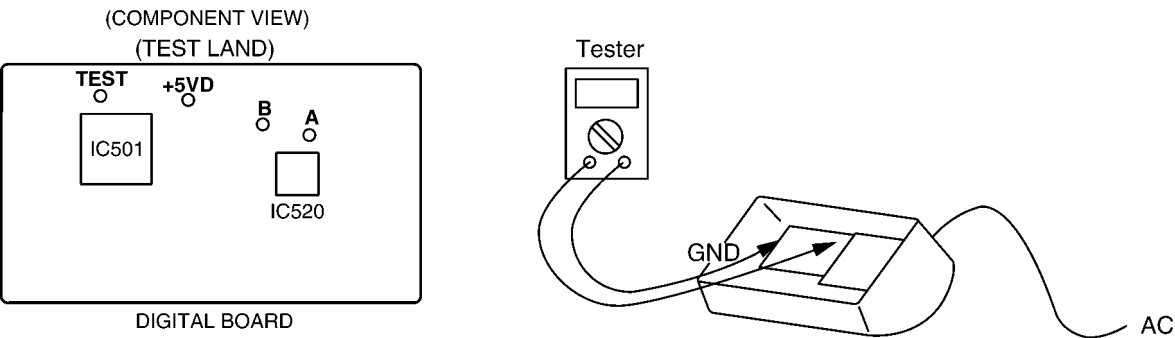




CROSS REFERENCE:
TEST FUNCTIONS (P.57)

6.5.7.5. CHECK THE STATUS OF THE DIGITAL BOARD

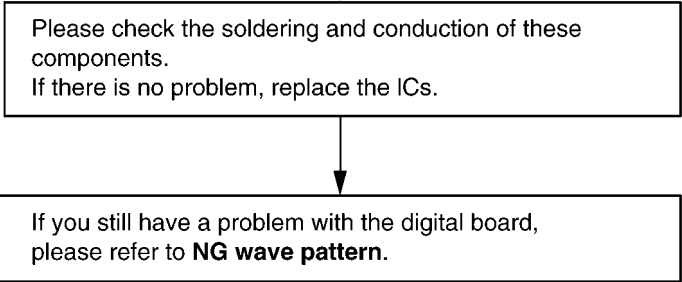
Please check the status (voltage) of test lands **A** and **B**.
The result may tell you a defective point.



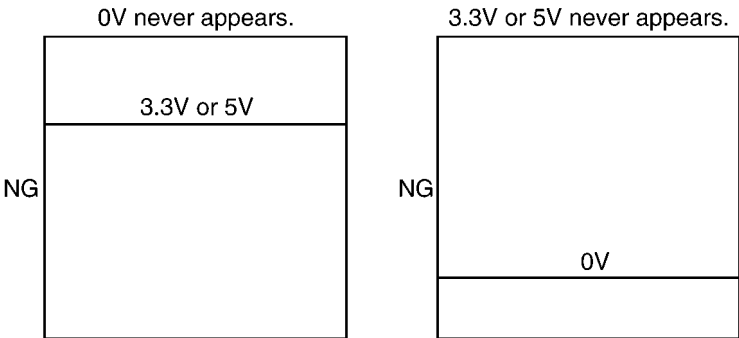
- Turn off the power supply.
- Short using a metallic object, such as tweezers, between the **TEST** point and **+5V** land, and turn on the AC power for a few seconds. And then remove a metallic object.
- Check the following voltages using an oscilloscope or tester.
- To cancel the status check mode, turn off the AC power.

Defective point	Check point voltage		Check items
	A	B	
RTC (IC501)	0V	0V	IC501(RTC is included in IC501)
DRAM (IC503)	0V	5V	IC503(8,23 pin), R549, R551, IC501(62, 63 pin), L507, RA509, RA510
MODEM (IC505)	5V	0V	IC501(61 pin), IC505(90, 91, 92 pin), RA506, RA511, L510, L515, L519, L520, R564, C553, C554, Q525, Q526
ALL OK	5V	5V	

- This indicates that the Add/Data Bus, RAM, ROM, MODEM, and ASIC are all connected to the ASIC properly and that control from the ASIC is possible.



NG wave pattern



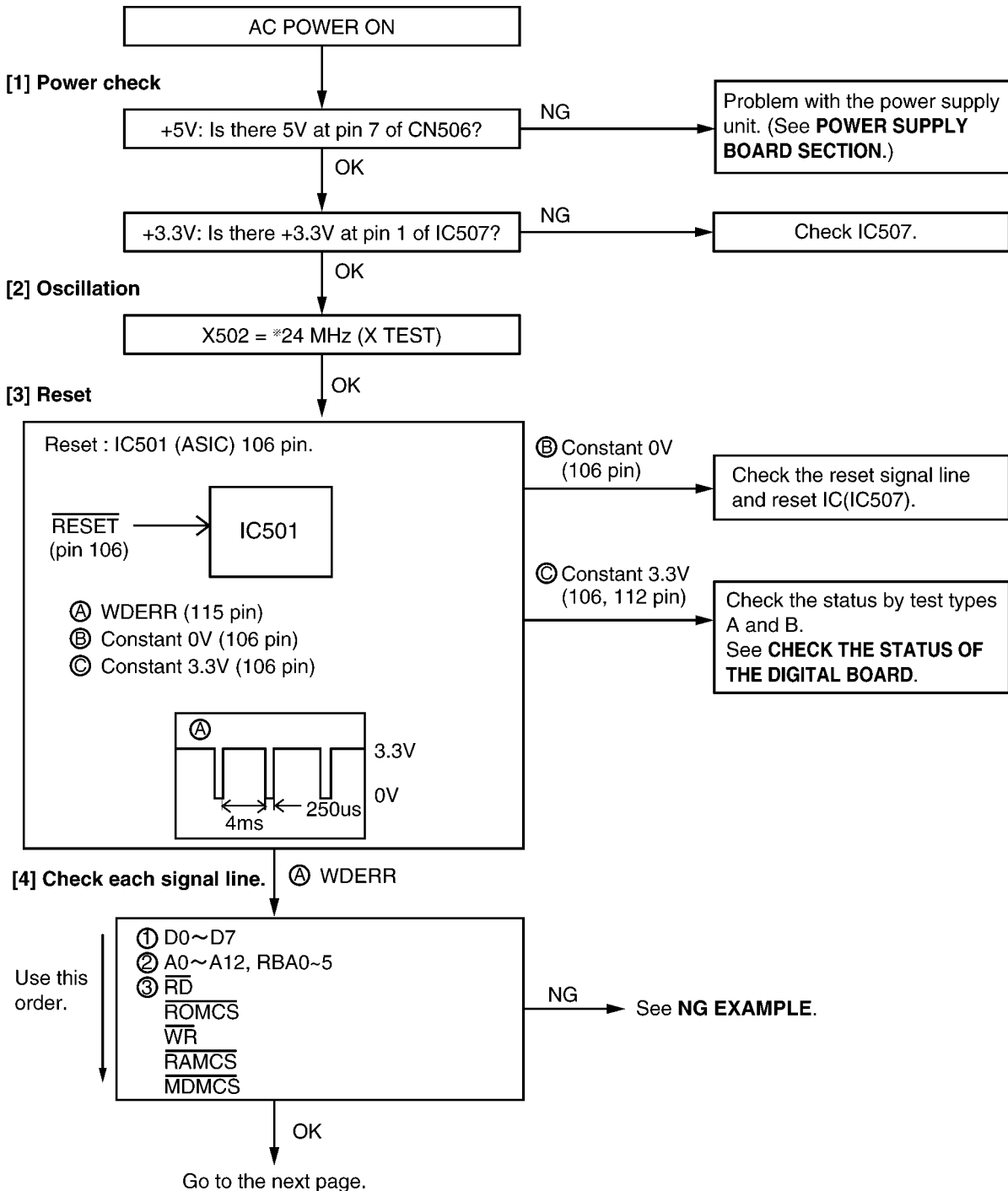
6.5.8. INITIALIZING ERROR

After the power is turned on, the ASIC initializes and checks each IC.

The ROM, DRAM, and modem are checked.

If initialization fails for the ICs, the system will not boot up.

In this case, please find the cause as follows.

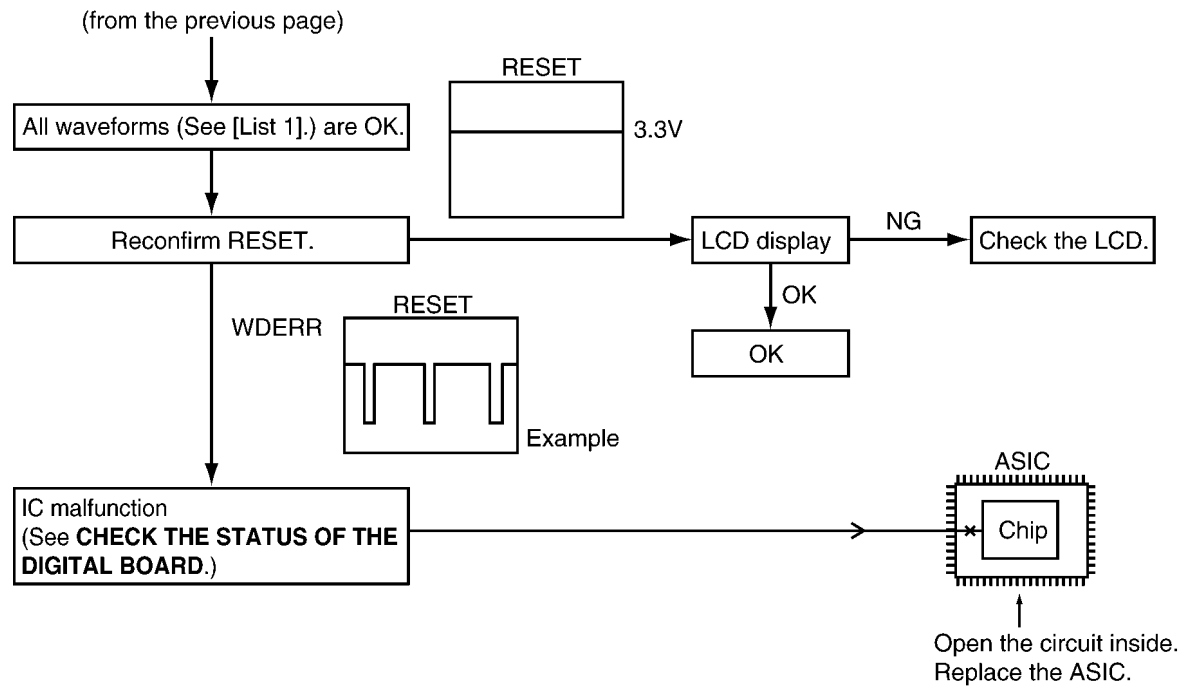


CROSS REFERENCE:

CHECK THE STATUS OF THE DIGITAL BOARD (P.100)

POWER SUPPLY BOARD SECTION (P.114)

NG EXAMPLE (P.156)

**CROSS REFERENCE:****CHECK THE STATUS OF THE DIGITAL BOARD (P.100)**

6.5.9. ANALOG BOARD SECTION

This chapter provides the testing procedures required for the analog parts. A signal route to be tested is determined depending upon purposes. For example, the handset TX route begins at the handset microphone and the signal is output to the telephone line. The signal mainly flowing on this route is analog. You can trace the signal with an oscilloscope. The signal flow on each route is shown in the Check Sheet here. If you find a specific problem in the unit, for example if you cannot communicate with the H/S, trace that signal route locally with the following Check Sheet and locate the faulty point.

6.5.9.1. CHECK SHEET

(SYMPTOM) ITEMS TO CHECK		IN	signal	ROUTE	OUT
MONITOR				TEL LINE — T101 — C112 — R112 — IC101(2-1) — CN101(4) — {CN511(4) — IC509(9-8) — L550 — C570 — R575 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — C642 — R648 — IC519(4-5,8) — CN510(1,2)} — SPEAKER	
Handset TX		HS MIC		CN104(4) — L110 — C139 — R139 — IC101(6) — IC101(7) — J107 — CN101(6) — {CN511(6) — R593 — C586 — R594 — C581 — R583 — IC511(2-1) — L559 — CN511(5)} — CN101(5) — C125 — R121 — R120 — T101 — TEL LINE	
Handset RX				TEL LINE — T101 — C112 — R112 — IC101(2-1) — CN101(4) — {CN511(4) — IC509(9-8) — L550 — C570 — R575 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — R584 — C576 — IC509(4-3) — CN511(7)} — CN101(7) — J124 — R134 — Q103(Base-Emitter) — C132 — R149 — L108 — CN104(3) — HS SP	
FAX TX DTMF for TEL Line				{IC505(69) — IC509(1-2) — L553 — C571 — R579 — IC511(2-1) — L559 — CN511(5)} — CN101(5) — C125 — R121 — R120 — T101 — TEL LINE	
FAX RX				TEL LINE — T101 — C112 — R112 — IC101(2-1) — CN101(4) — {CN511(4) — C573 — R576 — IC505(60)}	
DTMF MONITOR	HS			{IC505(72) — L551 — C567 — R571 — Q508(Base-Collector) — C601 — R566 — IC501(32-31) — C579 — R587 — IC511(6-7) — R584 — C576 — IC509(4-3) — CN511(7)} — CN101(7) — J124 — R134 — Q103 (Base-Emitter) — C132 — R149 — L108 — CN104(3) — HS SP	
	SP			{IC505(72) — C567 — R571 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — C642 — R648 — IC519(4-5,8) — CN510(1,2)} —	
CNG / DTMF / VOX Detection				TEL LINE — T101 — R120 — J106 — C113 — Q101(Collector-Emitter) — C114 — R114 — IC101(2-1) — CN101(4) — {CN511(4) — C573 — R576 — IC505(60)}	
Ringing / Alarm / Beep / Key Tones				{IC501(29) — R568 — Q511(Emitter-Collector) — L552 — C568 — R572 — Q508(Base-Collector) — C601 — R566 — L558 — IC501(32-31) — L555 — C579 — R587 — IC511(6-7) — L557 — C642 — R648 — IC519(4-5,8) — CN510(1,2)} — SPEAKER	

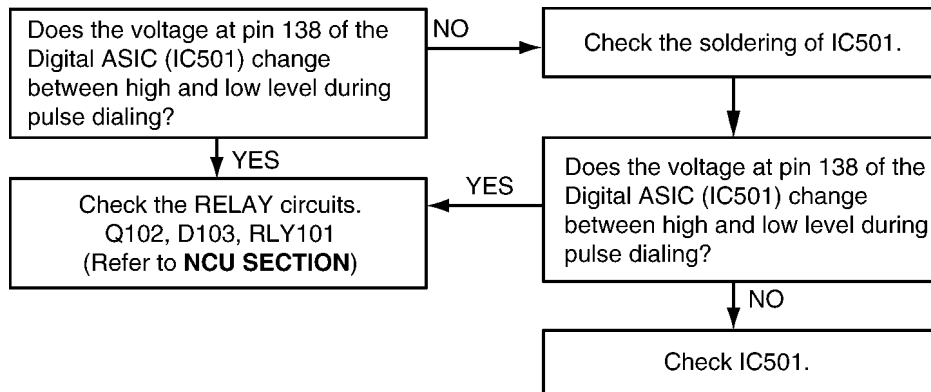
Note: { }: Inside the digital board

6.5.9.2. DEFECTIVE ITS (Integrated Telephone System) SECTION

1. No handset and speakerphone transmission / reception

Perform a signal test in the **ITS or the NCU section** and locate a defective point (where the signal disappears) on each route between the handset microphone and telephone line (sending), or between the telephone line and the handset speaker (receiving), or between the microphone and the telephone line (sending), or between the telephone line and the speaker (receiving). Check the components at that point. **CHECK SHEET**(P.103) is useful for this investigation.

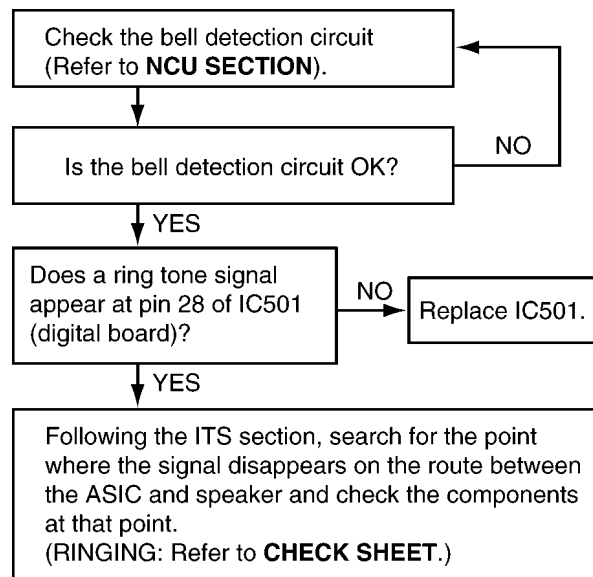
2. No pulse dialing



CROSS REFERENCE:

NCU SECTION (P.163)

3. No ring tone (or No bell)

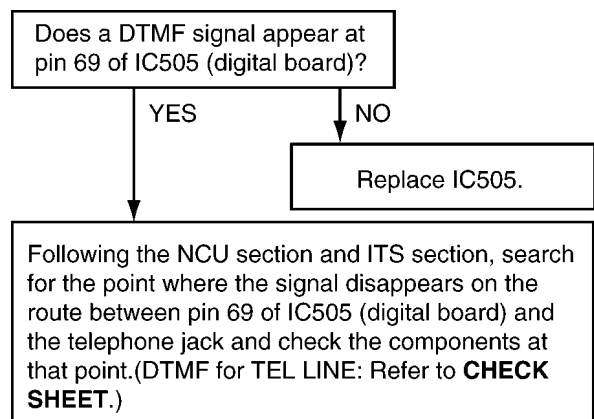


CROSS REFERENCE:

CHECK SHEET (P.103)

NCU SECTION (P.163)

4. No tone dialing

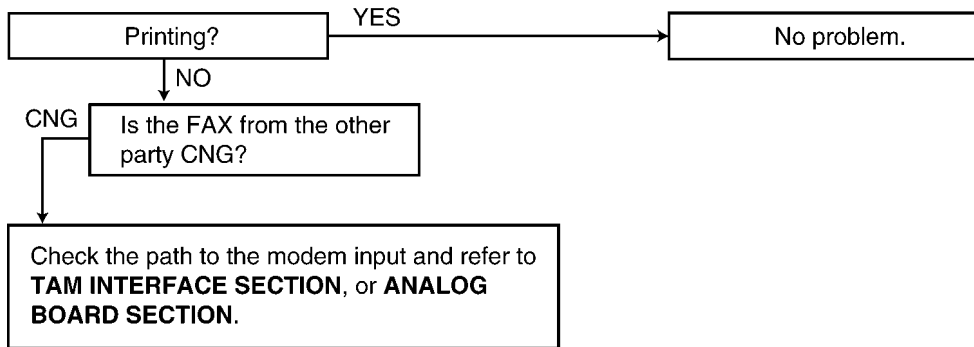


CROSS REFERENCE:

CHECK SHEET (P.103)

6.5.9.3. DETECTIVE TAM INTERFACE SECTION

A FAX is received, but won't switch from TAM to FAX.



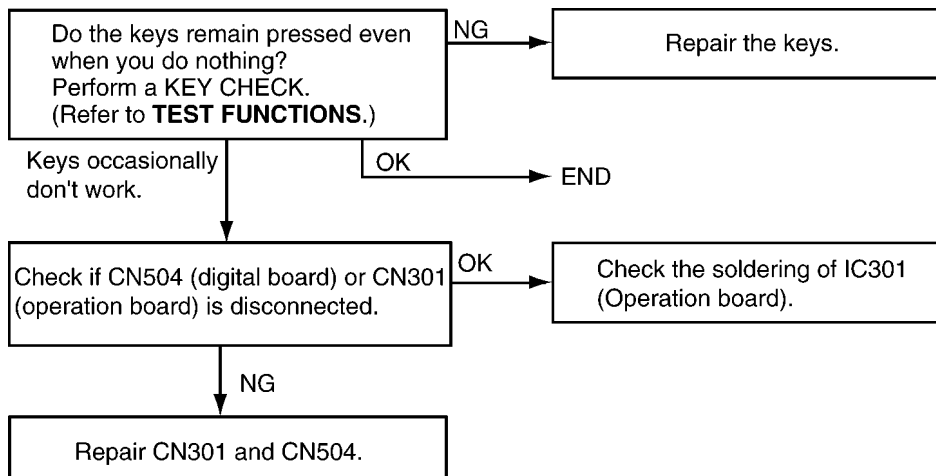
CROSS REFERENCE:

ANALOG BOARD SECTION (P.103)

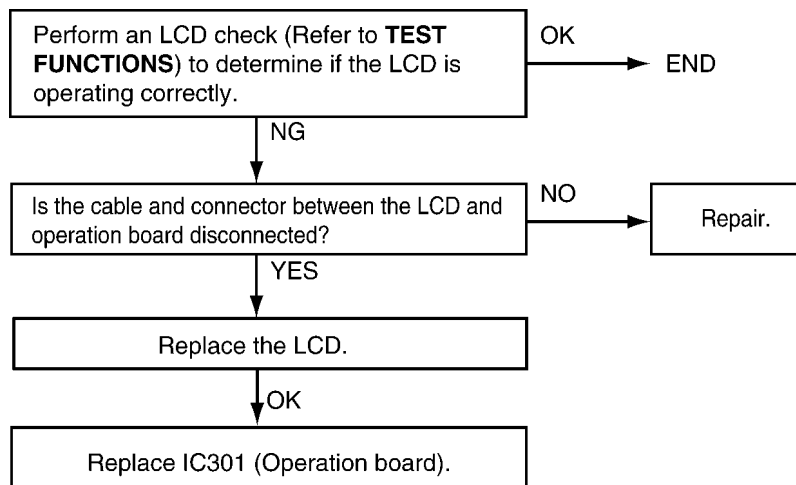
TAM INTERFACE SECTION (P.166)

6.5.10. OPERATION BOARD SECTION

1. NO KEY OPERATION



2. NO LCD INDICATION



CROSS REFERENCE:

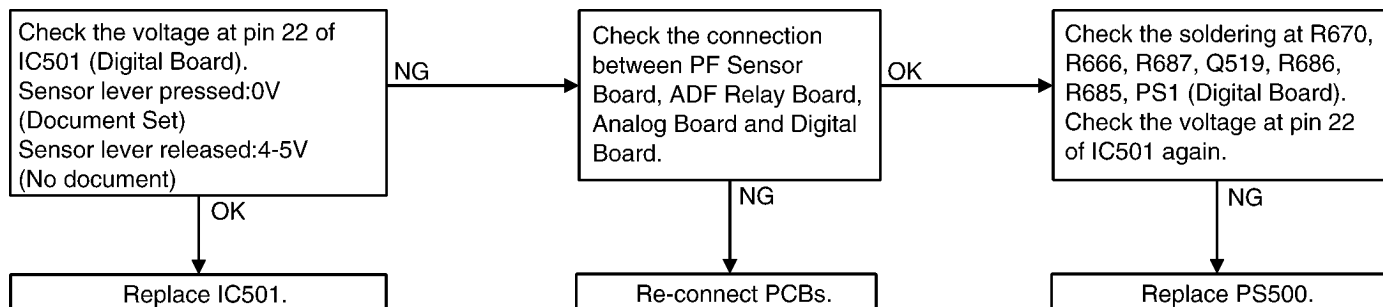
TEST FUNCTIONS (P.57)

6.5.11. SENSOR SECTION

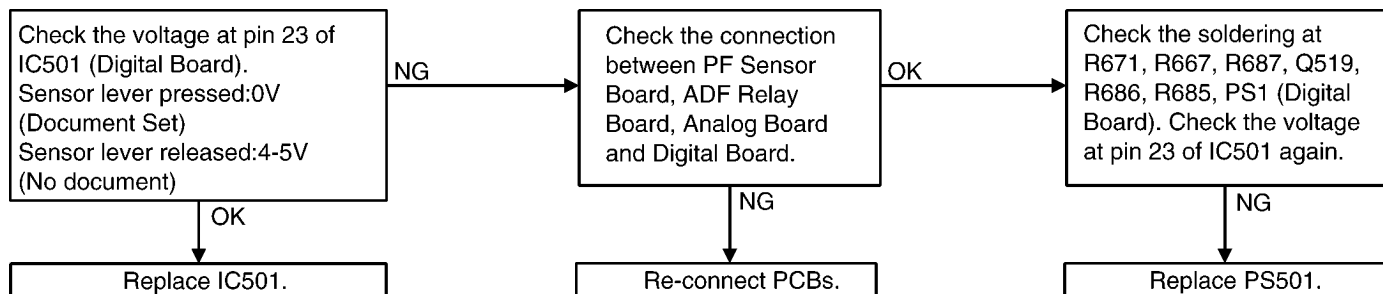
Refer to **SENSORS AND SWITCHES SECTION** (P.138).

Perform an **SENSOR CHECK** to determine if the sensor is operating correctly.

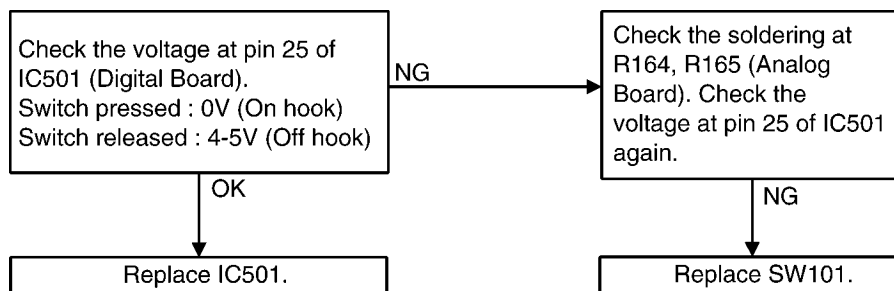
1. Check the document sensor..... “CHECK DOCUMENT”



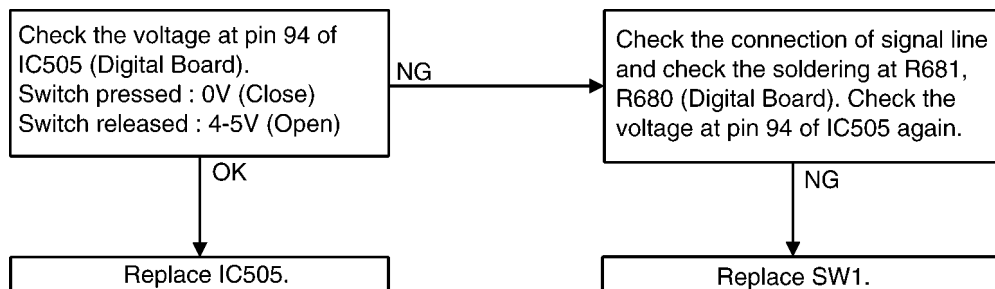
2. Check the paper feed sensor..... “REMOVE DOCUMENT”



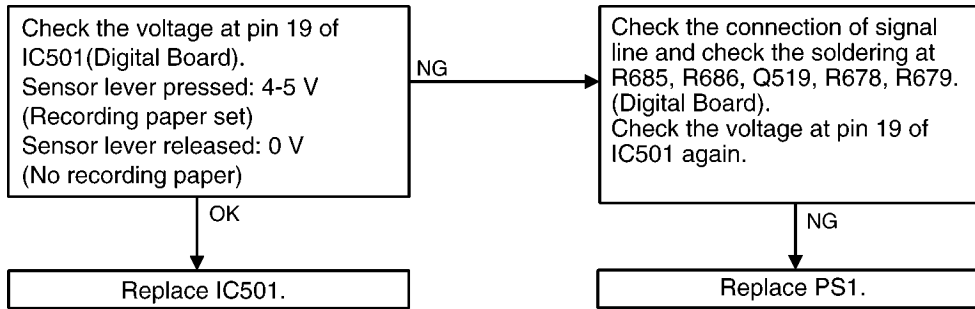
3. Check the hook switch



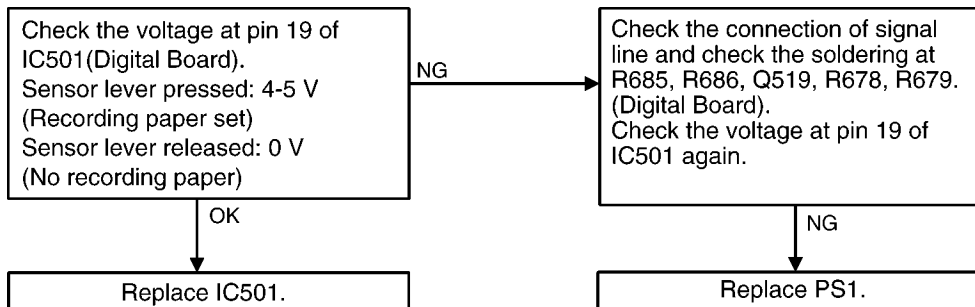
4. Check the cover open switch..... “COVER OPEN”



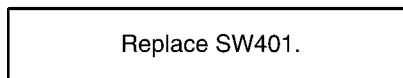
5. Check the paper sensor..... “OUT OF PAPER”



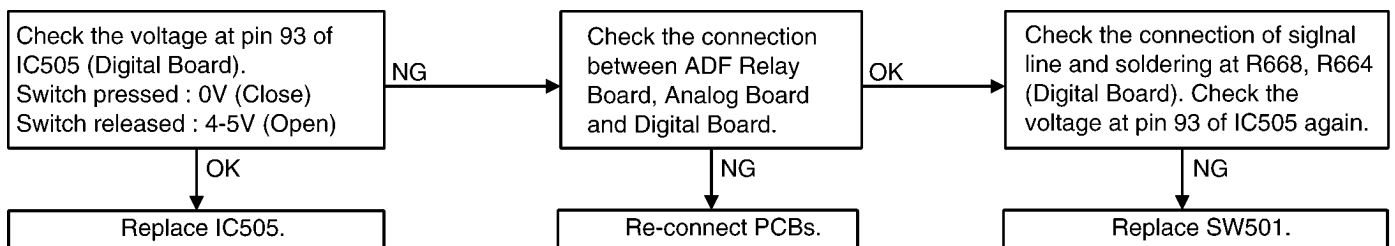
6. Check the paper sensor..... “PAPER JAMED”



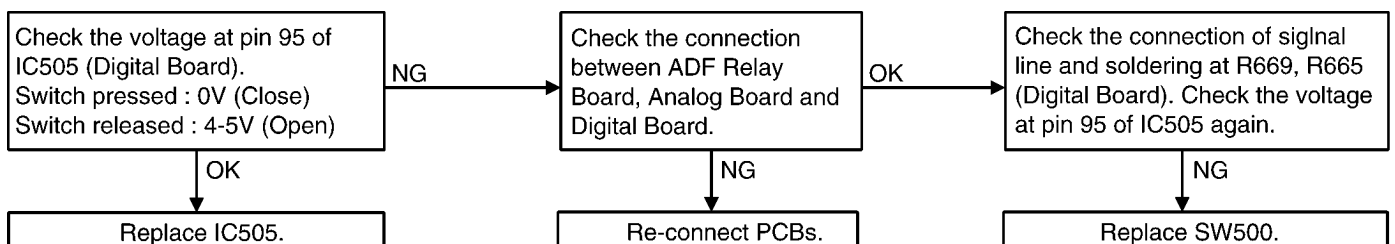
7. Check the film sensor..... “CHECK FILM TYPE” or “CHECK FILM SLACK”

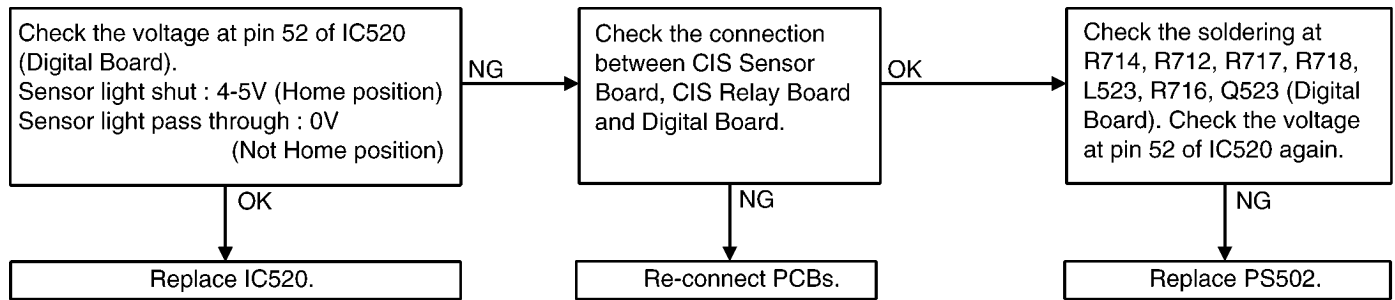
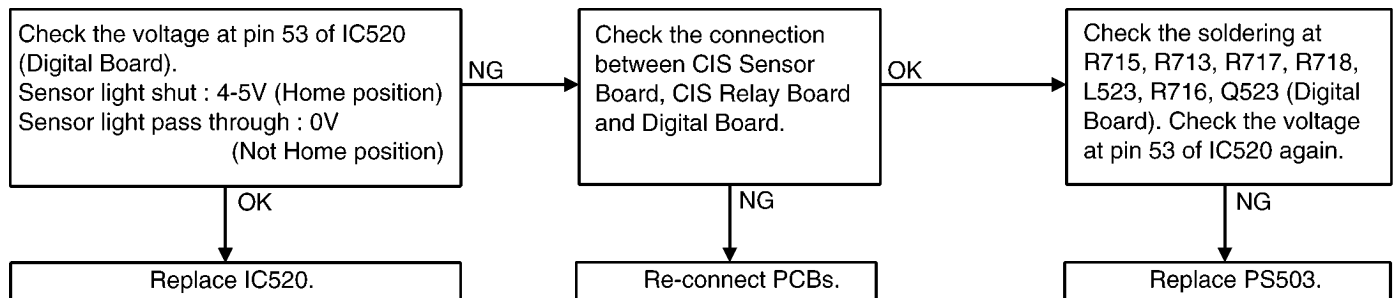


8. Check the ADF cover open switch



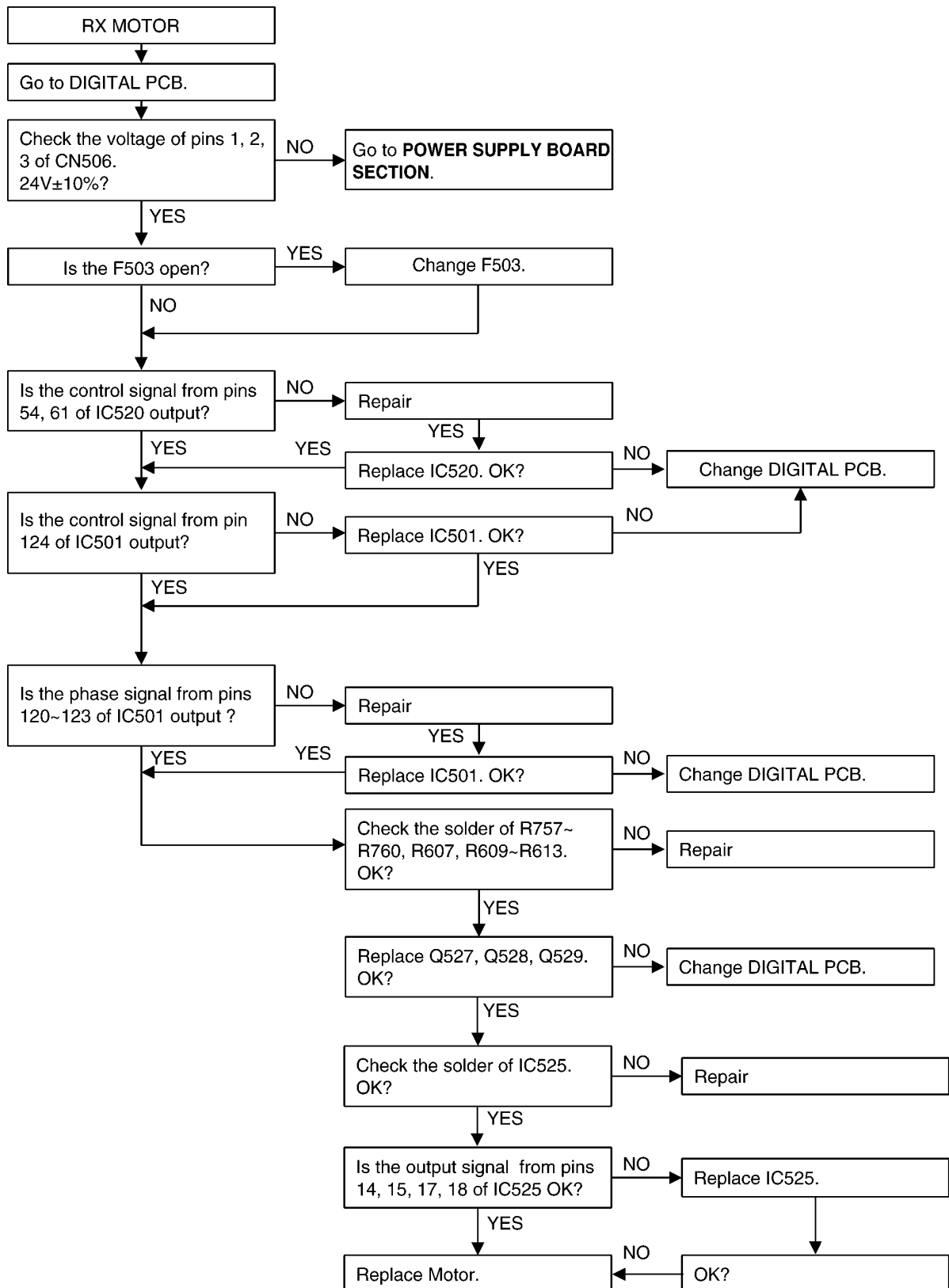
9. Check the FB cover open switch



10. Check the CIS position sensor (ADF Home side)**11. Check the CIS position sensor (FB Home side)**

6.5.12. MOTOR SECTION

6.5.12.1. RX MOTOR

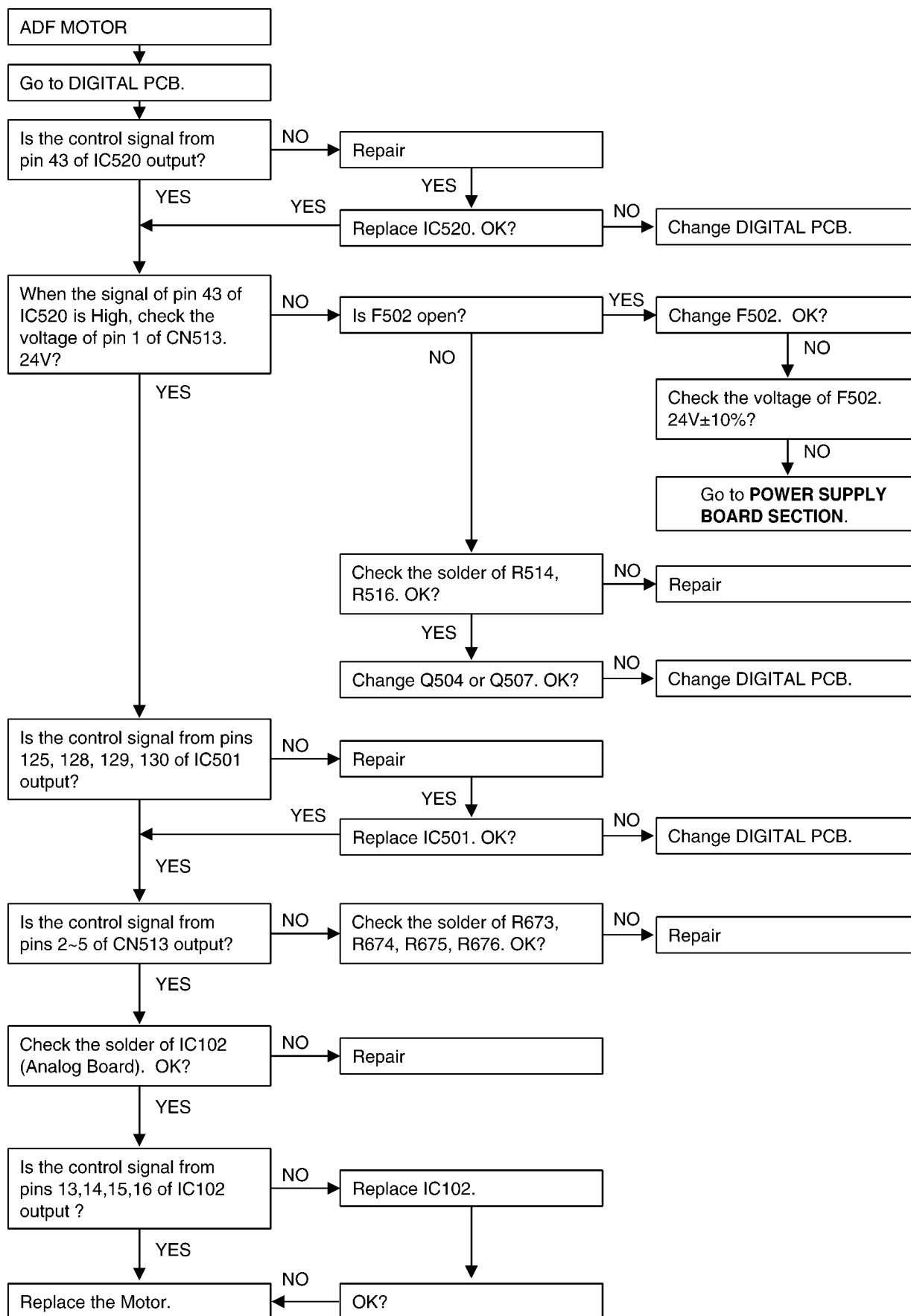


CROSS REFERENCE:

HOW TO REMOVE THE MOTOR BLOCK, LOCK LEVER AND SPEAKER (P.37)

POWER SUPPLY BOARD SECTION (P.114)

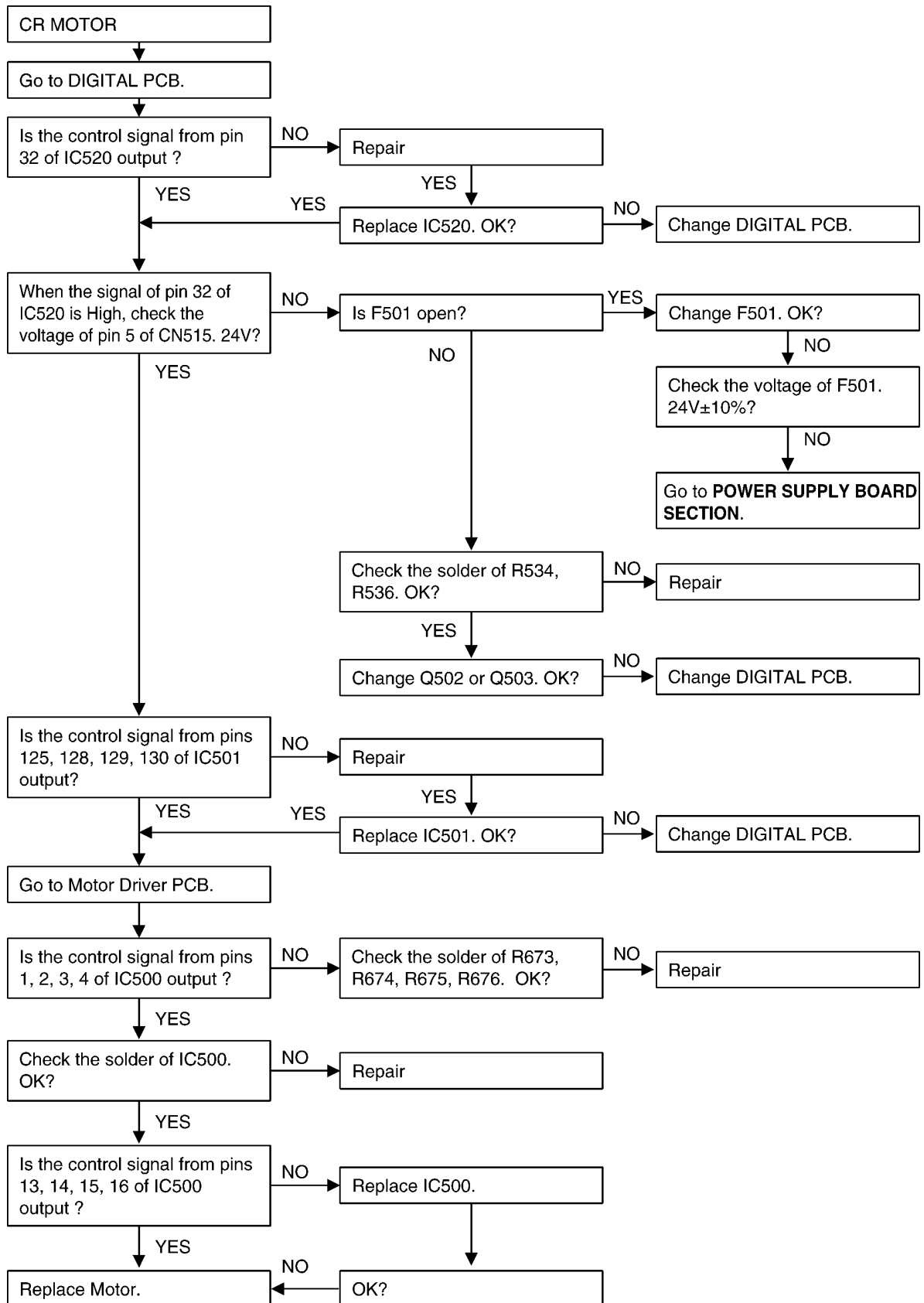
6.5.12.2. ADF MOTOR



CROSS REFERENCE:

POWER SUPPLY BOARD SECTION (P.114)

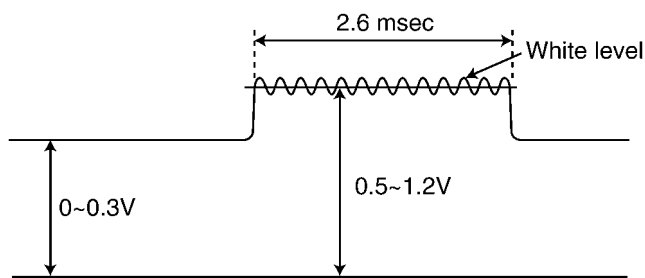
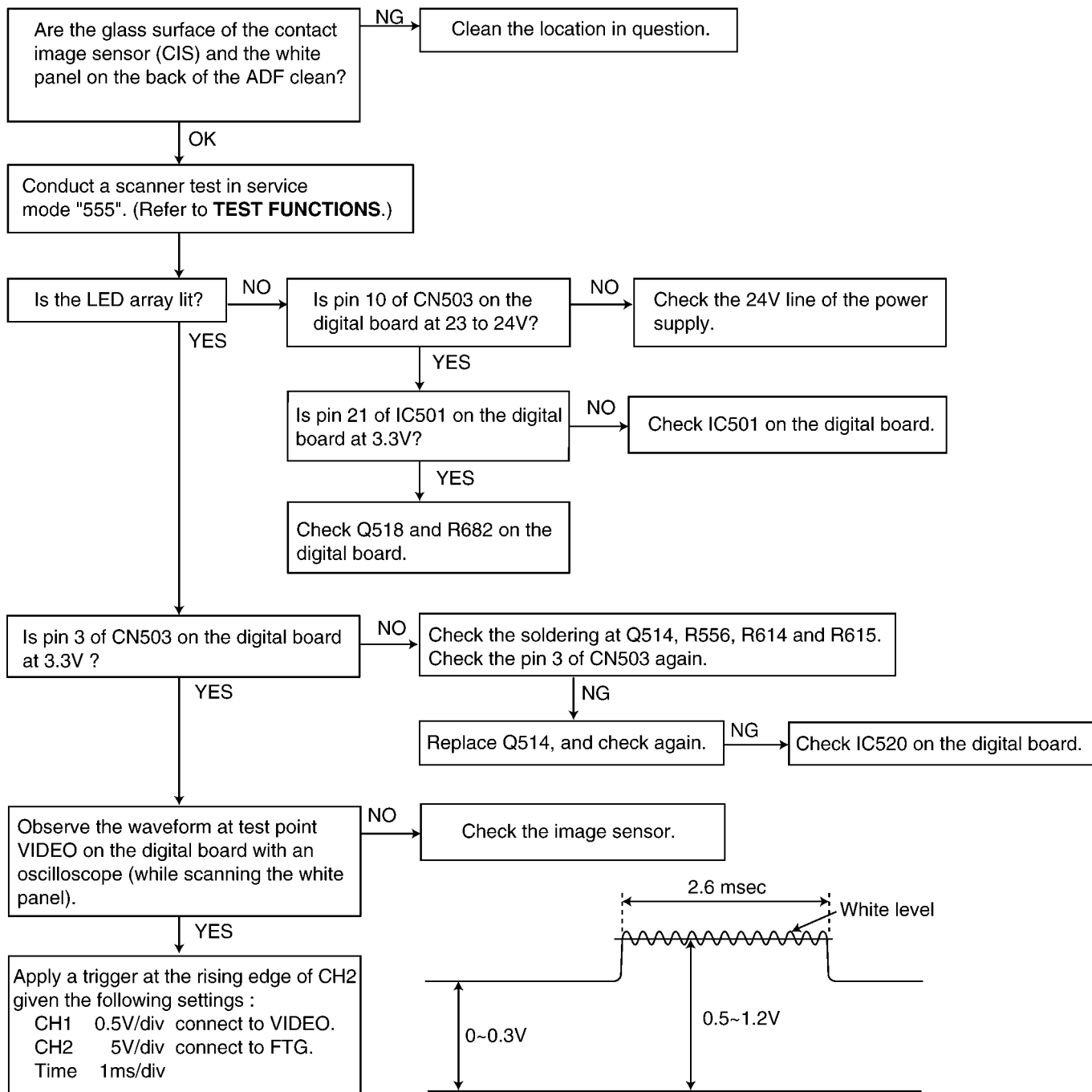
6.5.12.3. CR MOTOR



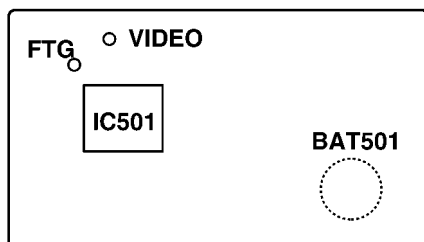
CROSS REFERENCE:

POWER SUPPLY BOARD SECTION (P.114)

6.5.13. CIS (Contact Image Sensor) SECTION



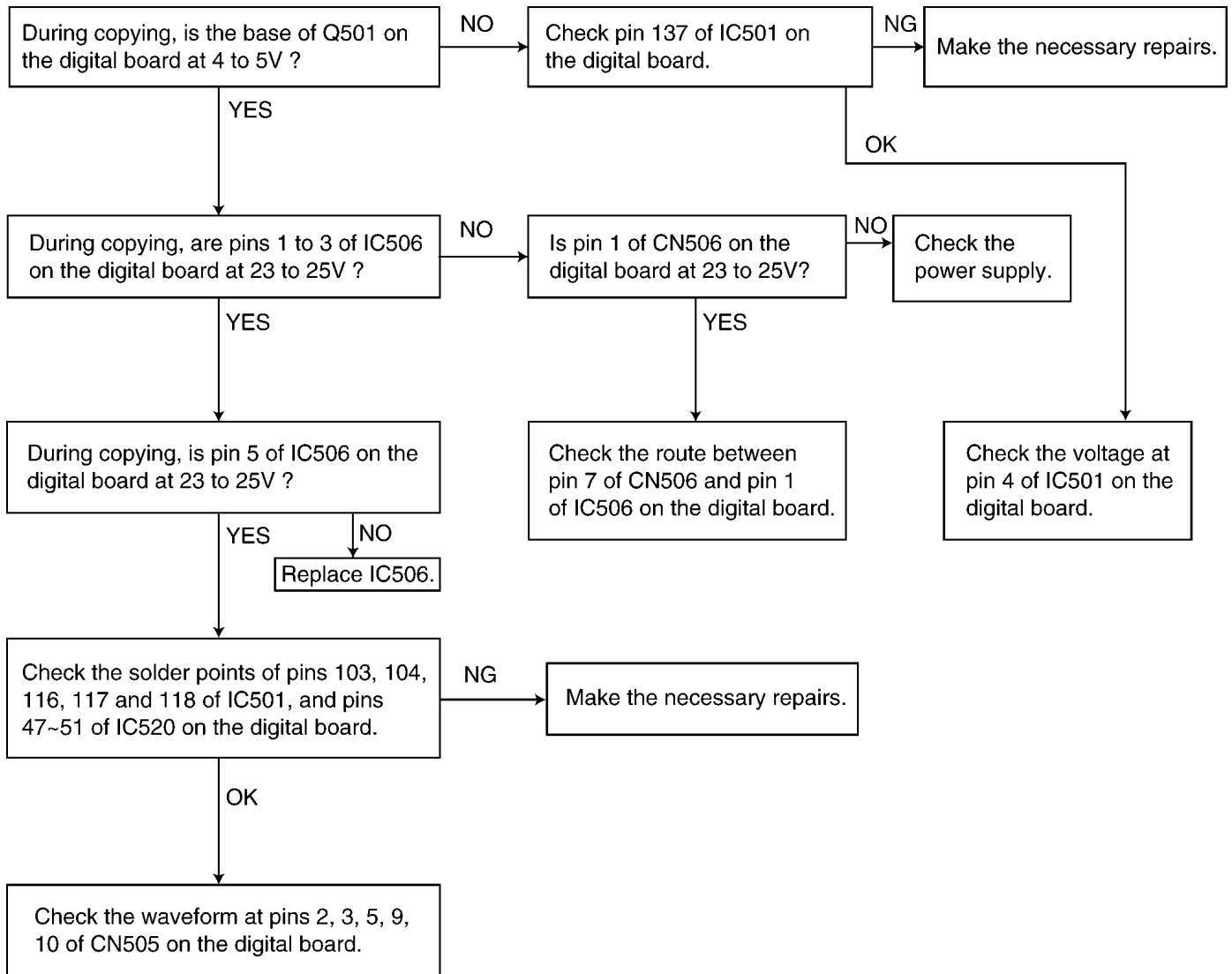
Digital Board
(Component View)



CROSS REFERENCE:

TEST FUNCTIONS (P.57)

6.5.14. THERMAL HEAD



6.5.15. POWER SUPPLY BOARD SECTION

6.5.15.1. KEY COMPONENTS FOR TROUBLESHOOTING

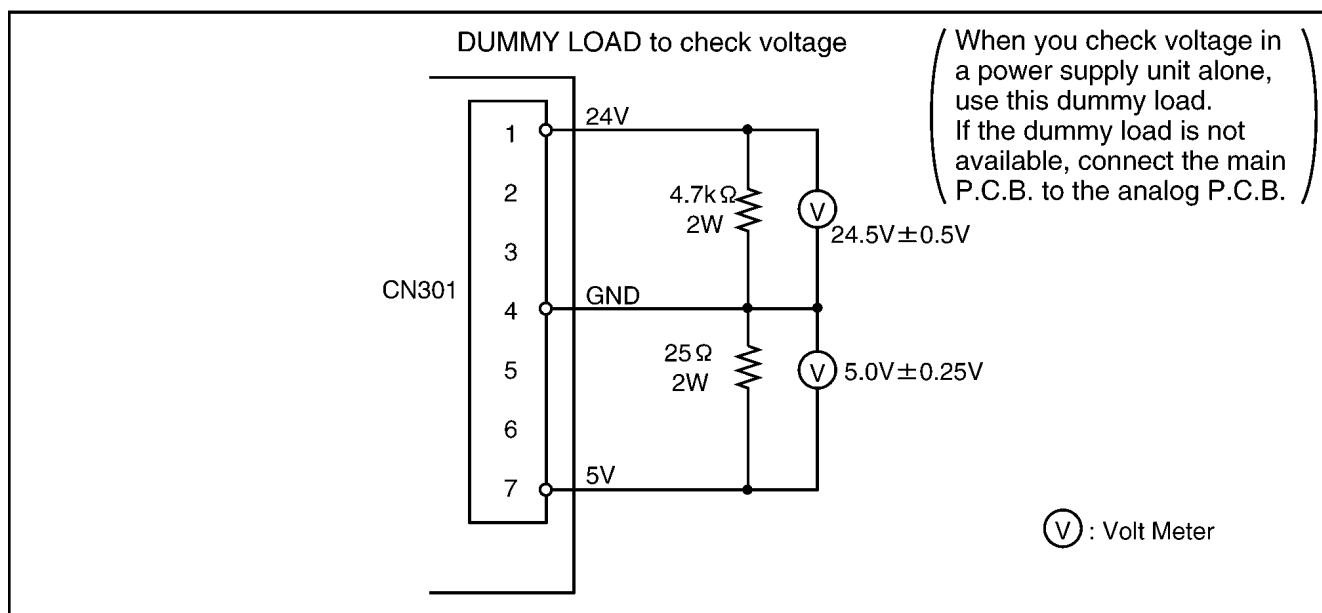
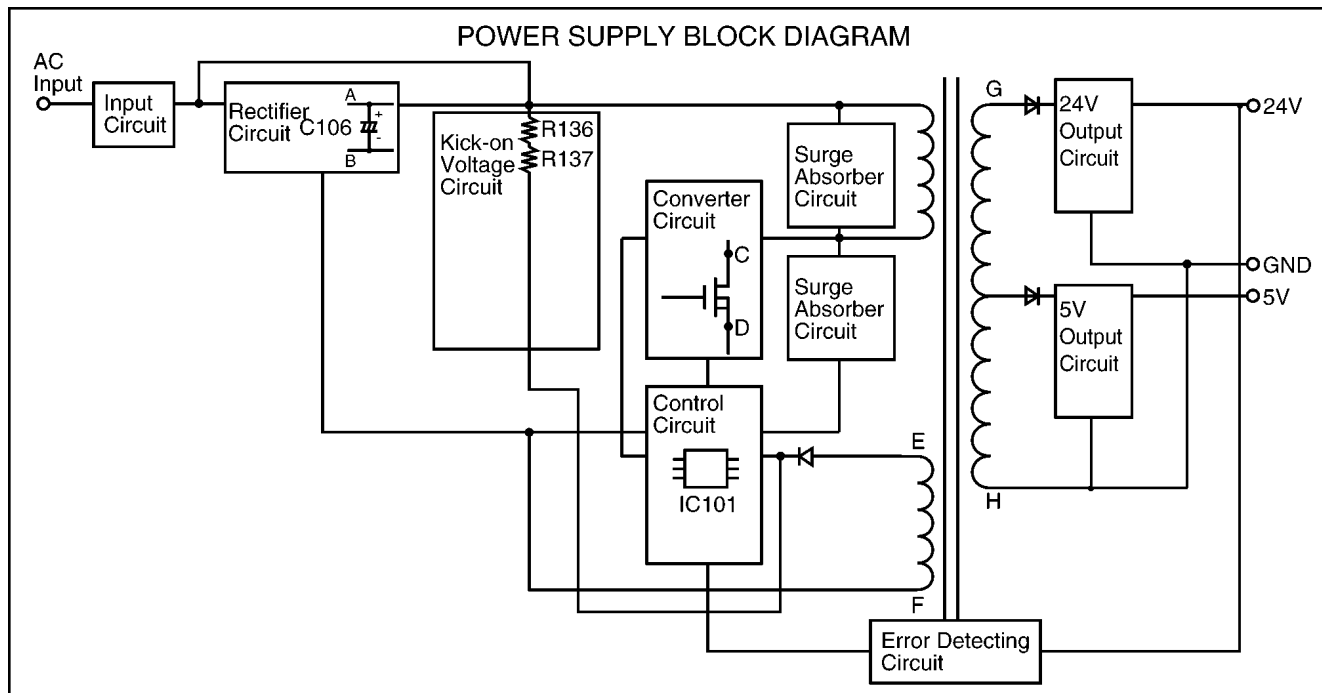
Check the following parts first: F101, D101-D104, C106, Q101, PC101 and IC101.

This comes from our experience with experimental tests. For example: power supply and lightning surge voltage test, withstanding voltage test, intentional short circuit test, etc.

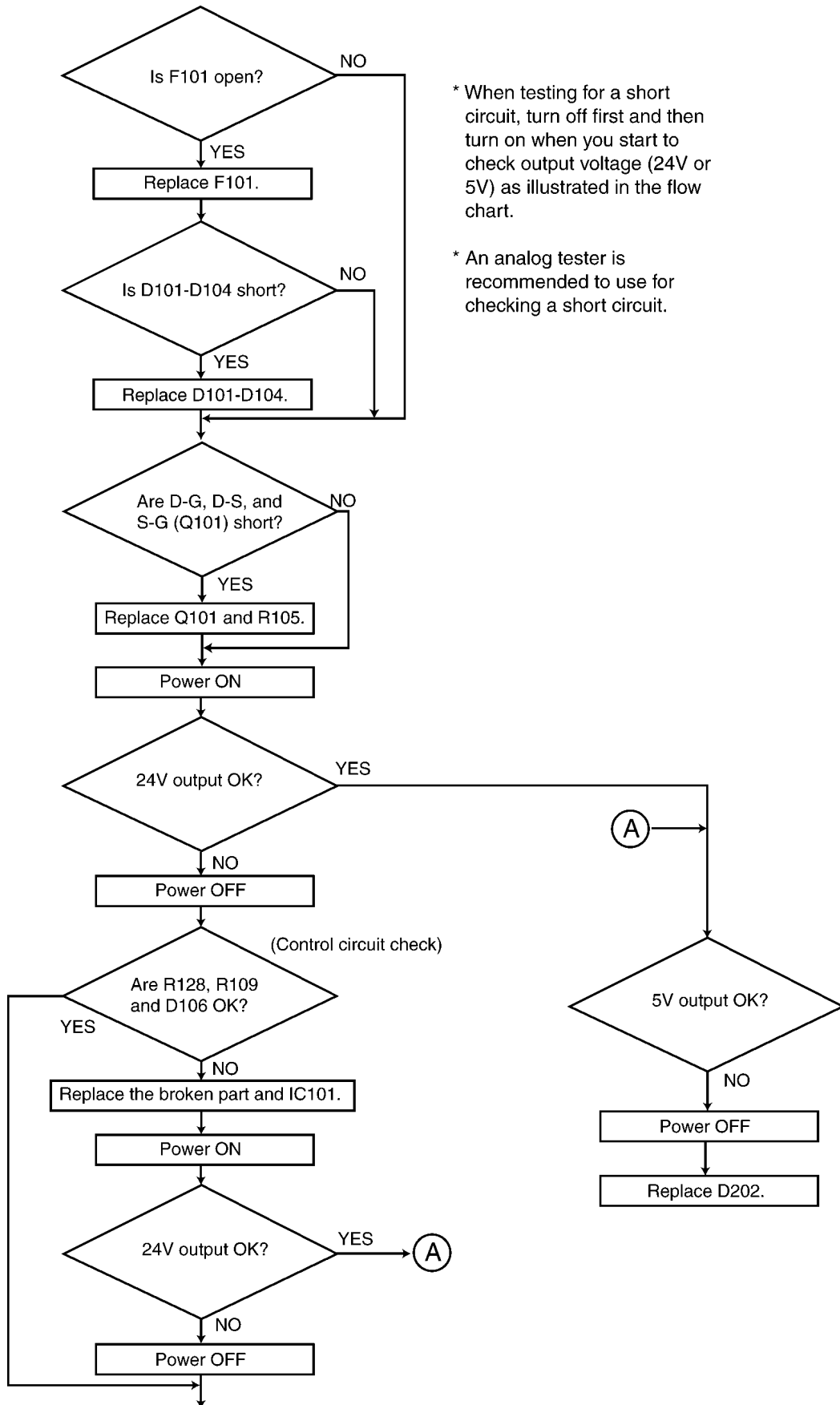
Caution:

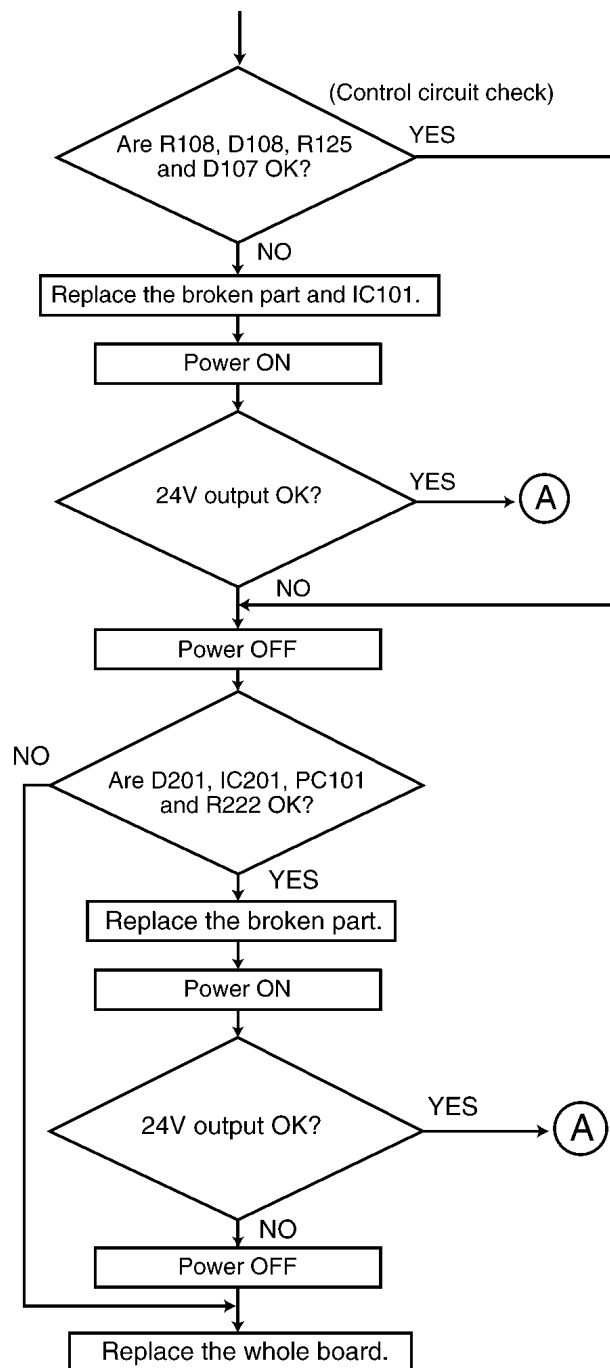
If you find a melted fuse in the unit, do not turn on the power until you locate and repair the faulty parts (except for the fuse); otherwise the fuse will melt again and you cannot pinpoint the faulty point.

In most cases, the symptom is that nothing is output. It is more likely that the fault is in the primary side rather than the secondary side. Check the primary side first.



6.5.15.2. TROUBLESHOOTING FLOW CHART





6.5.15.3. BROKEN PARTS REPAIR DETAILS

(D101, D102, D103, D104)

Check for a short-circuit in terminal 4. If D101, D102, D103 and D104 are short-circuits, F101 will melt (open).

In this case, replace all of the parts (D101, D102, D103, D104, F101).

(Q101)

The worst case of Q101 is a short-circuit between the Drain and Gate because damage expands to the peripheral circuit of Q101.

This is due to a very high voltage through the Gate circuit which is composed of R128, R109, D106 and IC101.

You should change all of the parts listed as follows.

F101, Q101, R128, R109, D106, IC101

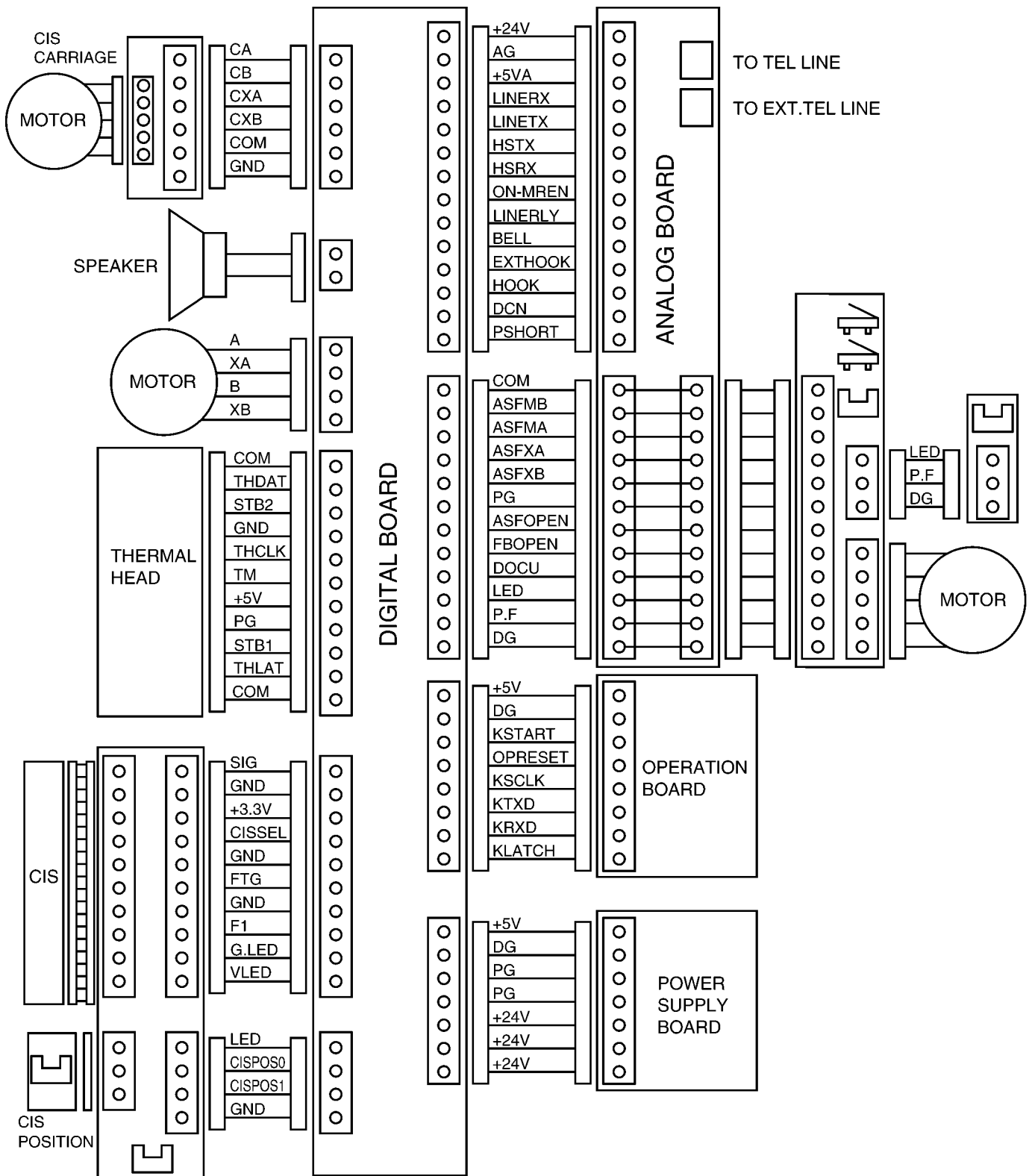
(D201)

If D201 is broken, the oscillation circuit in the power supply cannot operate. Check it with an electric tester.

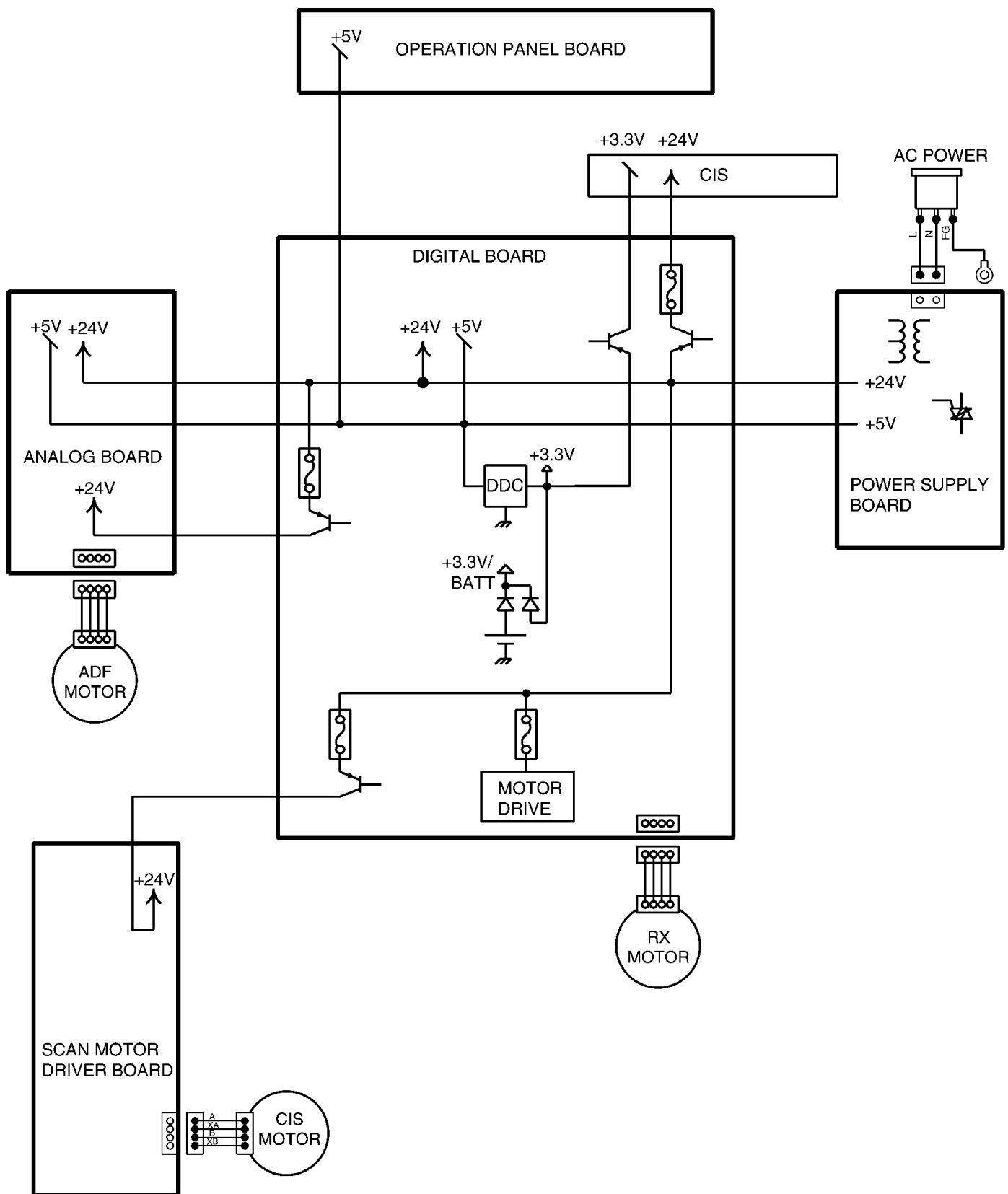
7 CIRCUIT OPERATIONS

7.1. CONNECTION DIAGRAM

7.1.1. CONNECTION DIAGRAM (1)



7.1.2. POWER SUPPLY FLOW



7.2. GENERAL BLOCK DIAGRAM

The following is an outline of each device IC on the digital board.

1. ASIC (IC501)

Composed mainly of an address decoder and a modem control.

Controls the general FAX operations.

Performs the image processing.

CPU and Real time clock

Controls the operation panel I/F.

Controls analog I/F.

2. Flash ROM (IC523)

Contains all of the program instructions on the unit operations.

3. Dynamic RAM (IC503)

4. Read Section

CIS image sensor to read transmitted documents.

5. Motor Driver Section

Drives the printing motor.

6. Analog Board

Composed of ITS circuit, NCU circuit and contains driving ADF Motor unit.

7. Sensor Section

Composed of a cover open switch, document set sensor, a document top sensor and CIS position sensor.

8. Power Supply Board Switching Section

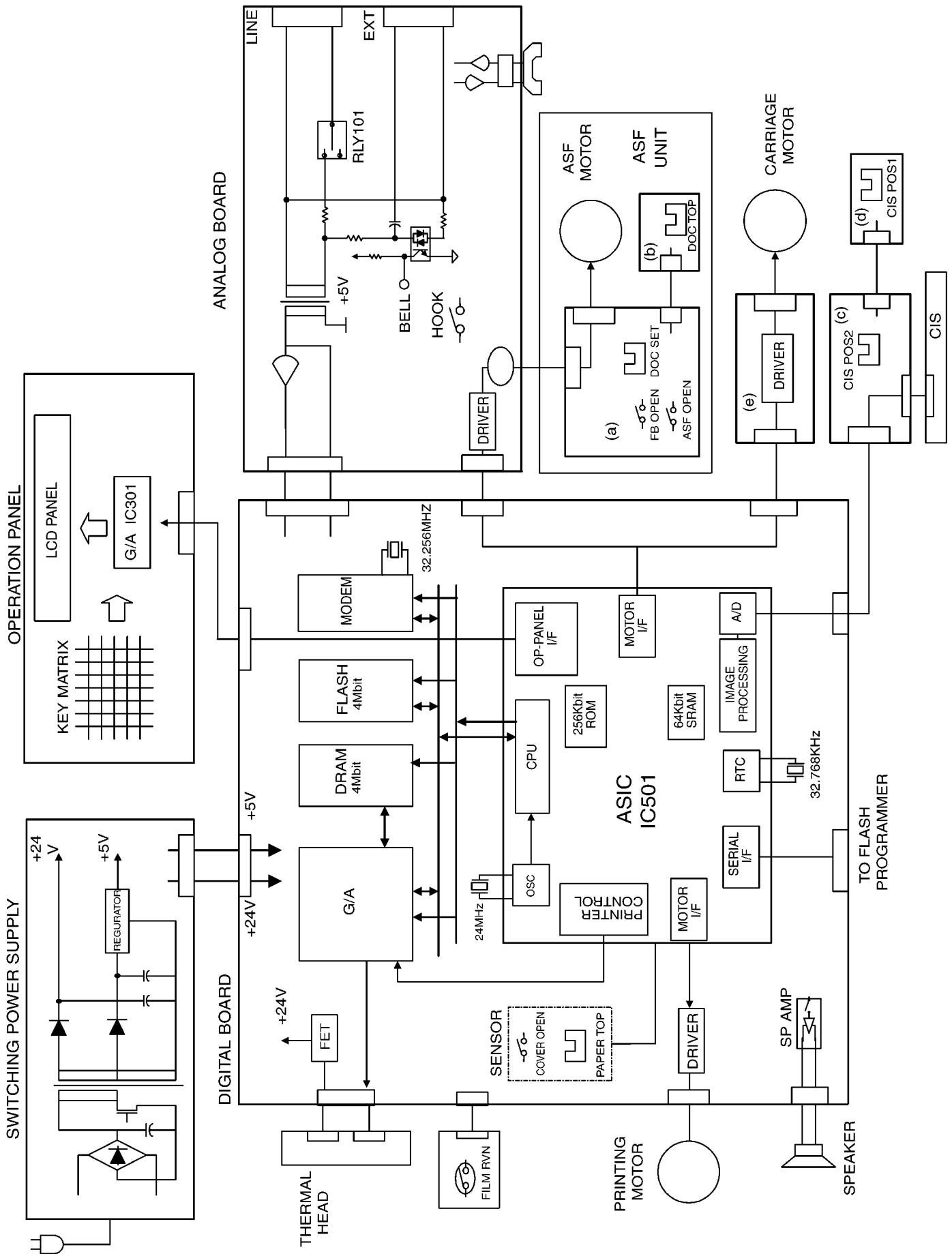
Supplies +5V and +24V to the unit.

9. Film detection Unit

Detect whether the film is made by panasonic and inform left amount of ink film.

10. Thermal Head

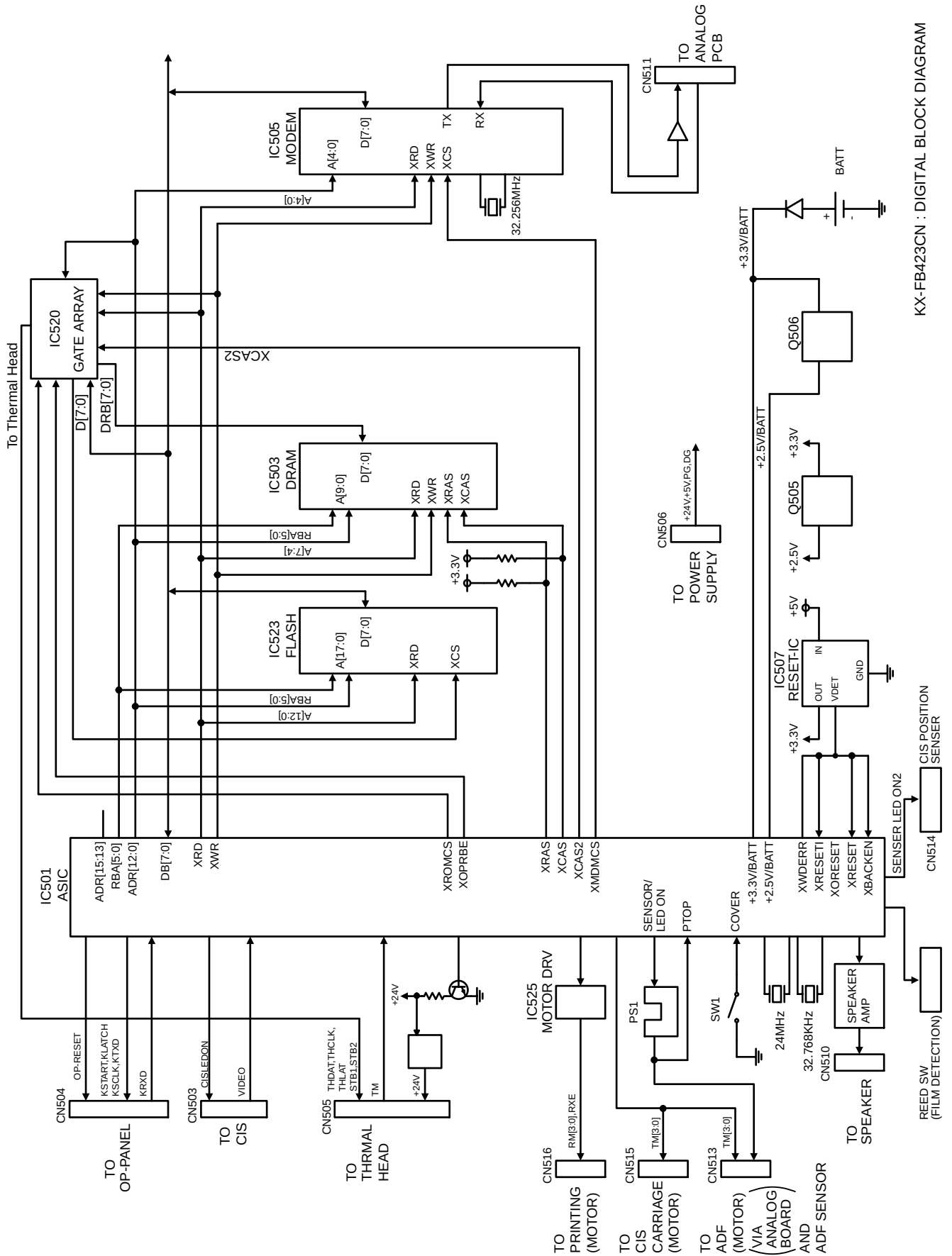
Contains heat emitting elements for dot matrix image printing.



7.3. FACSIMILE SECTION

7.3.1. DIGITAL SECTION

7.3.1.1. DIGITAL BLOCK DIAGRAM



KX-FB423CN : DIGITAL BLOCK DIAGRAM

7.3.1.2. ASIC (IC501)

This custom IC is used for the general FAX operations.

1. CPU:

This model uses a Z80 equivalent to the CPU operating at 12 MHz. Most of the peripheral functions are performed by custom-designed LSIs. Therefore, the CPU only works for processing the results.

2. RTC:

Real Time Clock

3. DECODER:

Decodes the address.

4. ROM/RAM I/F:

Controls the SELECT signal of ROM or RAM and the bank switching.

5. CIS I/F:

Controls the document reading.

6. IMAGE DATA RAM:

This memory is programmed into the ASIC and uses 8 KB for the image processing. (See Fig. A.*)

7. THERMAL HEAD I/F:

Transmits the recorded data to the thermal head.

8. MOTOR I/F:

Controls the transmission motor which feeds the document.
Controls the receiving motor which feeds the recording paper.

9. OPERATION PANEL I/F:

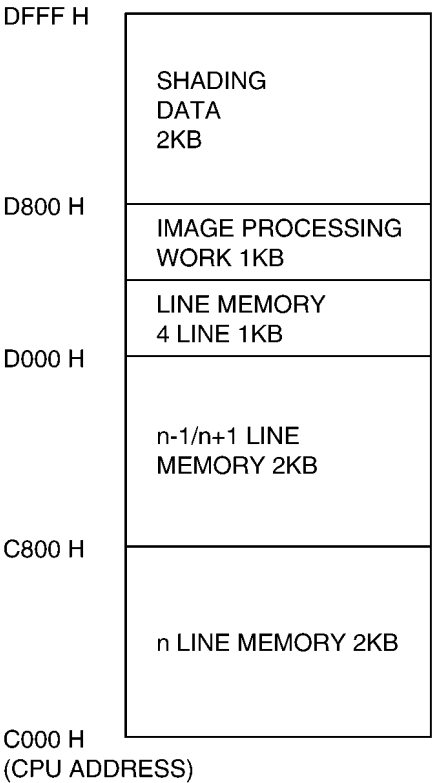
Serial interface with Operation Panel.

10. I/O PORT:

I/O Port Interface.

11. ANALOG UNIT:

Electronic volume for the handset and the monitor.
Sends beep tones, etc.



Note*:

This memory is incorporated into the ASIC (IC501) and used for the image processing.
Fig. A shows the memory map of the Image Data RAM.

7.3.1.3. FLASH MEMORY (IC523)

The 512KB ROM (FLASH MEMORY) carries a common area of 32KB and bank areas which each have 8KB (BK4~BK63). The addresses from 0000H to 7FFFH are for the common area and from 8000H to 9FFFH are for the bank areas.

7.3.1.4. DYNAMIC RAM (IC503)

The DRAM serves as CPU and receives memory.

The address is F200H~F3FFH (DRAM access window 1) and F600H~F7FFH (DRAM access window 2).

Descriptions of Pin Distribution (IC501)

NO.	SIGNAL	I/O	POWER SUPPLIED VOLTAGE	DESCRIPTION
1	VSSA		GND	POWER SOURCE (ANALOG GND)
2	VDDA 3.3		3.3V	POWER SOURCE (ANALOG +3.3V)
3	AIN1	A	3.3V	CCD IMAGE SIGNAL INPUT
4	AIN2	A	3.3V	THERMISTOR TEMPERATURE WATCH INPUT
5	AIN3	A	3.3V	-----
6	AMON	A	3.3V	ANALOG SIGNAL MONITOR TERMINAL
7	VSS		GND	POWER SOURCE (GND)
8	X32OUT	O	3.3V/BATT	RTC (32.768KHz) CONNECTION
9	X32IN	I	3.3V/BATT	RTC (32.768KHz) CONNECTION
10	VDD (3.3V / B)		-----	POWER SOURCE (+3.3V/LITHIUM BATTERY)
11	XBACEN	I	3.3V/BATT	BACKUP ENABLE
12	XRAMCS	O	3.3V/BATT	NOT USED
13	VDD (3.3V / B)		-----	POWER SOURCE(+3.3V / LITHIUM BATTERY)
14	VDD (2.5V/B)		-----	POWER SOURCE (+2.5V / LITHIUM BATTERY)
15	FTG	O	3.3V	SH SIGNAL OUTPUT FOR CIS (SI)
16	F1	O	3.3V	01 SIGNAL OUTPUT FOR CIS (CLK)
17	F2/OP	O	3.3V	OUTPUT PORT (HSTXMUTE)
18	FR/OP	O	3.3V	OUTPUT PORT (MDMRST)
19	CPC	I	3.3V	INPUT PORT (PTOP)
20	RVN	I	3.3V	RVN
21	IRDATXD/IOP	O	3.3V	OUTPUT PORT (CISLED)
22	IRDARXD/IOP80	I	3.3V	INPUT PORT (DOCU)
23	TXD/IOP	I	3.3V	INPUT PORT (RDPOS)
24	RXD/IOP	O	3.3V	OUTPUT PORT (SENLED1)
25	XRTS/IOP	I	3.3V	INPUT PORT (HOOK)
26	XCTS/IOP	O	3.3V	OUTPUT PORT (SPMUTE)
27	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
28	TONE1	A	3.3V	TONE OUTPUT
29	TONE2	A	3.3V	TONE OUTPUT
30	VOLUREF	A	3.3V	ANALOG REF VOLTAGE
31	VOLUOUT	A	3.3V	VOLUME OUTPUT
32	VOLUIN	A	3.3V	VOLUME INPUT
33	XNMI	I	3.3V	HIGH FIXED
34	FMEMDO/IOP	O	3.3V	OUTPUT PORT (ON-MREN)
35	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
36	VSS		GND	POWER SOURCE (GND)
37	VSS		GND	POWER SOURCE (GND)
38	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
39	MIDAT/IOP	O	3.3V	OUTPUT PORT (TONE1EN)
40	MICLK/IOP	I	3.3V	INPUT PORT (OP RESET)
41	MILAT/IOP	O	3.3V	OUTPUT PORT (ASFMHLD)
42	20KOSC/IOP	I	3.3V	INPUT PORT (BELL)
43	XWAIT	I	3.3V	INPUT PORT (KOVER)
44	HSTRD/IOP	O	3.3V	NOT USED
45	HSTWR/IOP	O	3.3V	NOT USED
46	XOPRBE	O	3.3V	MFCS
47	ADR15	O	3.3V	CPU ADDRESS BUS 15 (NOT USED)
48	ADR14	O	3.3V	CPU ADDRESS BUS 14 (NOT USED)
49	ADR13	O	3.3V	CPU ADDRESS BUS 13 (NOT USED)
50	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
51	XOUT	O	3.3V	SYSTEM CLOCK (24MHz)
52	XIN	I	3.3V	SYSTEM CLOCK (24MHz)
53	VSS		GND	POWER SOURCE (GND)
54	VDD (3.3V)		-----	POWER SOURCE (+3.3V)

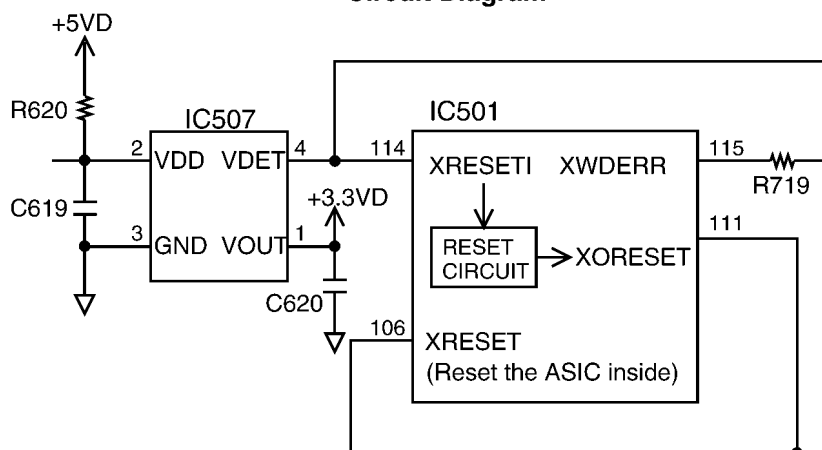
NO.	SIGNAL	I/O	POWER SUPPLIED VOLTAGE	DESCRIPTION
55	XTEST	O	3.3V	24MHz CLOCK
56	TEST1	I	3.3V	HIGH FIXED
57	TEST2	I	3.3V	HIGH FIXED
58	TEST3	I	3.3V	HIGH FIXED
59	TEST4	I	3.3V	HIGH FIXED
60	XMDMINT	I	3.3V	MODEM INTERRUPT
61	XMDMCS	O	3.3V	MODEM CHIP SELECT
62	XRAS/IOP	O	3.3V	DRAM (IC503) ROW ADDRESS STROBE
63	XCAS1/IOP	O	3.3V	DRAM (IC503) COLUMN ADDRESS STROBE
64	XCAS2/IOP	O	3.3V	DRAM(IC503) CHIPSELECT
65	XRESCS2	O	3.3V	FLASH CHIP SELECT
66	DB3	I/O	3.3V	CPU DATA BUS 3
67	DB2	I/O	3.3V	CPU DATA BUS 2
68	DB4	I/O	3.3V	CPU DATA BUS 4
69	DB1	I/O	3.3V	CPU DATA BUS 1
70	DB5	I/O	3.3V	CPU DATA BUS 5
71	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
72	VSS		GND	POWER SOURCE (GND)
73	VSS		GND	POWER SOURCE (GND)
74	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
75	DB0	I/O	3.3V	CPU DATA BUS 0
76	DB6	I/O	3.3V	CPU DATA BUS 6
77	DB7	I/O	3.3V	CPU DATA BUS 7
78	XROMCS	O	3.3V	ROM (IC523) CHIP SELECT
79	RD	O	3.3V	CPU RD
80	WR	O	3.3V	CPU WR
81	ADR0	O	3.3V	CPU ADDRESS BUS 0
82	ADR1	O	3.3V	CPU ADDRESS BUS 1
83	ADR2	O	3.3V	CPU ADDRESS BUS 2
84	ADR3	O	3.3V	CPU ADDRESS BUS 3
85	ADR4	O	3.3V	CPU ADDRESS BUS 4
86	ADR5	O	3.3V	CPU ADDRESS BUS 5
87	VSS		GND	POWER SOURCE (GND)
88	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
89	ADR6	O	3.3V	CPU ADDRESS BUS 6
90	ADR7	O	3.3V	CPU ADDRESS BUS 7
91	ADR8	O	3.3V	CPU ADDRESS BUS 8
92	ADR9	O	3.3V	CPU ADDRESS 9
93	ADR10	O	3.3V	CPU ADDRESS 10
94	ADR11	O	3.3V	CPU ADDRESS 11
95	ADR12	O	3.3V	CPU ADDRESS 12
96	RBA0	O	3.3V	ROM/RAM BANK ADDRESS 0
97	RBA1	O	3.3V	ROM/RAM BANK ADDRESS 1
98	RBA2	O	3.3V	ROM/RAM BANK ADDRESS 2
99	RBA3	O	3.3V	ROM/RAM BANK ADDRESS 3
100	RBA4	O	3.3V	ROM/RAM BANK ADDRESS 4
101	RBA5	O	3.3V	ROM/RAM BANK ADDRESS 5
102	RBA6/IOP96	O	3.3V	A19
103	STB1	O	3.3V	STROBE SIGNAL OUTPUT TO THERMAL HEAD (VIA GATE ARRAY)
104	STB2	O	3.3V	STROBE SIGNAL OUTPUT TO THERMAL HEAD (VIA GATE ARRAY)
105	STB3	O	3.3V	NOT USED
106	XRESET	I	3.3V	RESET INPUT
107	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
108	VSS		GND	POWER SOURCE (GND)
109	VSS		GND	POWER SOURCE (GND)
110	VDD (3.3V)		-----	POWER SOURCE (+3.3V)
111	XORESET	O	3.3V	LATED RESET SIGNAL OUTPUT
112	VDD(5V)		-----	POWER SOURCE (+5V)
113	VSS		GND	POWER SOURCE (GND)
114	XRESETI	I	3.3V	RESET INPUT
115	WDERR	O	3.3V	WATCHED ERROR OUTPUT SIGNAL
116	THDAT	O	3.3V	RECORDED IMAGE OUTPUT
117	THCLK	O	3.3V	CLOCK OUTPUT FOR DATA TRANSFER
118	THLAT	O	3.3V	PULSE OUTPUT FOR DATA LATCH

NO.	SIGNAL	I/O	POWER SUPPLIED VOLTAGE	DESCRIPTION
119	STBNP	I	3.3V	INPUT PORT (TEST)
120	RM0/IOP	O	3.3V	RX MOTOR A PHASE
121	RM1/IOP	O	3.3V	RX MOTOR $\bar{A}$ PHASE
122	RM2/IOP	O	3.3V	RX MOTOR B PHASE
123	RM3/IOP	O	3.3V	RX MOTOR $\bar{B}$ PHASE
124	RXE/IOP	O	3.3V	RX MOTOR ENABLE SIGNAL
125	TMO	O	3.3V	ASF/CIS MOTOR A PHASE
126	VDD (2.5V)		-----	POWER SOURCE (+2.5V)
127	VSS		GND	POWER SOURCE (GND)
128	TM1/IOP	O	3.3V	ASF/CIS MOTOR B PHASE
129	TM2/IOP	O	3.3V	ASF/CIS MOTOR $\bar{A}$ PHASE
130	TM3/IOP	O	3.3V	ASF/CIS MOTOR $\bar{B}$ PHASE
131	TXE/IOP	O	3.3V	ASF/CIS MOTOR ENABLE SIGNAL
132	KSTART	O	3.3V	OPERATION PANEL CONTROL
133	KLATCH	O	3.3V	OPERATION PANEL CONTROL
134	KSCLK	O	3.3V	OPERATION PANEL CONTROL
135	KTXD	O	3.3V	OPERATION PANEL CONTROL
136	KRXD	I	3.3V	OPERATION PANEL CONTROL
137	FMEMCLK/IOP	O	3.3V	OUTPUT PORT (THON)
138	FMEMDI/IOP	O	3.3V	OUTPUT PORT (LINERLY)
139	ADSEL1	O	3.3V	CHANNEL SELECT SIGNAL FOR AIN2
140	VDDA (2.5V)		2.5V	POWER SOURCE (ANALOG +2.5V)
141	VREFB	A	3.3V	A/D CONVERTER'S ZERO STANDARD VOLTAGE OUTPUT
142	VCL	A	3.3V	ANALOG PART STANDARD VOLTAGE SIGNAL
143	VREFT	A	3.3V	A/D CONVERTER'S FULL SCALE VOLTAGE OUTPUT
144	VSSA		GND	POWER SOURCE (ANALOG GND)

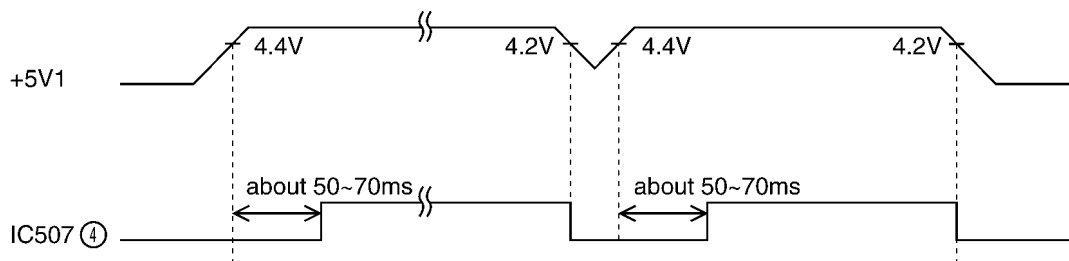
7.3.2. RESET CIRCUIT

The output signal (reset) from pin 4 of the voltage detect IC (IC507) is input to the ASIC (IC501) 114 pin.

Circuit Diagram



1. During a momentary power interruption, a positive reset pulse of 50~70 msec is generated and the system is reset completely.



2. The watch dog timer, built-in the ASIC (IC501), is initialized by the CPU about every 1.5 ms.

When a watch dog error occurs, pin 115 of the ASIC (IC501) becomes low level.

The terminal of the 'WDERR' signal is connected to the reset line, so the 'WDERR' signal works as the reset signal.

7.3.3. RTC BACKUP CIRCUIT

1. Function

This unit has a lithium battery (BAT501) which works for Real Time Clock IC (RTC: inside IC501).

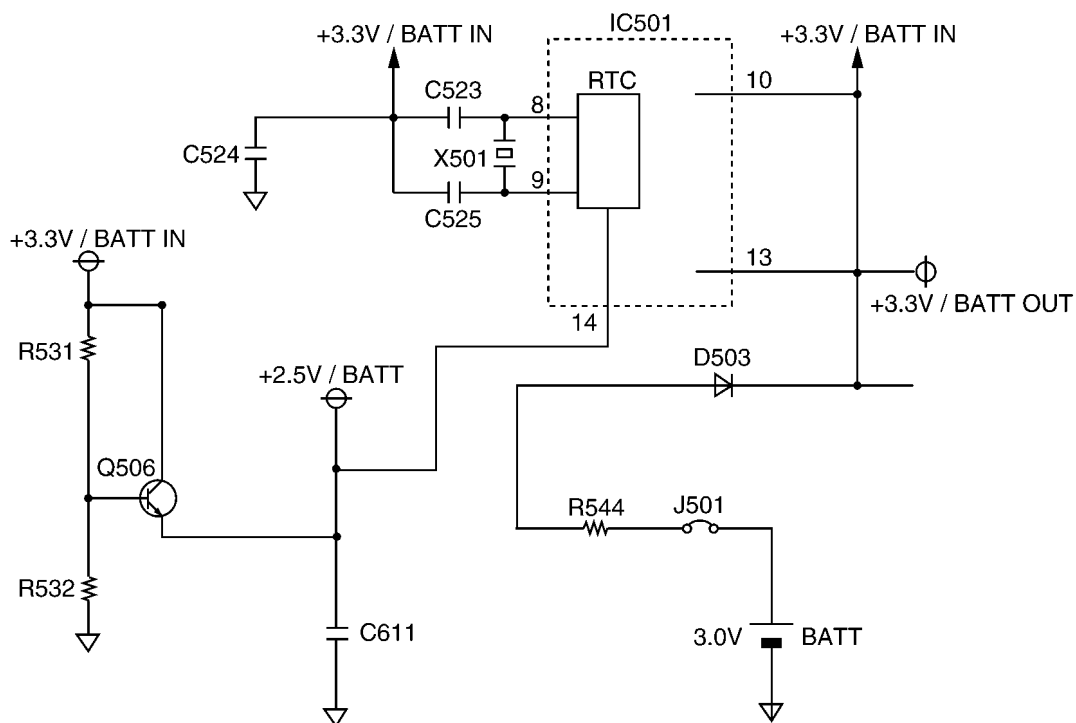
The RTC continues to work, backed up by a lithium battery even when the power switch is OFF.

The user parameters for autodial numbers, the system setup data and others are in the FLASH ROM (IC523).

2. RTC Inside (IC501) Backup Circuit Operation

When the power switch is turned ON, power is supplied through Q506 to the RTC (inside IC501). At this time, the voltage at pin 14 of the IC501 is +2.5V. When the power switch is turned OFF, the BAT501 supplies power to RTC through D503 and Q506. The voltage at pin 14 of IC501 is about +2.2V. When the power switch is OFF and the voltage of +3.3V decreases, pin 14 of RTC (IC501) becomes roughly the same voltage as the battery voltage. RTC goes into the backup mode, in which the power consumption is lower.

Circuit Diagram



7.3.4. ANALOG SECTION

7.3.4.1. DESCRIPTION OF BLOCK DIAGRAM IN ANALOG SECTION

1. Function

The analog section serves as an interface between the telephone line. The digital board (IC505) for transmission and reception of FAX signals, switches between the digital board (IC505) and other sections by means of a multiplexer in the NCU section. The control signals to the individual analog sections are output mainly from ASIC IC501, and the status information for the various sections is also held in ASIC IC501.

Simple explanations for the various sections are given below.

2. Circuit Operation

[NCU Section]

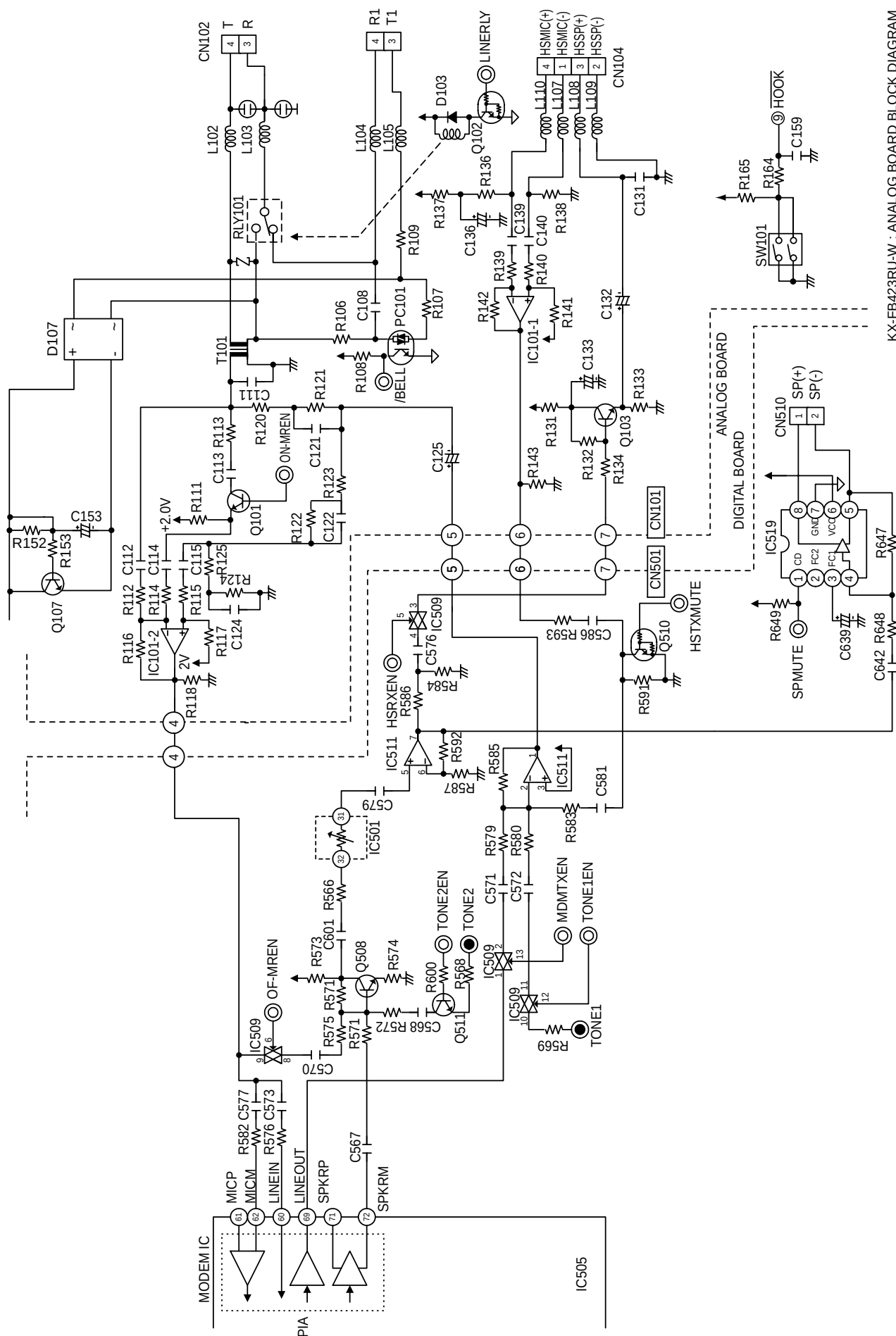
This is composed of a bell detection circuit, pulse dial generation circuit, amplifier circuit for line transmission and reception, sidetone circuit, Extension phone line off-hook detection circuit, Remote FAX activation circuit.

Refer to **NCU SECTION** (P.163).

[Modem (IC505)]

This is used for FAX signal tone modulation, DTMF signal transmission. The DTMF signal is placed into the TX system.

7.3.4.2. BLOCK DIAGRAM



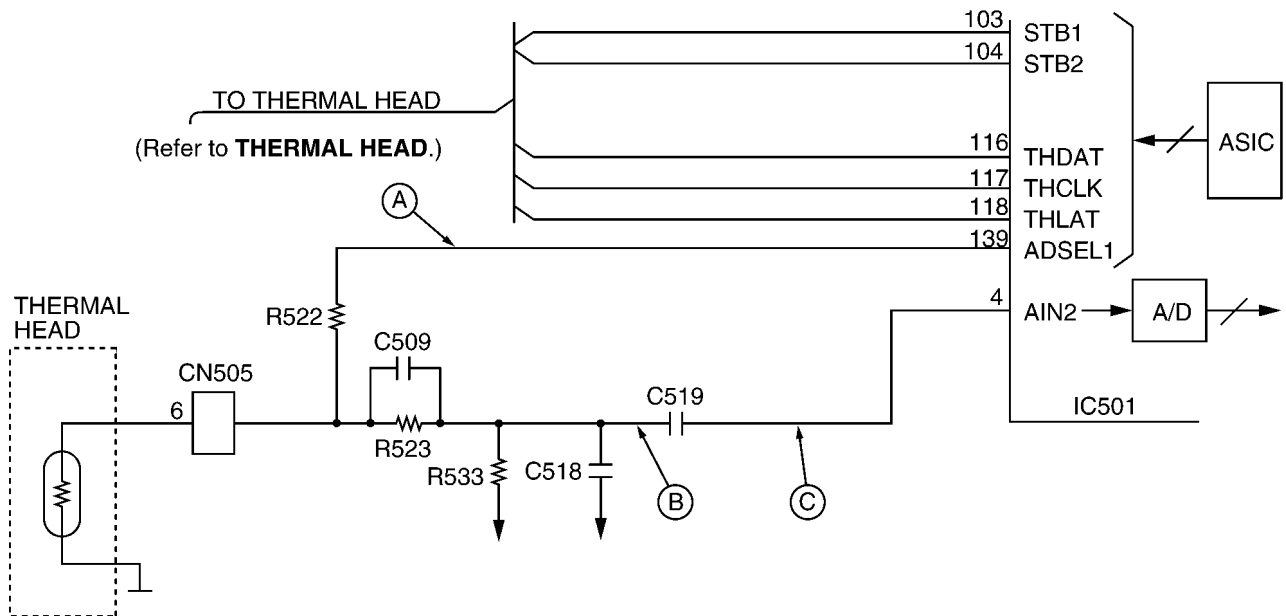
7.3.5. SUPERVISION CIRCUIT FOR THE THERMAL HEAD TEMPERATURE

1. Function

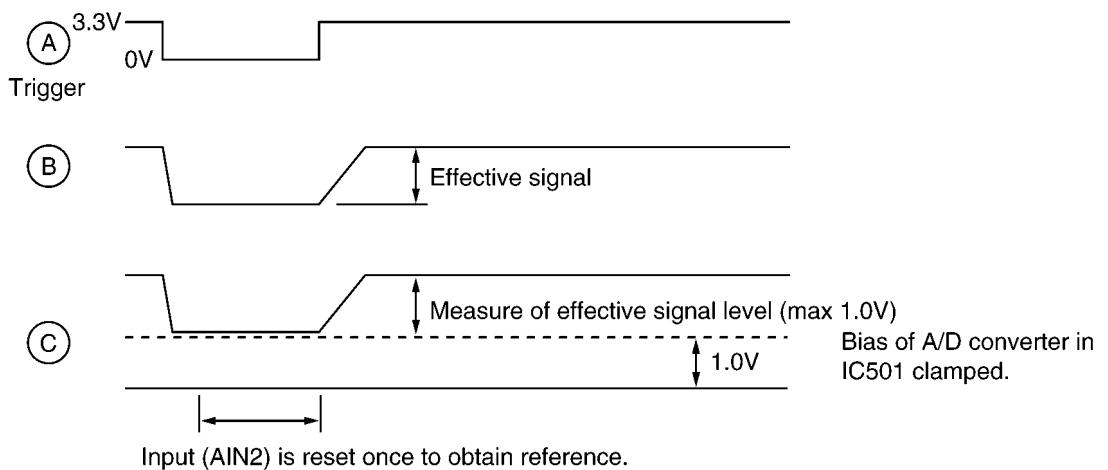
The thermistor changes the resistor according to the temperature and uses the thermistor's characteristics. The output of pin 139 of IC501 becomes a low level. Then when it becomes a high level, it triggers point A. In point C, according to the voltage output time, the thermal head's temperature is detected.

After the thermal head temperature is converted to voltage in B, it is then changed to digital data in the A/D converter inside IC501. The CPU decides the strobe width of the thermal head according to this value. Therefore, this circuit can keep the thermal head at an even temperature in order to stabilize the printing density and prevent the head from being overheated.

Circuit Diagram



Timing Chart



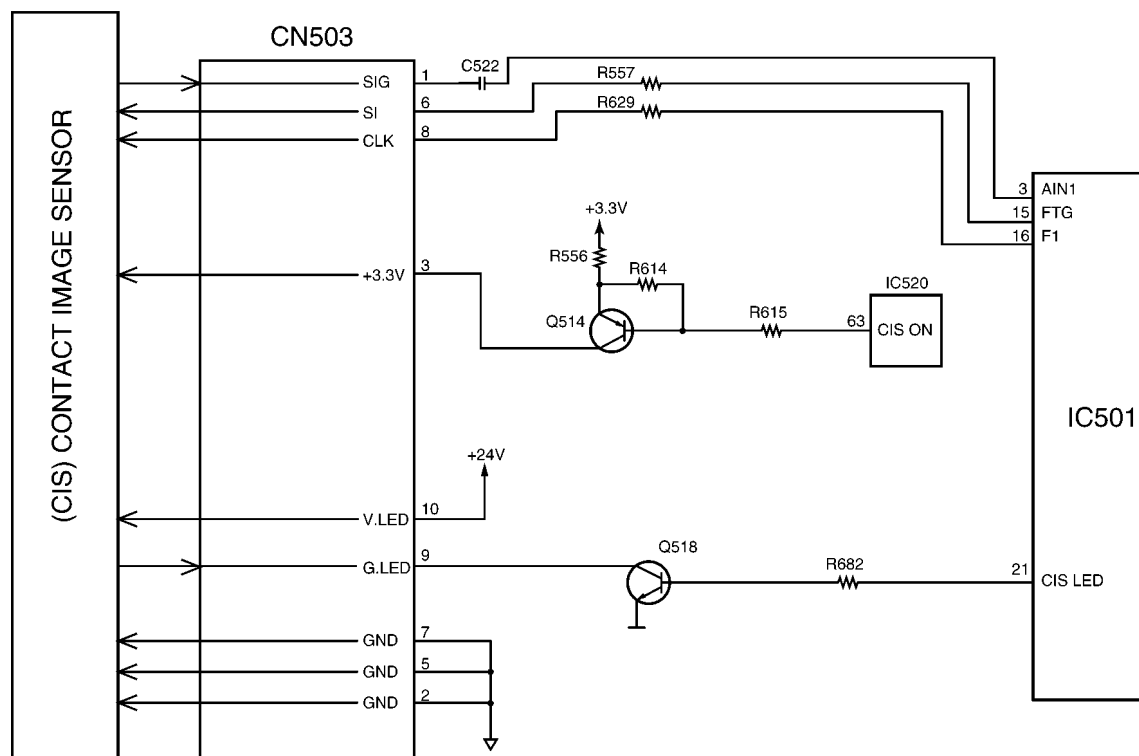
CROSS REFERENCE:

THERMAL HEAD (P.148)

7.4. SCANNING BLOCK

The scanning block of this device consists of a control circuit and a contact image sensor made up of a celfoc lens array, an LED array, and photoelectric conversion elements.

Circuit Diagram



When an original document is inserted and the start button pressed, pin 21 of IC501 goes to a high level and the transistor Q507 turns on. This applies voltage to the LED array to light it. The contact image sensor is driven by each of the FTG-F1 signals output from IC501, and the original image illuminated by the LED array undergoes photoelectric conversion to output an analog image signal (SIG). The analog image signal is input to the system ASIC on AIN1 (pin 3 of IC501) and converted into 8-bit data by the A/D converter inside IC501. Then this signal undergoes digital processing in order to obtain a high-quality image.

7.5. STEPPING MOTOR DRIVE SECTION

7.5.1. MOTOR DRIVE CIRCUIT

1. Functions

This motor functions for main operations FAX reception and copy printing.

This feed recording paper synchronized for printing.

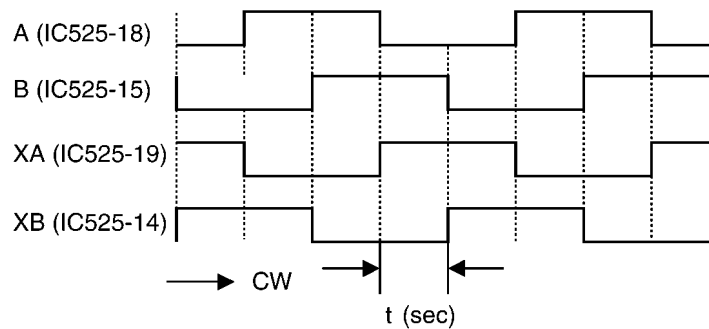
2. Motor operation

Excitation pulses is output from ASIC (IC501) pins 120~123. Then stepping pulses are output from driver IC (IC525) pin No 18, 19, 15, 14 and drives the motor coil.

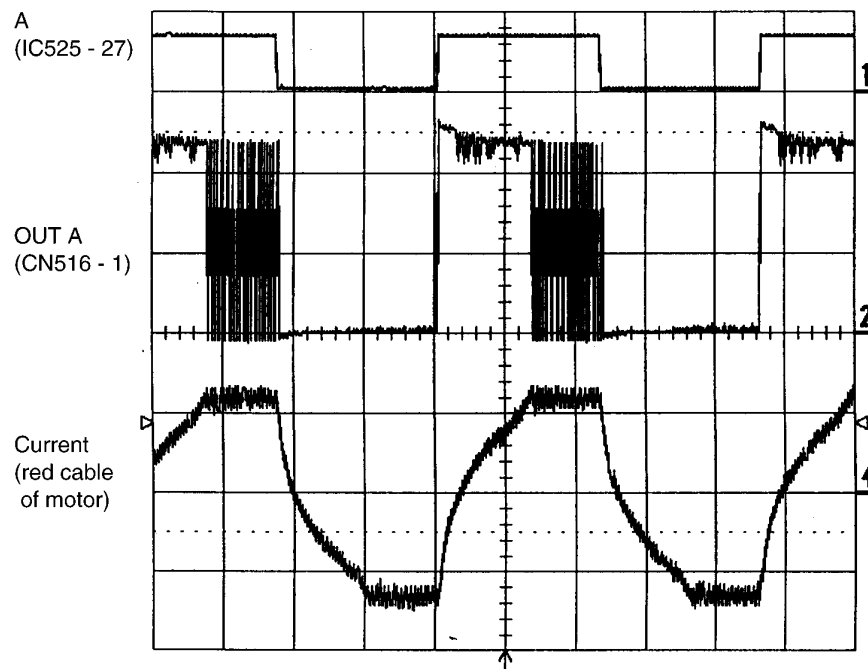
As a result, a current of about 0.32A are supplied to the motor coil.

7.5.1.1. TIMING CHART

(1) 2 phase excitation



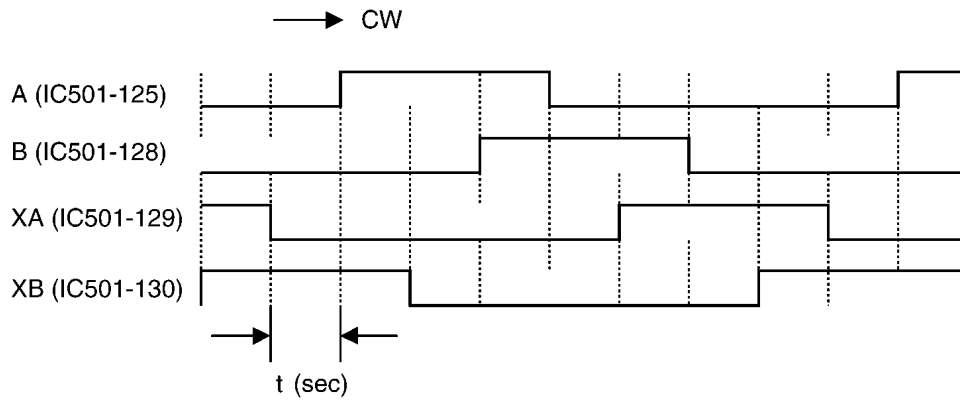
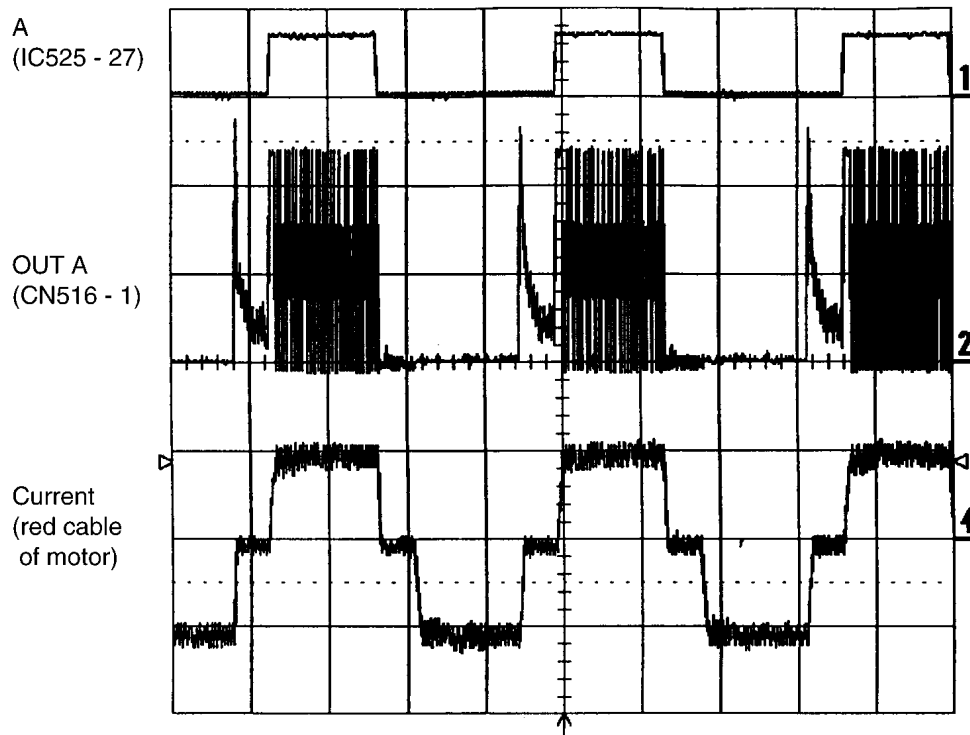
(2) 2 phase excitation output waveform (example "A Phase")



Other phase (B, XA, XB) operates as A phase does.

DRIVE MODE

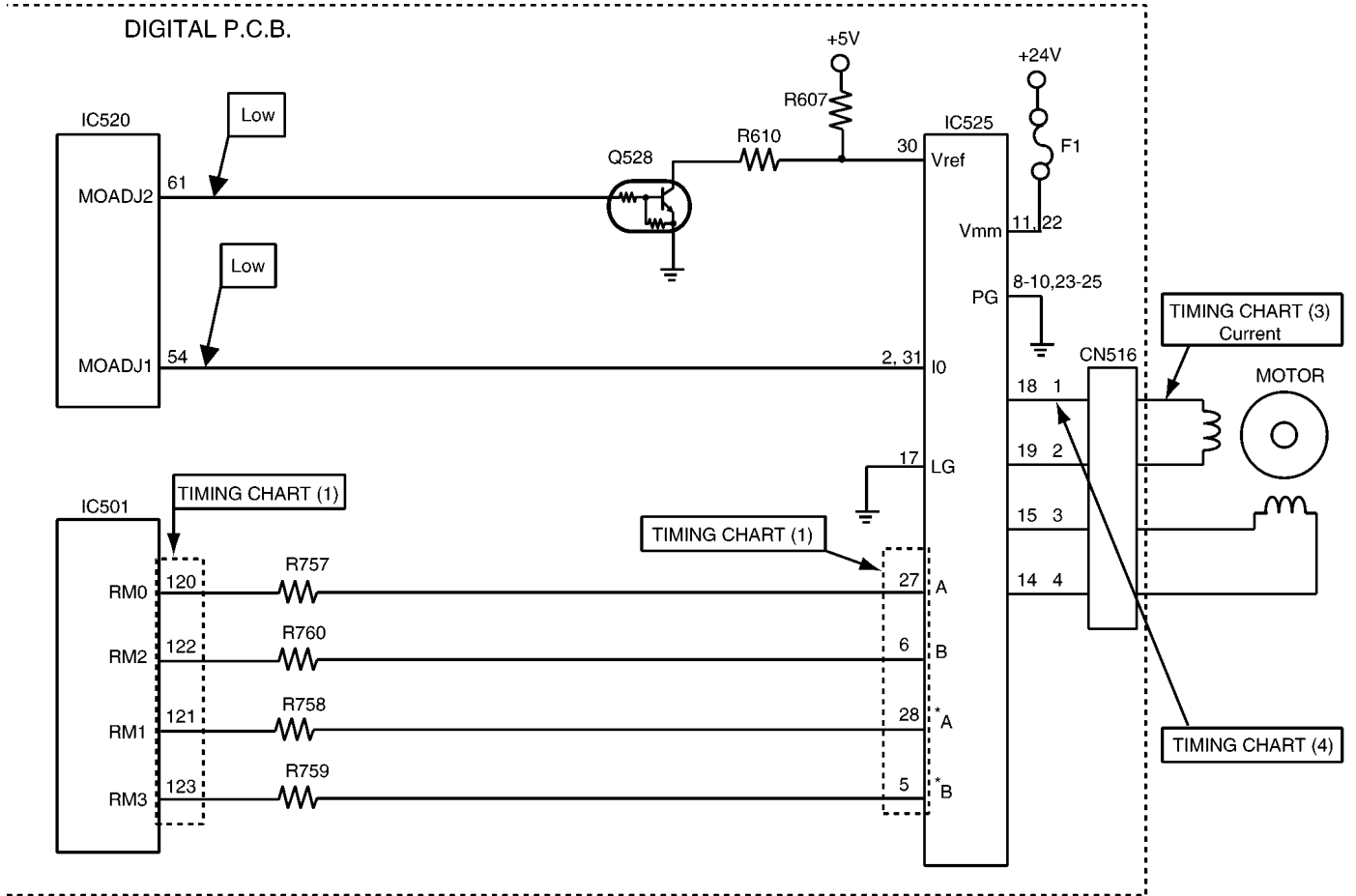
FUNCTION	MODE	PHASE PATTERN	SPEED	CURERENT
Recording Paper Feeding	-	2 phase	432pps	0.32A
FINE	COPY	2 phase	432 / 216pps	0.29A / 0.22A
SUPER FINE	COPY	1-2 phase	216pps	0.22A
PHOTO	COPY	1-2 phase	432pps	0.22A
FINE	RECEIVE	1-2 phase	432pps	0.29A
SUPER FINE	RECEIVE	1-2 phase	216pps	0.22A
PHOTO	RECEIVE	1-2 phase	432pps	0.29A

(3) 1-2 phase excitation**(4) 2 phase excitation output waveform (example "A phase")**

Other phase (B, XA, XB) operates as A phase does.

7.5.1.2. ENGINE MOTOR DRIVE CIRCUIT

(1) Circuit Diagram



7.5.2. ADF (Auto Document Feed) MOTOR DRIVE CIRCUIT

1. Functions

This motor functions for main operations including FAX transmission, ADF copy and PC scan.

This feed document paper synchronized for reading.

2. Motor operation

During motor driving, pin 43 of Gate Array IC520 becomes a high level, and Q507, Q504 turns ON.

As a result, +24V is supplied to the motor coil.

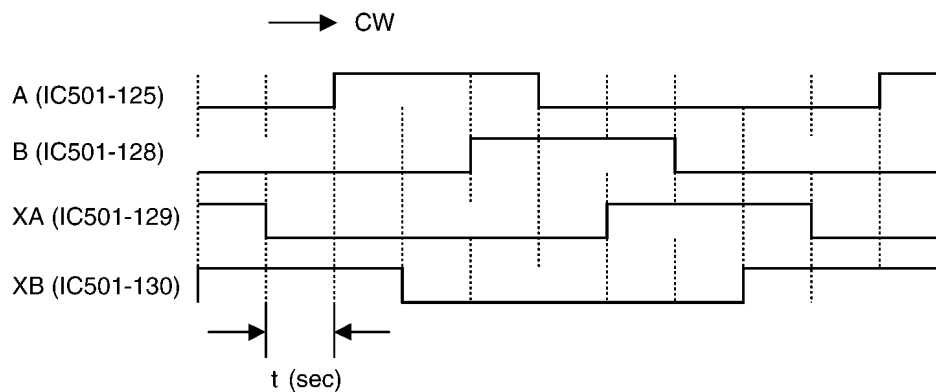
Stepping pulses are output from ASIC IC501 pins, 125,128, 129, 130, causing driver IC102 (on Analog Board) pins, 1~4 to drive the motor coil.

The motor coil is energized sequentially in 2 phase increments, which causes a 1-step rotation.

A 1-step rotation feeds 0.042mm of document paper.

7.5.2.1. TIMING CHART

(1) 1-2 phase excitation



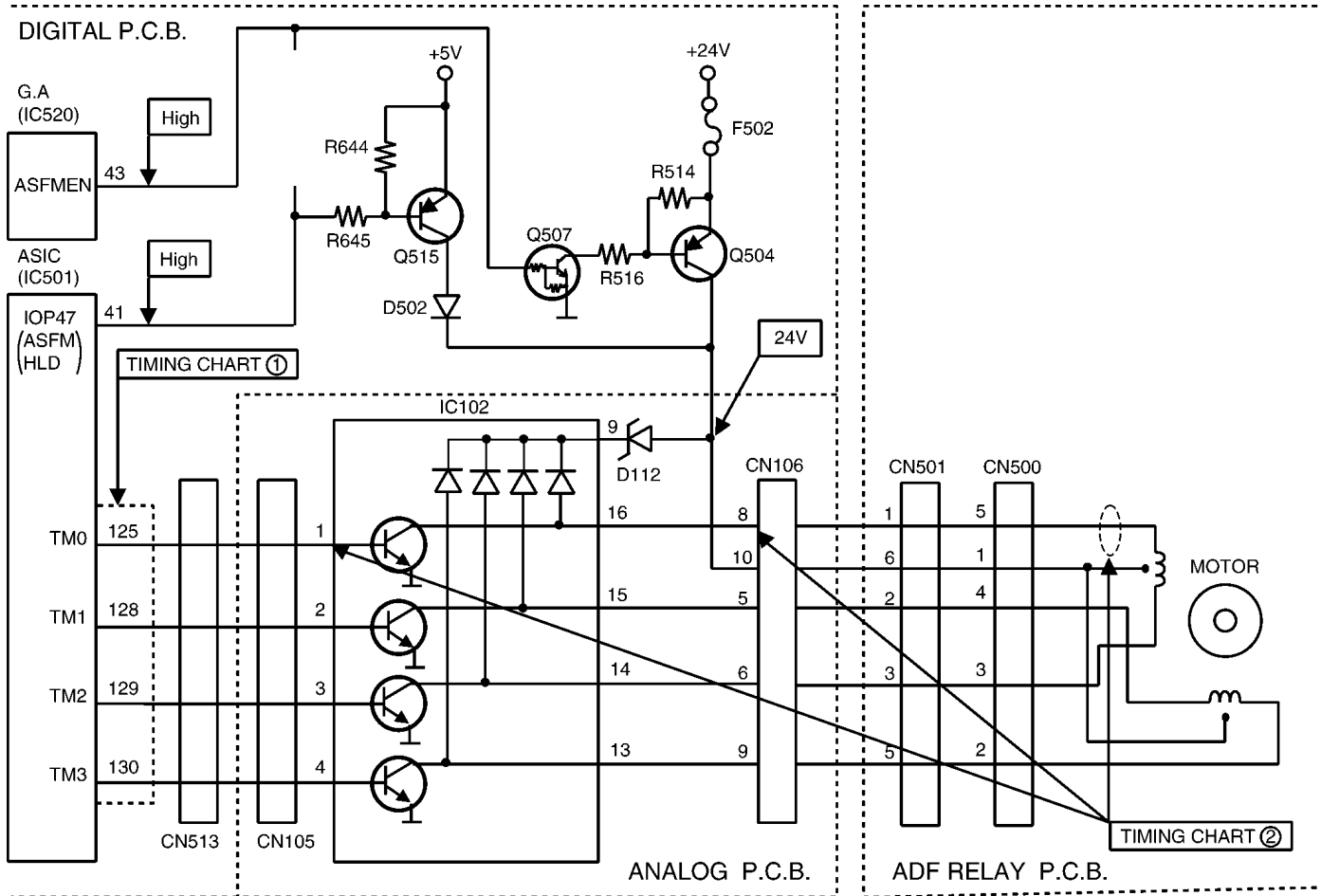
(2) 1-2 phase excitation output waveform (example "A Phase")



Other phase (B, XA, XB) operates as A phase does.

7.5.2.2. ADF (Auto Document Feed) MOTOR DRIVE CIRCUIT

(1) Circuit Diagram



DRIVE MODE

FUNCTION	MODE	PHASE PATTERN	SPEED
FAX	STANDARD	1-2 phase	432pps
FAX/COPY	FINE/HALF TONE	1-2 phase	432pps
FAX/COPY	SUPER FINE	1-2 phase	216pps
DOCUMENT FEED	-	1-2 phase	432pps
STAND-BY	-	ALL PHASE OFF	-

7.5.3. CR (Carriage) MOTOR DRIVE CIRCUIT

1. Functions

This motor functions for main operations including FAX transmission, FB copy and PC scan.

This feed document paper synchronized for reading.

2. Motor operation

During motor driving, pin 32 of Gate Array IC520 becomes a high level, and Q503, Q502 turns ON.

As a result, +24V is supplied to the motor coil.

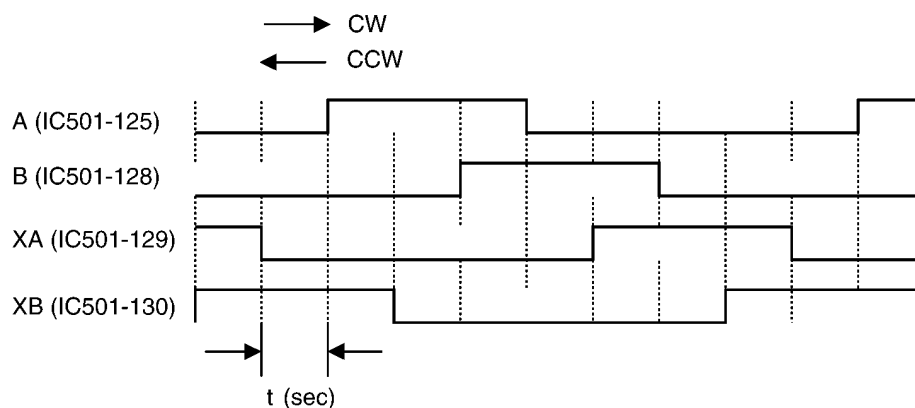
Stepping pulses are output from ASIC IC501 pins, 125, 128, 129, 130, causing driver IC500 pins, 16 ~ 13 to drive the motor coil.

The motor coil is energized sequentially in 2 phase increments, which causes a 1-step rotation.

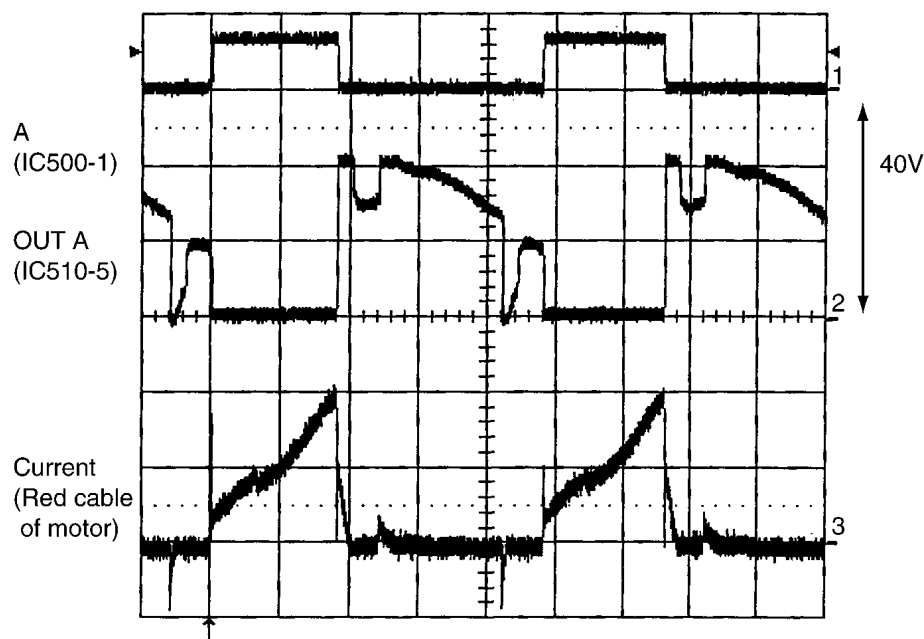
A 1-step rotation feeds 0.042mm of document paper.

7.5.3.1. TIMING CHART

(1) 1-2 phase excitation



(2) 1-2 phase excitation output waveform (example "A Phase")



Other phase (B, XA, XB) operates as A phase does.

7.6. SENSORS AND SWITCHES SECTION

All of the sensor and switches are shown below.

Sensor Circuit Location	Sensor	Sensor or Switch Name	Message Error
ADF Relay Board	PS500	Document	[CHECK DOCUMENT]
PF Sensor Board	PS501	Paper Feed	[REMOVE DOCUMENT]
Digital Board	SW1	Cover Open	[COVER OPEN]
	PS1	Paper Top	[PAPER JAM]
ADF Relay Board	SW501	ADF Cover Open	_____
	SW500	FB Cover Open	_____
CIS Relay Board	PS502	CIS Position (ADF Home)	_____
CIS Sensor Board	PS503	CIS Position (FB Home)	_____
Analog Board	SW101	Hook	_____
Film Detection Board	SW401	Film Detection	[CHECK FILM SLACK]

Note:

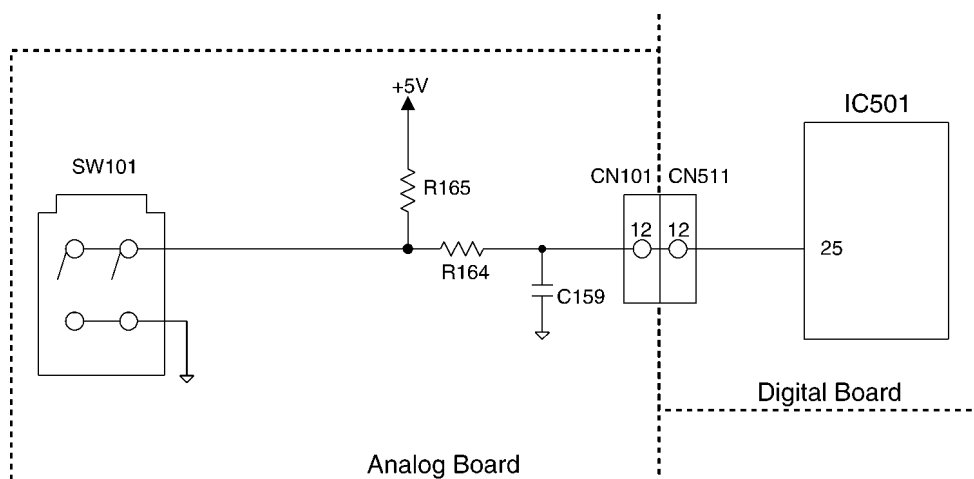
See TEST FUNCTIONS - SENSOR CHECK SECTION for the sensor test.

(#815 of Service Mode test. Refer to **TEST FUNCTIONS** (P.57).)

7.6.1. HOOK SWITCH

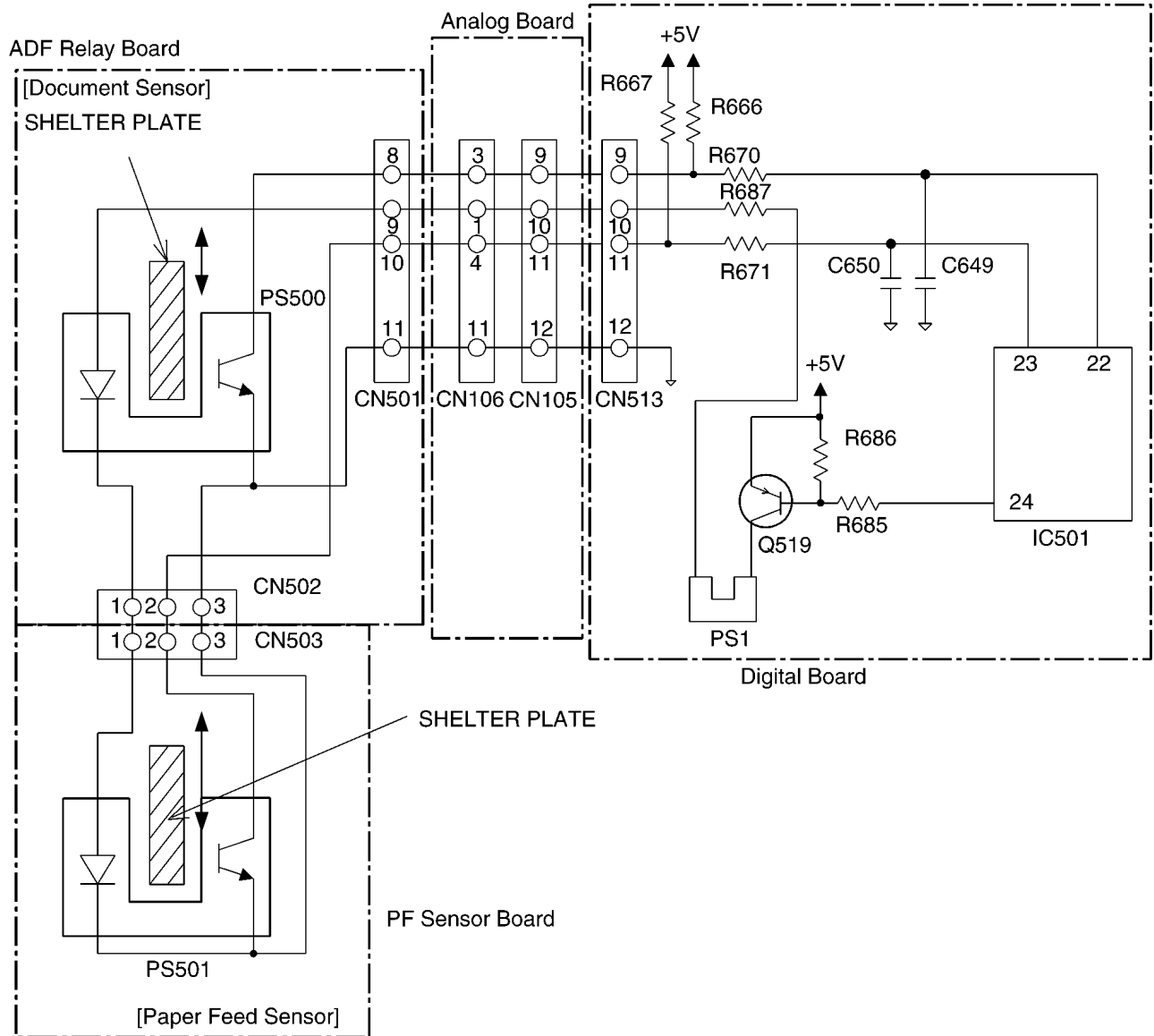
When the handset is raised, the switch is turned ON, and the signal at pin 25 of IC501 is low.

When the handset is returned, the switch is turned OFF, and the signal at pin 25 of IC501 is high.



7.6.2. DOCUMENT SENSOR...."CHECK DOCUMENT" AND PAPER FEED SENSOR...."REMOVE DOCUMENT"

These Sensors detect whether or not a document is in place. When a document is detected, the shelter plate let the sensor light pass through, the photo-transistor turns ON, and the input signal of IC501-22pin /IC501-23pin becomes a low level. When there is no document, the shelter plate shuts off the sensor light, the photo-transistor turns OFF, and the input signal of IC501-22pin /IC501-23pin becomes a high level.



Document Sensor

	Photo transistor	Signal(IC501-22pin)
No Document	OFF	High level
Document Set	ON	Low level

Paper Feed Sensor

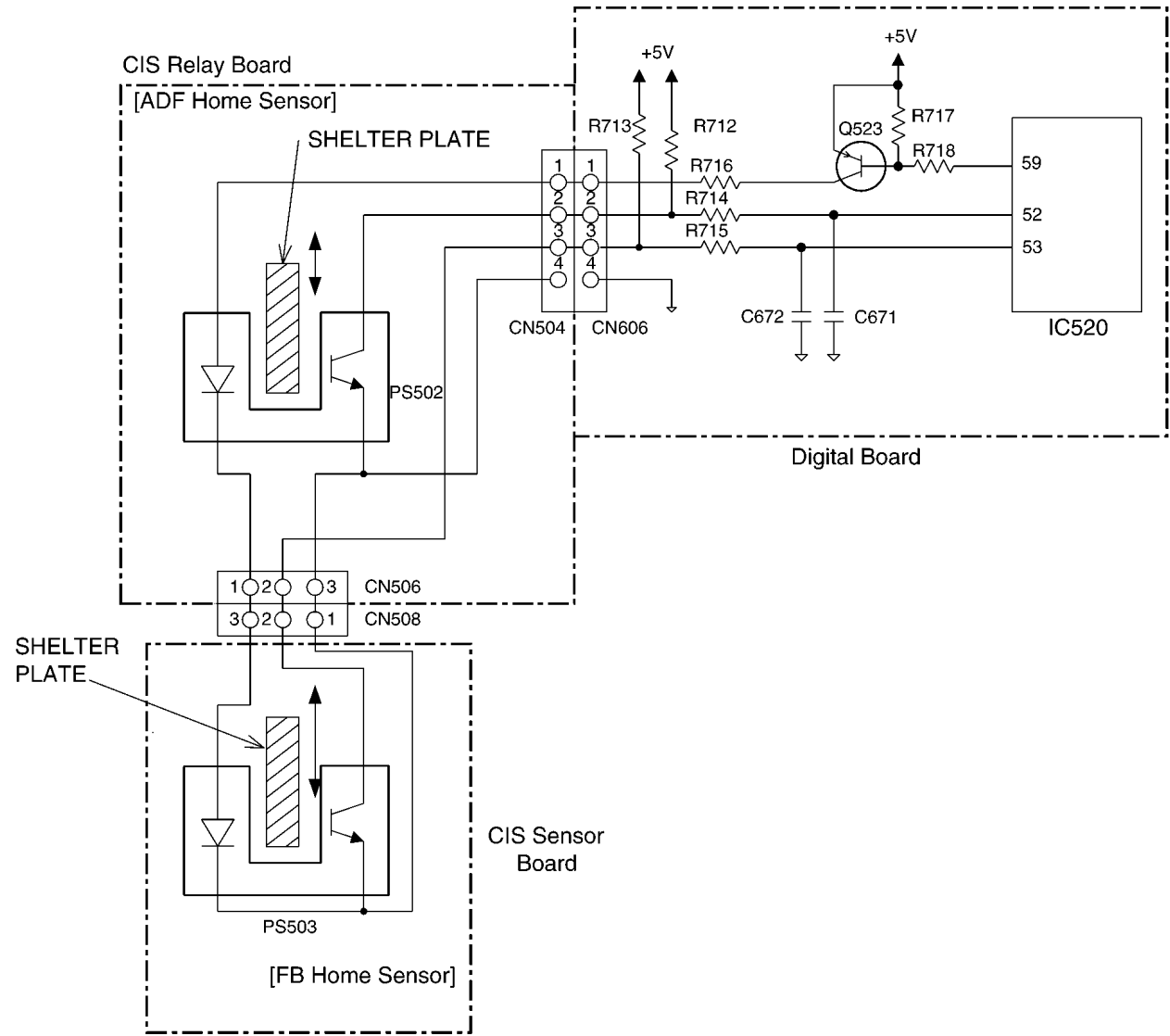
	Photo transistor	Signal(IC501-23pin)
No Read Position	OFF	High level
Read Position	ON	Low level

7.6.3. CIS POSITION SENSOR

These Sensors detect whether or not CIS is in home position.

When the CIS is detected, the shelter plate shuts off the sensor light, the photo-transistor turns OFF, and the input signal of IC520-52pin /IC520-53pin becomes a high level.

When there is no CIS, the shelter plate let the sensor light pass through, the photo-transistor turns ON, and the input signal of IC520-52pin /IC520-53pin becomes a low level.



ADF Home Sensor

	Photo transistor	Signal(IC520-52pin)
Home position	OFF	High level
Not Home position	ON	Low level

FB Home Sensor

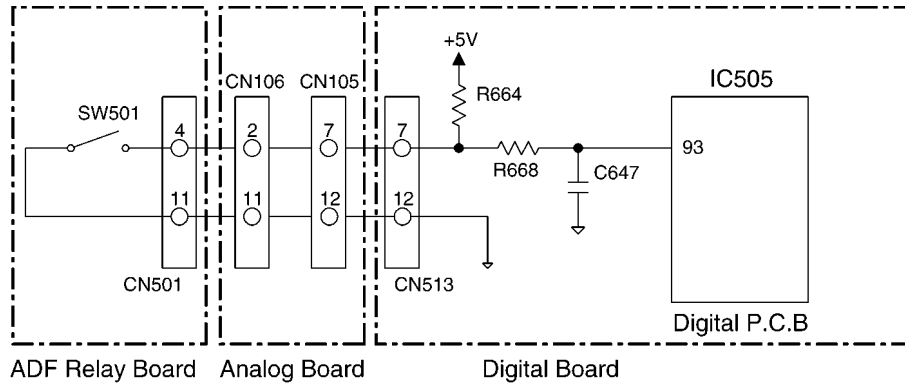
	Photo transistor	Signal(IC520-53pin)
Home position	OFF	High level
Not Home position	ON	Low level

7.6.4. ADF COVER OPEN SWITCH

The Switch detects whether the ADF cover is open or closed.

When the ADF cover is closed, the switch turns ON, and the input signal of IC505-93pin becomes a low level.

When the ADF cover is open, the switch turns OFF, and the input signal of IC505-93pin becomes a high level.



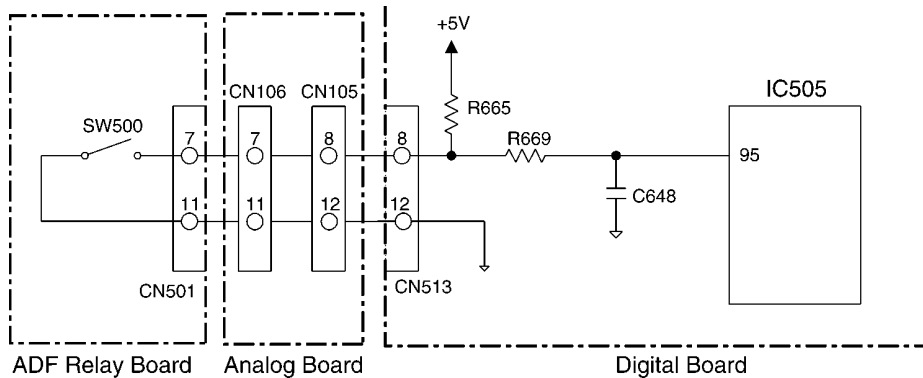
	Switch	Signal(IC505 - 93pin)
Open	OFF	High level
Close	ON	Low level

7.6.5. FB COVER OPEN SWITCH

The Switch detects whether the Flat Bed cover is open or closed.

When the Flat Bed cover is closed, the switch turns ON, and the input signal of IC505-95pin becomes a low level.

When the Flat Bed cover is open, the switch turns OFF, and the input signal of IC505-95pin becomes a high level.



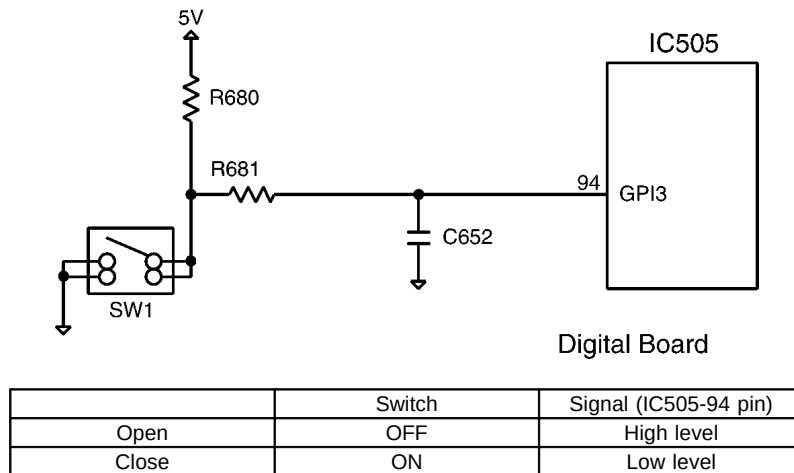
	Switch	Signal(IC505-95pin)
Open	OFF	High level
Close	ON	Low level

7.6.6. COVER OPEN SWITCH...."COVER OPEN"

The Switches detect whether the printer cover is open or closed.

When the printer cover is closed, the switches turn ON, and the input signal of IC505-94 pin becomes a high level.

When the printer cover is open, the switches turns OFF, and the input signal of IC505-94 pin becomes a low level.

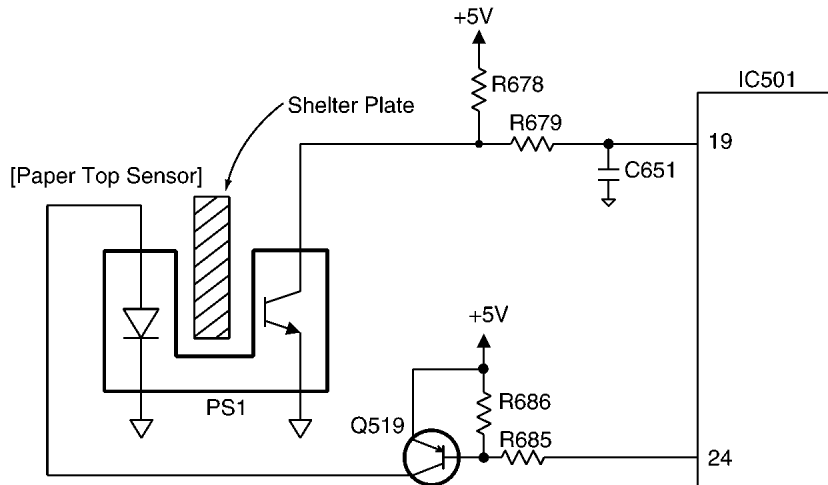


7.6.7. PAPER TOP SENSOR...."PAPER JAMMED"

The sensor detects whether the recording paper set or exit out or not.

When there is no recording paper at the position of the sensor, the shelter plate closes the sensor light, the photo-transistor OFF, and the input signal of IC501-19 pin becomes high level.

When the recording paper reach the paper top sensor, the shelter plate let the sensor light passing through, the photo-transistor ON, and the input signal of IC501-19 pin becomes a low level.



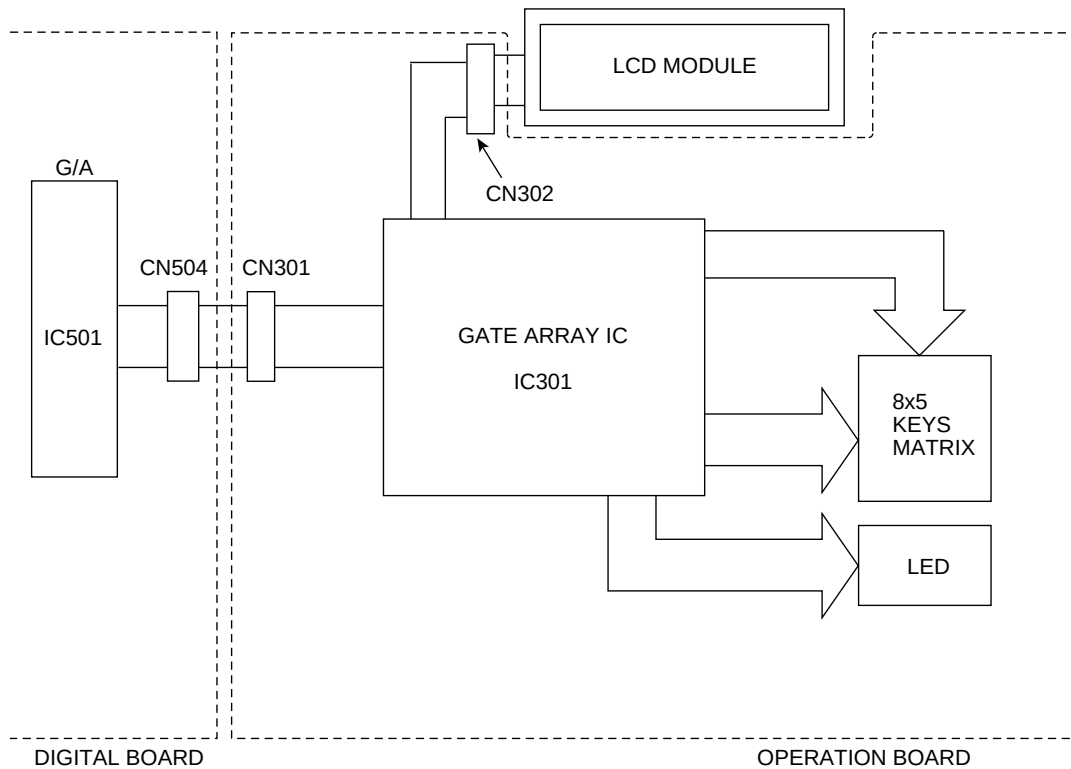
[Paper Top Sensor]

	Photo-transistor	Signal (IC501-19 pin)
No paper	OFF	High level
Paper Exist	ON	Low level

7.7. OPERATION BOARD SECTION

The unit consists of a LCD (Liquid crystal display), KEYS and LEDs (light-emitting diodes). They are controlled by the Gate Array (IC301) and ASIC (IC501: on the DIGITAL BOARD).

The key matrix table is shown below.



KX-FB423CN : OPERATION BOARD BLOCK DIAGRAM

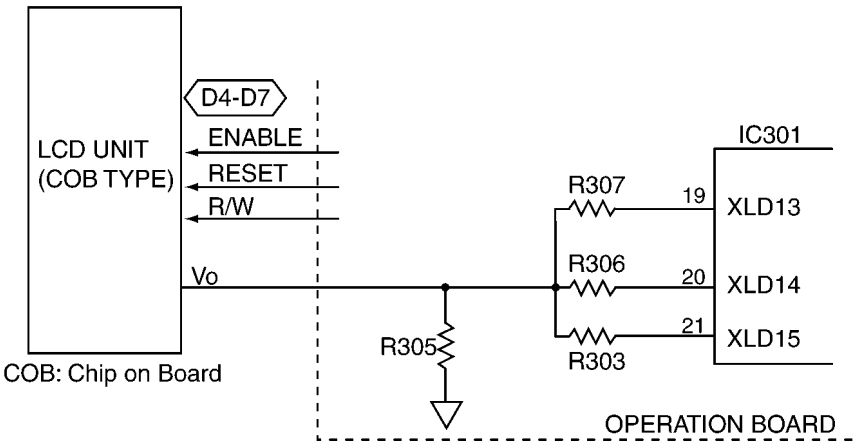
1. Key Matrix (Hard only)

	KIN0	KIN1	KIN2	KIN3	KIN4	KIN5	KIN6	KIN7
KS0	2 (SW301)	1 (SW306)	PRINT REPORT (SW311)	MENU (SW316)	-----	-----	-----	-----
KS1	HANDSET MUTE (SW302)	6 (SW307)	5 (SW312)	-----	S1 (SW322)	S2 (SW327)	S4 (SW332)	-----
KS2	REDIAL (SW303)	3 (SW308)	# (SW313)	~~X~~ (SW318)	START (SW323)	COPY (SW328)	S3 (SW333)	RESOLUTION (SW338)
KS3	4 (SW304)	7 (SW309)	NEXT (SW314)	VOL+ (SW319)	VOL- (SW324)	RECEIVE MODE (SW329)	PREV (SW334)	-----
KS4	FLASH (SW305)	9 (SW310)	8 (SW315)	0 (SW320)	MONITOR (SW325)	-----	HELP (SW335)	STOP (SW340)

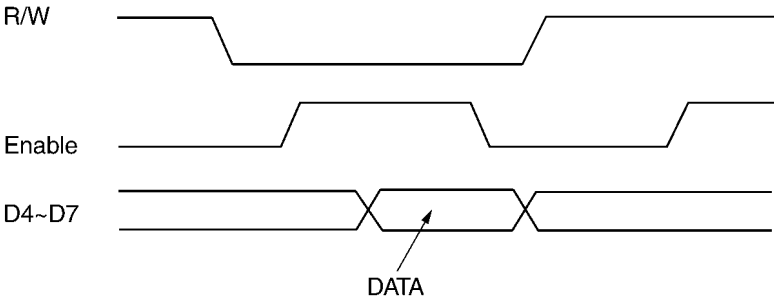
7.8. LCD SECTION

The Gate Array (IC301) works only for writing the ASCII code from the data bus (D4~D7). V0 is supplied for the crystal drive. R303, R306 and R307 are density control resistors. Consequently, in this unit, the timing (positive clock) is generated by the LCD interface circuitry in the gate array (IC301).

Circuit Diagram



Timing Chart



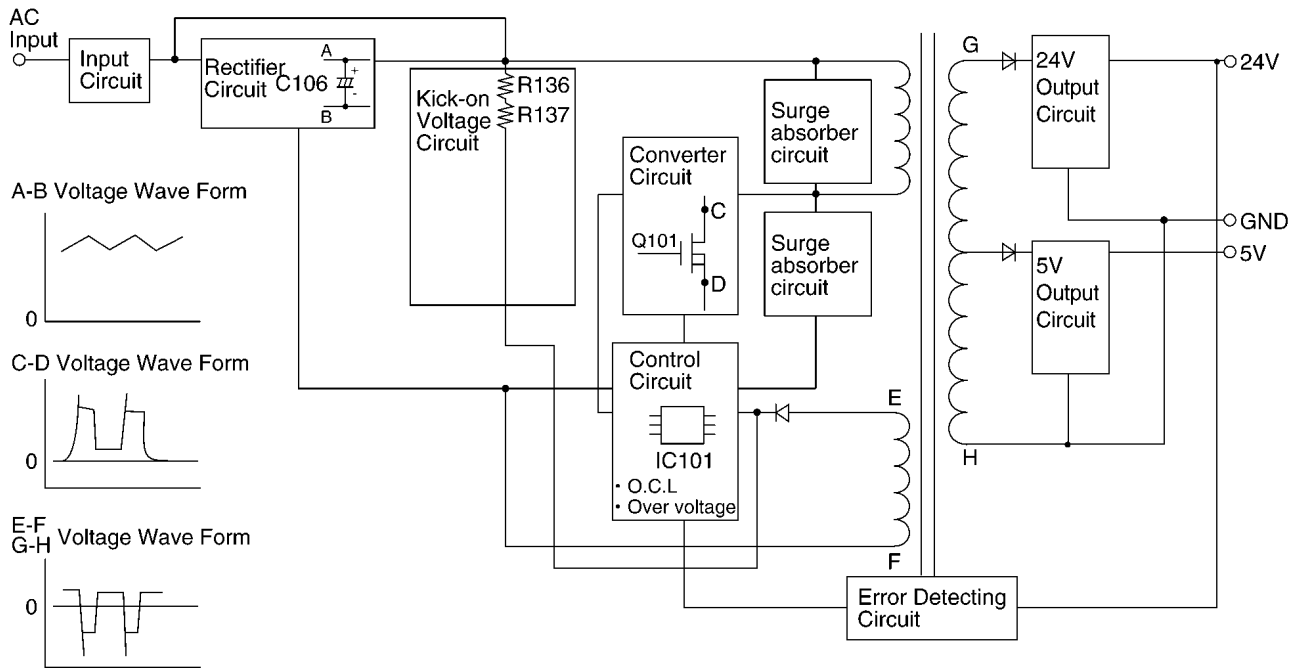
(Density)

Display mode	User setting	XLD15	XLD14	XLD13
2 LINE	NORMAL DARKER	H L	L L	Input setting L
Large	NORMAL DARKER	H H	Input setting L	Input setting Input setting

7.9. POWER SUPPLY BOARD SECTION

This power supply board uses the switching regulator method.

Block Diagram



[Input Circuit]

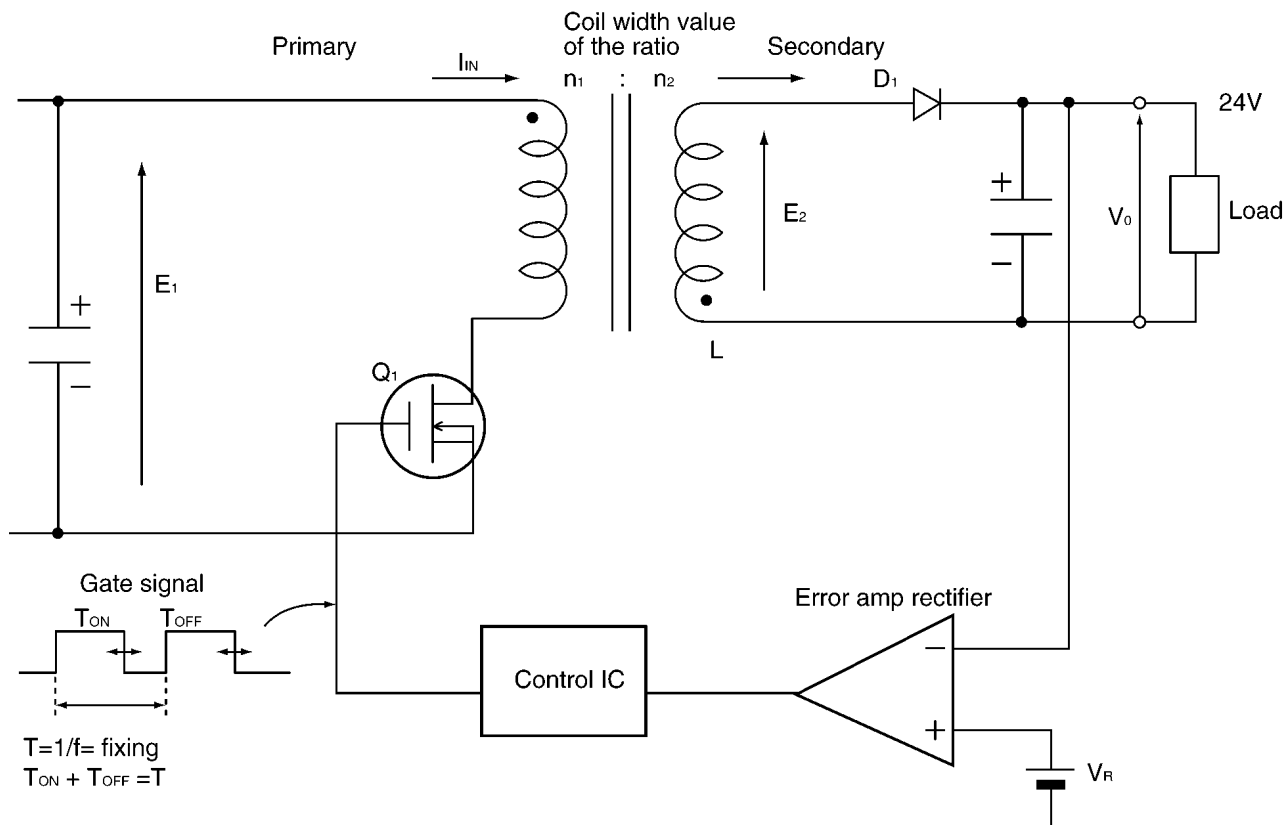
The input current goes into the input rectifier circuit through the filter circuit. The filter circuit decreases the noise voltage and the noise electric field strength.

[Rectifier Circuit]

The input current is rectified by D101~ D104 and charges C106 to make DC voltage. Then it supplies power to the converter circuit.

[Kick-on voltage circuit]

Bias is applied to the Q101 gate via this circuit when the AC power is turned on and Q101 begins operating.



The following is an overview of how the power supply unit is controlled.

The control method of this power supply unit is pulse width modulation.

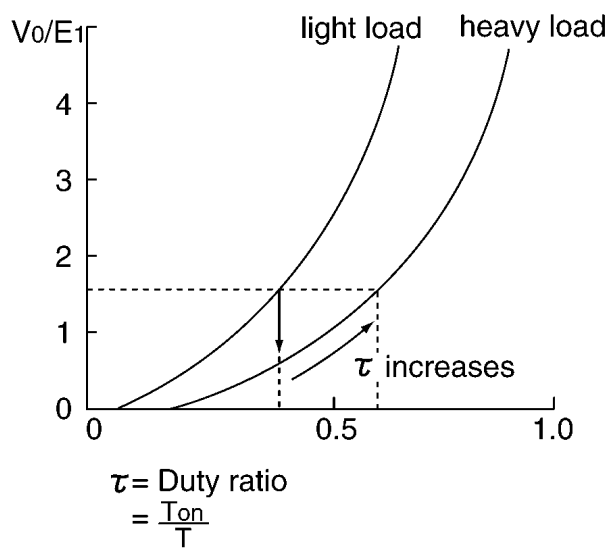
When Q_1 is ON, the energy is charged in the transfer primary coil according to E_1 . When Q_1 is OFF, the energy is output from the secondary transfer as follows.

$L \rightarrow D_1 \rightarrow \text{Load} \rightarrow L$

Then the power is supplied to the Load. When Q_1 is ON, power is not output from the secondary side. The output voltage is fed back in the control IC according to the error amp rectifier. Then depending on how T_{ON} is controlled, stabilization occurs. Also, when the current load becomes too large, in order to decrease the voltage output, the increase in τ is controlled and the output voltage is stabilized.

Therefore, basically the timing: T_{on}/T_{off} of Q_1 controls the output voltage.

Output/Input voltage value of ratio



[Surge Absorber Circuit]

This circuit is for absorbing surge voltage generated by the transformer.

[Control Circuit and Detecting Circuit]

The control circuit amplifies the output with increased voltage detected in the error detecting circuit. Then it drives the main transistor.

In this power supply, the duty ratio is defined by changing the ON period of the main transistor.

This is shown as follows.

When the output voltage of the 24V circuit increases, the current of the photo coupler PC101 increases, the pulse width of the output control IC becomes narrower and the ON period of Q101 becomes shorter.

[Over Current Limiter (O.C.L)]

The highest drain current (Q101) is limited by a limiter circuit (IC101) of 24V. The 24V output is limited by this circuit.

[Over Voltage Circuit]

If the 24V output increases because the error detecting circuit or control circuit is broken, IC101 will recognize this signal and output becomes 0V.

Dummy load method (to quickly check the power supply output)

Refer to **POWER SUPPLY BOARD SECTION** (P.114).

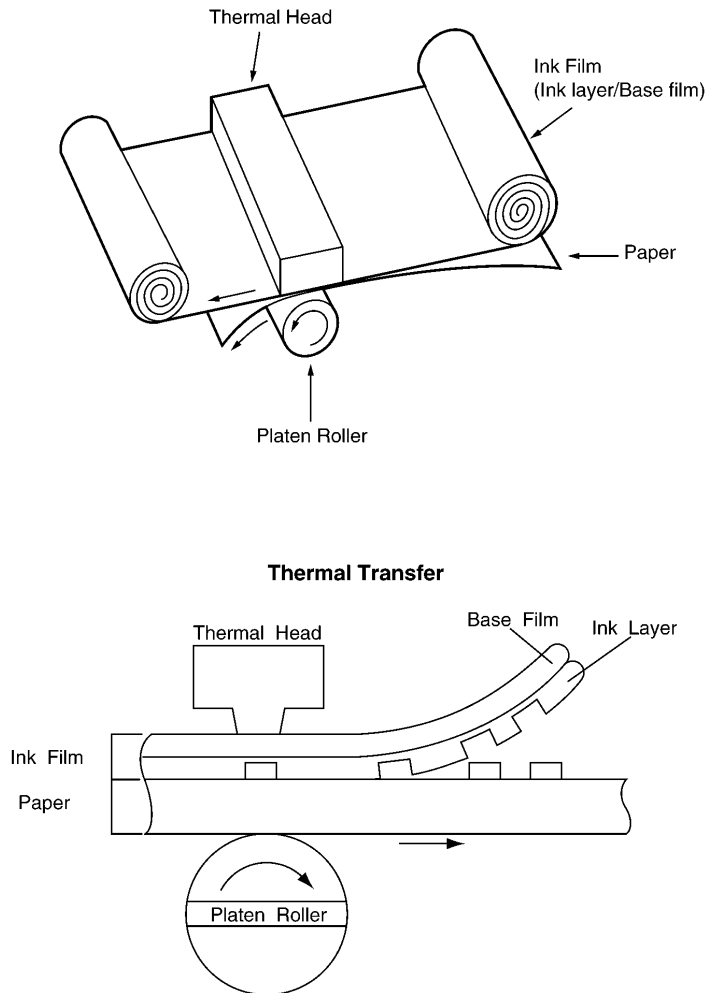
7.10. THERMAL HEAD

1. Function

This unit utilizes the state of the art thermal printer technology.

The ink film is chemically processed. The ink film is comprised of two parts: an ink layer and a base film. When the thermal head contacts this ink film, it emits heat momentarily, and the ink layer is melted and transferred to the paper. If this continues, letters and/or diagrams appear, and the original document is reproduced.

COMPOSITION OF THE RECEIVE RECORD SECTION (THERMAL RECORDING FORMAT)



2. Circuit Operation

Refer to the block diagram and the timing chart on the following page.

There are 9 driver ICs aligned horizontally on the thermal head and each one of these ICs can drive 192 heat-emitting registers. This means that one line is at a density of $192 \times 9 = 1728$ dots $(= 8 \text{ dots/mm})$.

White/Black (white=0, black=1) data in one line increment is synchronized at IC501 pin 117 (THCLK), and sent from IC501 pin 116 (THDAT) to the shift register of the ICs. The shift registers of the 9 ICs are connected in series, and upon the shift of the 1728 dot increment, the shift register becomes filled with data, and a latch pulse is emitted to each IC from IC501 pin 118 (THLAT).

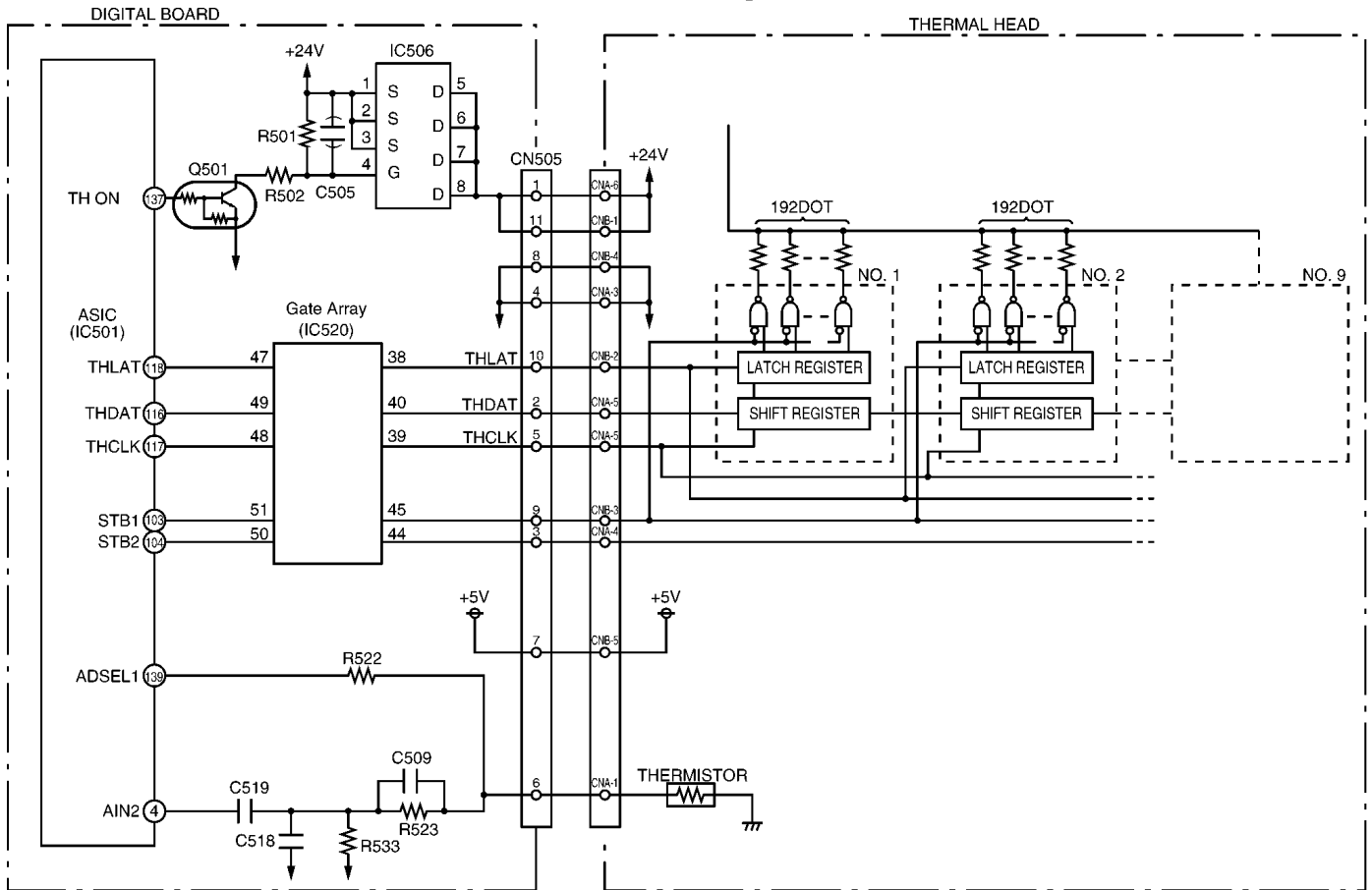
With this latch pulse, all the contents of the shift registers are latched to the latch registers. Thereafter, through the addition of strobes from the IC501 pins (103, 104), only the dot location of black ($=1$) among latched data activates the driver, and the current passes to heat the emitting body to cause heat emission.

Here, the two line strobes, STB1 to STB2, impress at intervals of 9.216 msec, as required for one-line printout.

The sequence is shown on the next page. [Moreover, for the strobe width, the thermistor value inside the thermal head is detected according to IC501 pin 4. Depending on that value, the strobe width is recorded in FLASH ROM (IC502). Accordingly, the strobe width is determined.]

When the thermal head is not used, the IC501 (137, THON) becomes low, Q501 turns OFF, IC506 turns OFF, and the +24V power supply for the thermal head driver is not impressed to protect the IC.

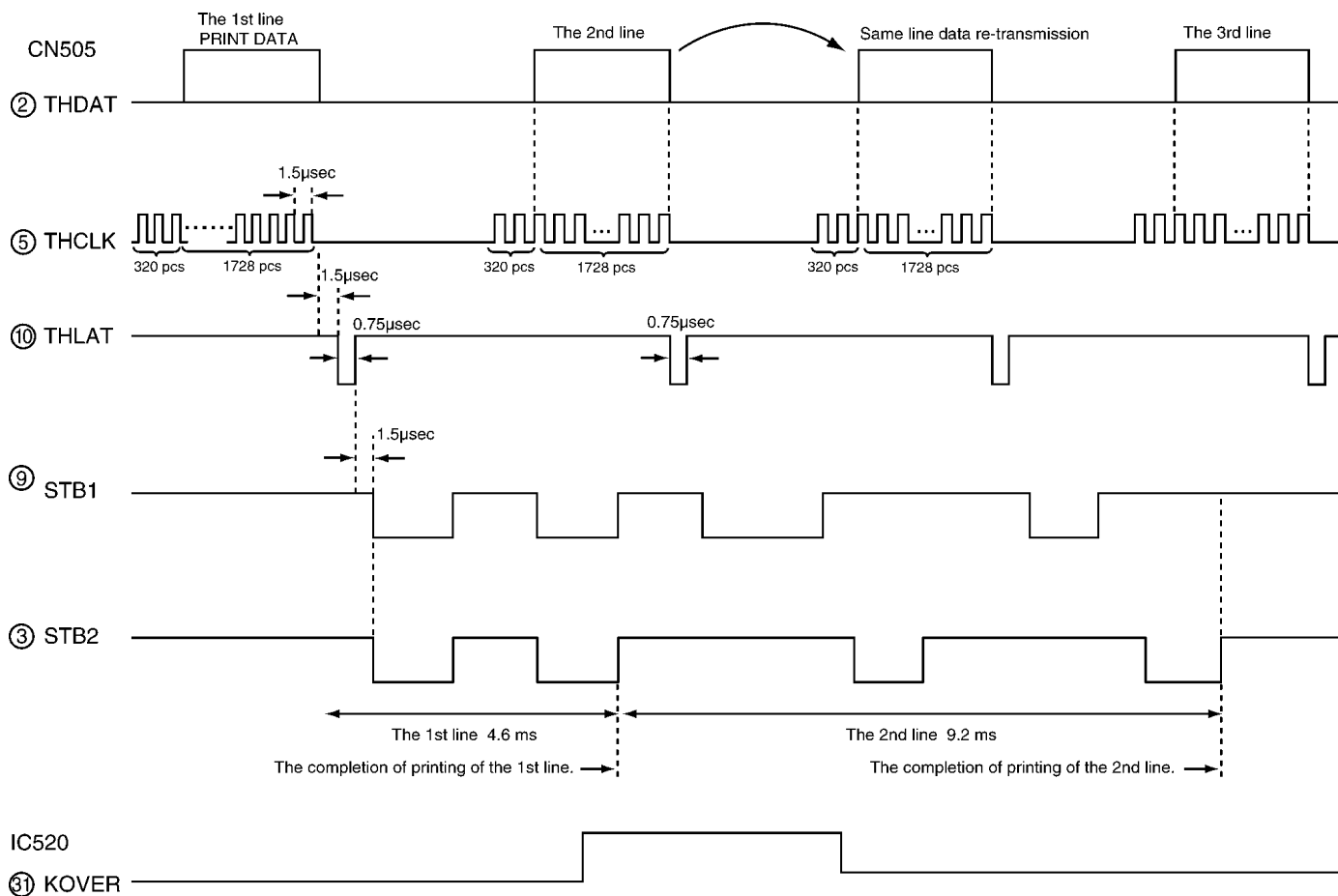
Circuit Diagram



ASF Copy (Mode: Fine) only

Printing speed changes with the ratio of the black portion of a document.

Ex:)1st line is 50% or less of black portions, 2st line is 50% or more of black portions.

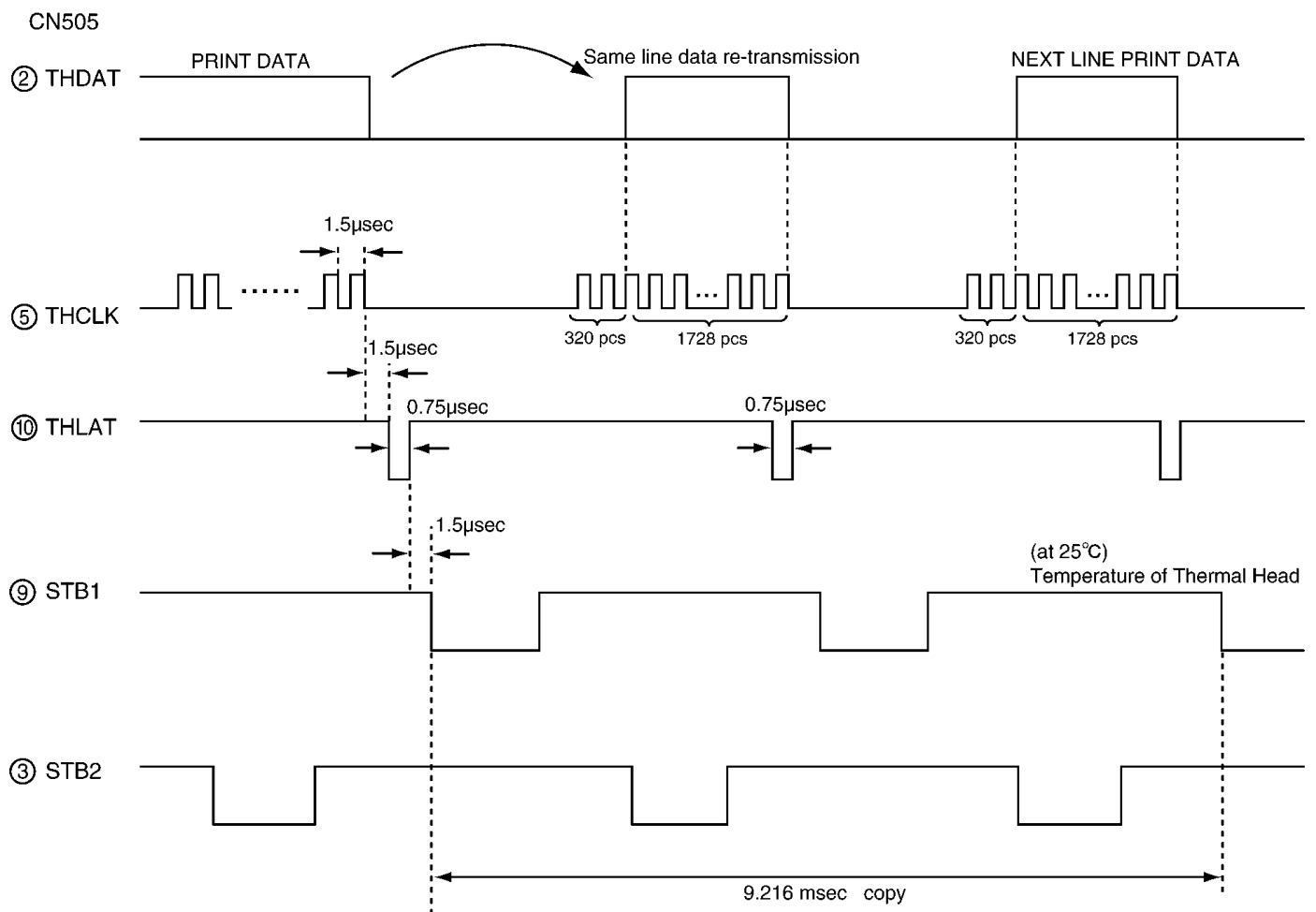
Timing Chart

• It is 50% or more land survey about black at the time of data transmission of the 2nd line. KOVER L→H The printing of the 2st line. 4.6ms→9.2ms

• At the time of whitish document reception, printing for 4.6ms continues per line, and speed is quick.

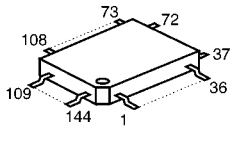
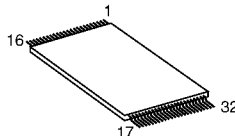
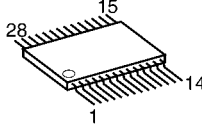
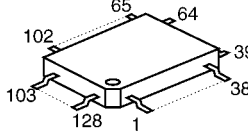
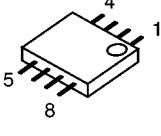
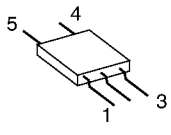
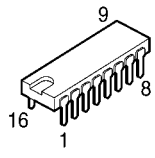
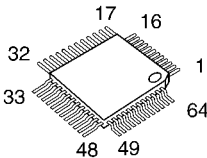
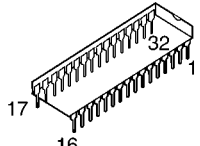
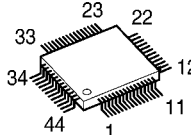
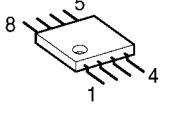
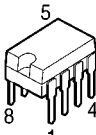
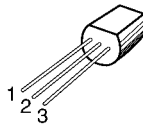
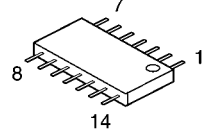
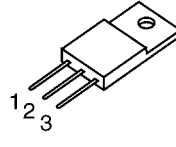
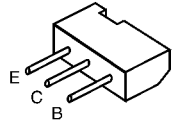
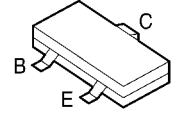
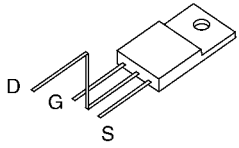
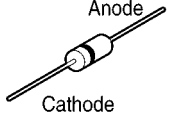
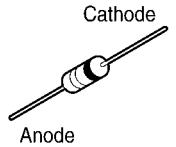
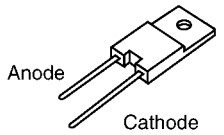
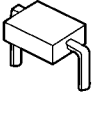
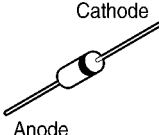
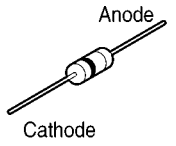
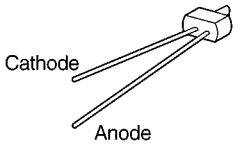
Book Copy / ASF Copy (Except Fine mode): RX printing

Timing Chart



8 REFERENCE MATERIALS DATA

8.1. TERMINAL GUIDE OF THE ICs TRANSISTORS AND DIODES

 C1ZBZ0001896	 PFWIFB423CN	 PFVIMS5148EF	 PFVIR676812	 PFVTSI4431DY PQVIMC34119M PFVINJM4558M
 PFVII5510011	 PFVIT2003APS	 C1ZBZ0002029	 C0GAF0000008	 MN7D032Z9J
 PQVINJM2904F	 PFVIFA5317P	 AN1431T	 PQVITC4066BF	 AN7805F
 2SB1322	 PQVTDTC143E PQVTDTC114EU 2SB1218A, 2SB1197K UN5113	 PFVTFS10KM10	 PQVDERA1802, MA4020 PFVDAG01A, MA165	 PFVDRMRLS245 MA4056
 PFVDSF5LC20U	 PQVDNNCD56DT	 1SS119	 MA7160, PFVD1N4005 MA4220, PFVDD1NL20U	 RLS71
 PQVDSLR325MC				

8.2. HOW TO REPLACE THE FLAT PACKAGE IC

Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.

8.2.1. PREPARATION

- SOLDER

Sparkle Solder 115A-1, 115B-1 OR Almit Solder KR-19, KR-19RMA

- Soldering iron

Recommended power consumption is between 30 W to 40 W.

Temperature of Copper Rod $662 \pm 50^{\circ}\text{F}$ ($350 \pm 10^{\circ}\text{C}$)

(An expert may handle a 60~80 W iron, but a beginner might damage the foil by overheating.)

- Flux

HI115 Specific gravity 0.863

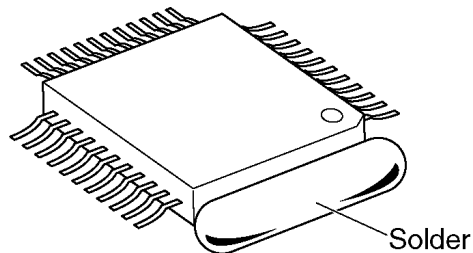
(Original flux should be replaced daily.)

8.2.2. FLAT PACKAGE IC REMOVAL PROCEDURE

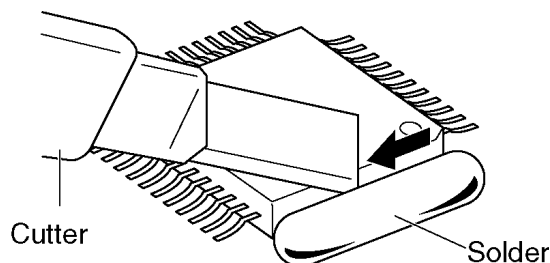
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

Note:

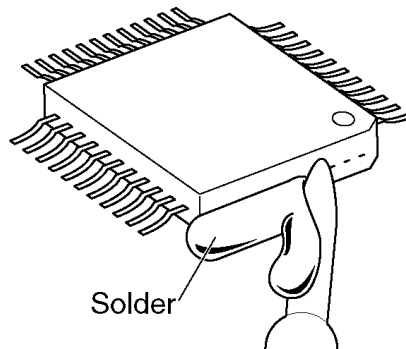
If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



2. Make a few cuts into the joint (between the IC and its pins) first and then cut off the pins thoroughly.



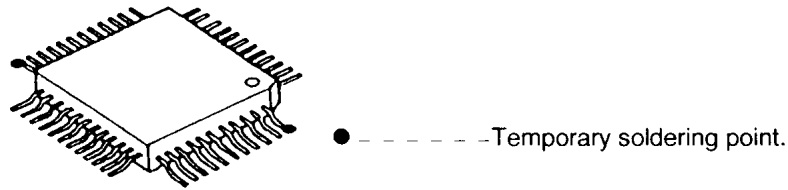
3. While the solder melts, remove it together with the IC pins.



When you attach a new IC to the board, remove all solder left on the land with some tools like a soldering wire. If some solder is left at the joint on the board, the new IC will not be attached properly.

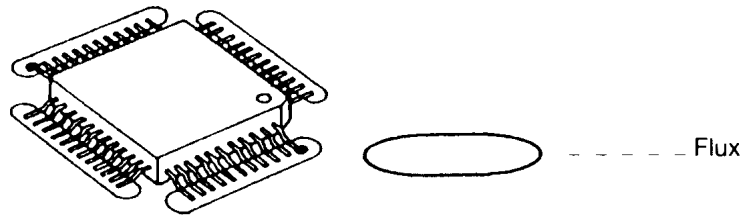
8.2.3. FLAT PACKAGE IC INSTALLATION PROCEDURE

1. Temporarily fix the FLAT PACKAGE IC, soldering the two marked pins.

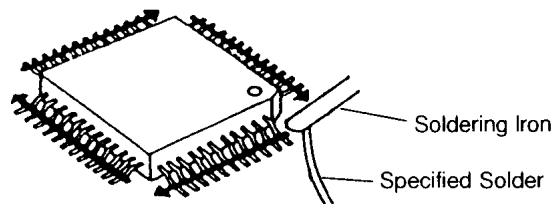


*Check the accuracy of the IC setting with the corresponding soldering foil.

2. Apply flux to all pins of the FLAT PACKAGE IC.

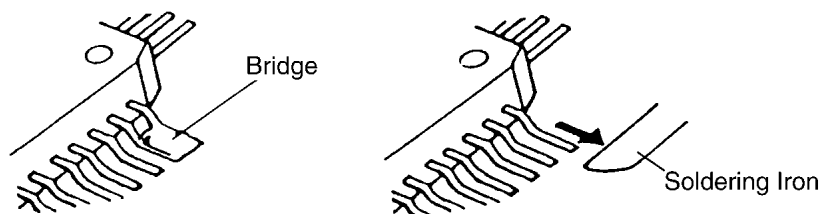


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



8.2.4. BRIDGE MODIFICATION PROCEDURE

1. Lightly resolder the bridged portion.
2. Remove the remaining solder along the pins using a soldering iron as shown in the figure below.



8.3. DIGITAL BOARD SECTION

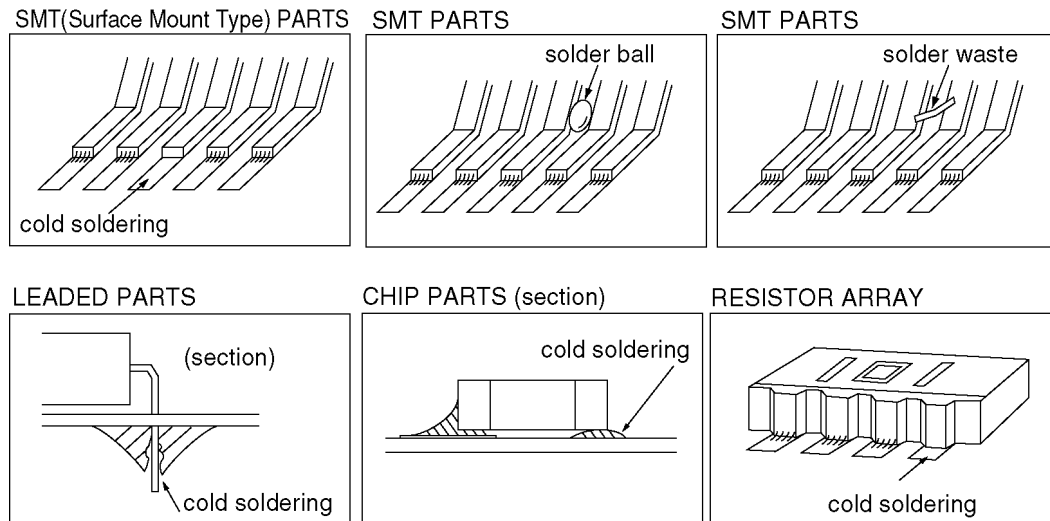
When the unit fails to boot up the system, take the troubleshooting procedures very carefully. It may have a serious problem.

The symptom: No response when the power is turned on. (No LCD display, and keys are not accepted.)

The first step is to check the power source. If there is no problem with the power supply unit, the problem may lie in the digital unit (main board).

As there are many potential causes in this case (ASIC, DRAM, etc.), it may be difficult to specify what you should check first. If a mistake is made in the order of checks, a normal part may be determined faulty, wasting both time and money.

Although the tendency is to regard the problem as a serious one (IC malfunction, etc.), usually most cases are caused by solder faults (poor contact due to a tunnel in the solder, signal short circuit due to solder waste).



Note:

1. Electrical continuity may have existed at the factory check, but a faulty contact occurred as a result of vibration, etc., during transport.
2. Solder waste remaining on the board may get caught under the IC during transport, causing a short circuit.

Before we begin mass production, several hundred trial units are produced at the plant, various tests are applied and any malfunctions are analyzed. (In past experiences, digital IC (especially, DRAM and ROM) malfunctions are extremely rare after installation in the product.)

This may be repaired by replacing the IC, (DRAM etc.). However, the real cause may not have been an IC malfunction but a soldering fault instead.

Soldering faults difficult to detect with the naked eye are common, particularly for ASIC and RA (Resistor Array). But if you have an oscilloscope, you can easily determine the problem site or IC malfunction by checking the main signal lines.

Even if you don't have such a measuring instrument, by checking each main signal line and resoldering it, in many cases the problem will be resolved.

An explanation of the main signals (for booting up the unit) is presented below.

Don't replace ICs or stop repairing until checking the signal lines.
An IC malfunction rarely occurs. (By understanding the necessary signals for booting up the unit, the "Not Boot up" display is not a serious problem.)

What are the main signals for booting up the unit?

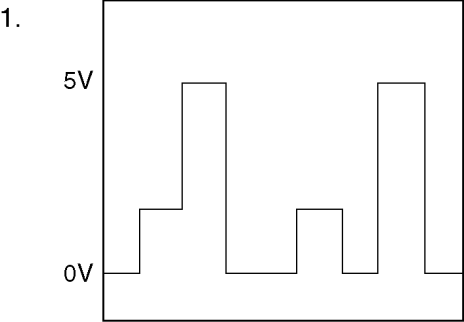
Please refer to **DIGITAL BLOCK DIAGRAM** (P.121).

The ASIC (IC604) controls all the other digital ICs. When the power is turned on, the ASIC retrieves the operation code stored in the ROM (IC606), then follows the instructions for controlling each IC. All ICs have some inner registers that are assigned to a certain address.

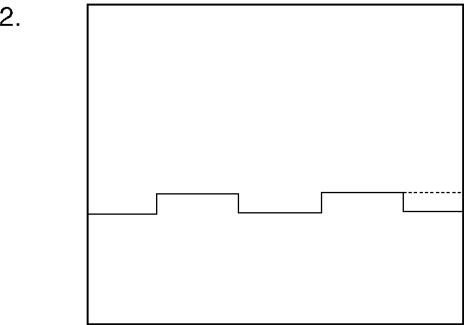
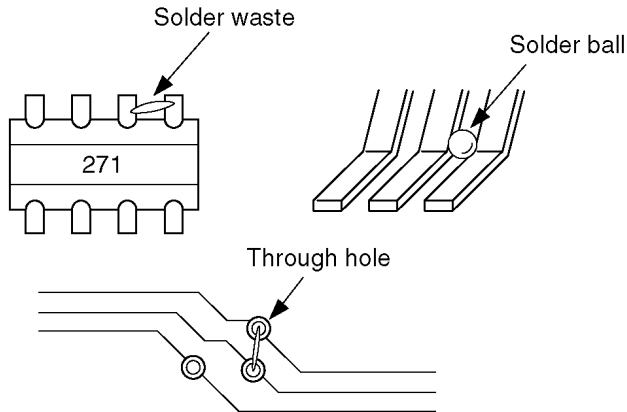
It is the address bus by which the ASIC designates the location inside each IC. And the data bus reads or writes the data in order to transmit the instructions from the ASIC to the ICs.

These signal lines are all controlled by voltages of 3.3V (H) or 0V (L).

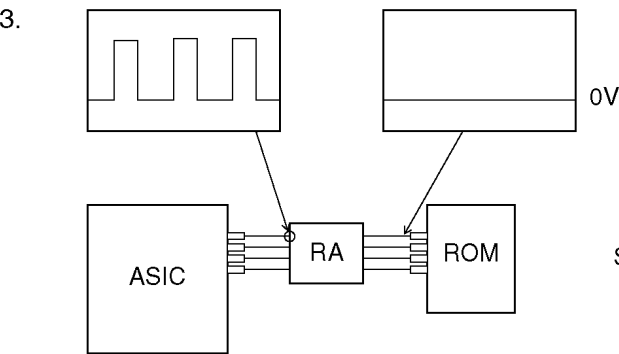
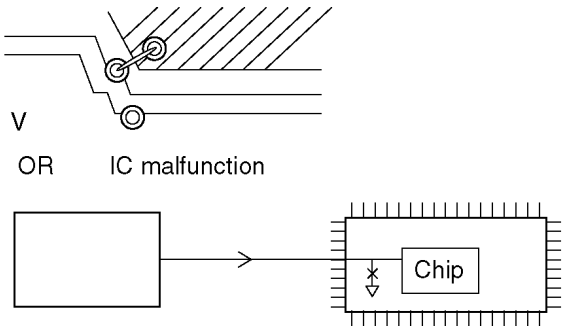
8.3.1. NG EXAMPLE



Short circuit from the adjacent signal wires.
Check for a short circuit in the RA and IC leads and the signal wire at the through hole.



Short between the signal line and GND.



Solder fault on RA.

8.4. MODEM SECTION

8.4.1. FUNCTION

The unit uses a 1 chip modem (IC505) that serves as an interface between the control section for FAX transmission and reception and the telephone line. During a transmitting operation, the digital image signals are modulated and sent to the telephone line.

During a receiving operation, the analog image signals which are received via the telephone line are demodulated and converted into digital image signals. The communication format and procedures for FAX communication are standardized by ITU-T. This 1 chip modem (IC505) has hardware which sends and detects all of the necessary signals for FAX communication. It can be controlled by writing commands from the CPU (IC501: inside ASIC to the register in the modem (I505)).

This modem (IC505) also sends DTMF signals, generates a call tone (from the speaker), and detects a busy tone and dial tones.

Overview of Facsimile Communication Procedures (ITU-T Recommendation):

1. ON CCITT (International Telegraph and Telephone Consultative Committee)

The No. XIV Group of ITU-T, one of the four permanent organizations of the International Telecommunications Union (ITU), investigates and make recommendations on international standards for facsimiles.

2. Definition of Each Group

• Group I (G1)

Official A-4 size documents without using formats which reduce the band width of a signal are sent over telephone lines. Determined in 1968.

Transmission for about 6 minutes at a scanning line density of 3.85 lines/mm.

• Group II (G2)

Using reduction technology in the modulation/demodulation format, an A-4 size document is sent at an official scanning line density of 3.85 lines/mm for about 3 minutes.

Methods to suppress redundancy are not used.

Determined in 1976.

• Group III (G3)

Method of suppressing redundancy in the image signal prior to modulation is used. An A-4 size document is sent within about one minute.

Determined in 1980.

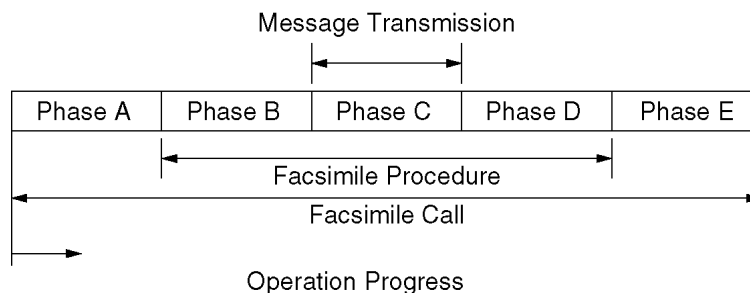
• Group IV (G4)

Transmission is via the data network. A method is provided for suppressing redundancy in signals prior to transmission, and error-free reception of transmission is possible.

The scope of these facsimile applications is not limited simply to transmission of written statements. Through symbiotic linkages with other communication methods, it can be expected to expand to include integrated services.

3. Facsimile Call Time Series

As shown in the following diagram, the facsimile call time series is divided into five phases.



Phase A : Call setting

Call setting can be manual/automatic.

Phase B : Pre-message procedure

Phase B is a pre-processing procedure and sequence for confirming the status of the terminal, transmission route, etc., and for terminal control. It implements terminal preparation status, determines and displays terminal constants, confirms synchronization status, etc. and prepares for transmission of facsimile messages.

Phase C : Message transmission

Phase C is the procedure for the transmitting facsimile messages.

Phase D : Post message procedure

Phase D is the procedure for confirming that the message is completed and received. For continuous transmission, phase B or phase C is repeated for transmission.

Phase E : Call retrieval

Phase E is the procedure for call retrieval, that is for circuit disconnection.

4. Concerning Transmission Time

$$\text{Transmission Time} = \text{Control Time} + \text{Image Transmission Time} + \text{Hold Time}$$

Transmission time consists of the following.

Control time:

This is time at the start of transmission when the functions at the sending and receiving sides are confirmed, the transmission mode is established, and transmission and reception are synchronized.

Image transmission time:

This is the time required for the transmission of document contents (image data). In general, this time is recorded in the catalog, etc.

Hold time:

This is the time required after the document contents have been sent to confirm that the document was actually sent, and to check for telephone reservations and/or the existence of continuous transmission.

5. Facsimile Standards

Item	Telephone Network Facsimile
	G3 Machine
Connection Control Mode	Telephone Network Signal Mode
Terminal Control Mode	T. 30 Binary
Facsimile Signal Format	Digital
Modulation Mode	PSK (V. 27 ter) or QAM (V. 29)
Transmission Speed	300 bps (Control Signal) 2400, 4800, 7200, 9600, 12000, 14400 bps (FAX Signal)
Redundancy Compression Process (Coding Mode)	1 dimension: MH Mode 2 dimension: MR Mode (K=2.4)
Resolution	Main Scan: 8 pel/mm Sub Scan: 3.85, 7.7l/mm
Line Synchronization Signal	EOL Signal
1 Line Transmission Time [ms/line]	Depends on the degree of data reduction. Minimum Value: 10, 20 Can be recognized in 40ms.

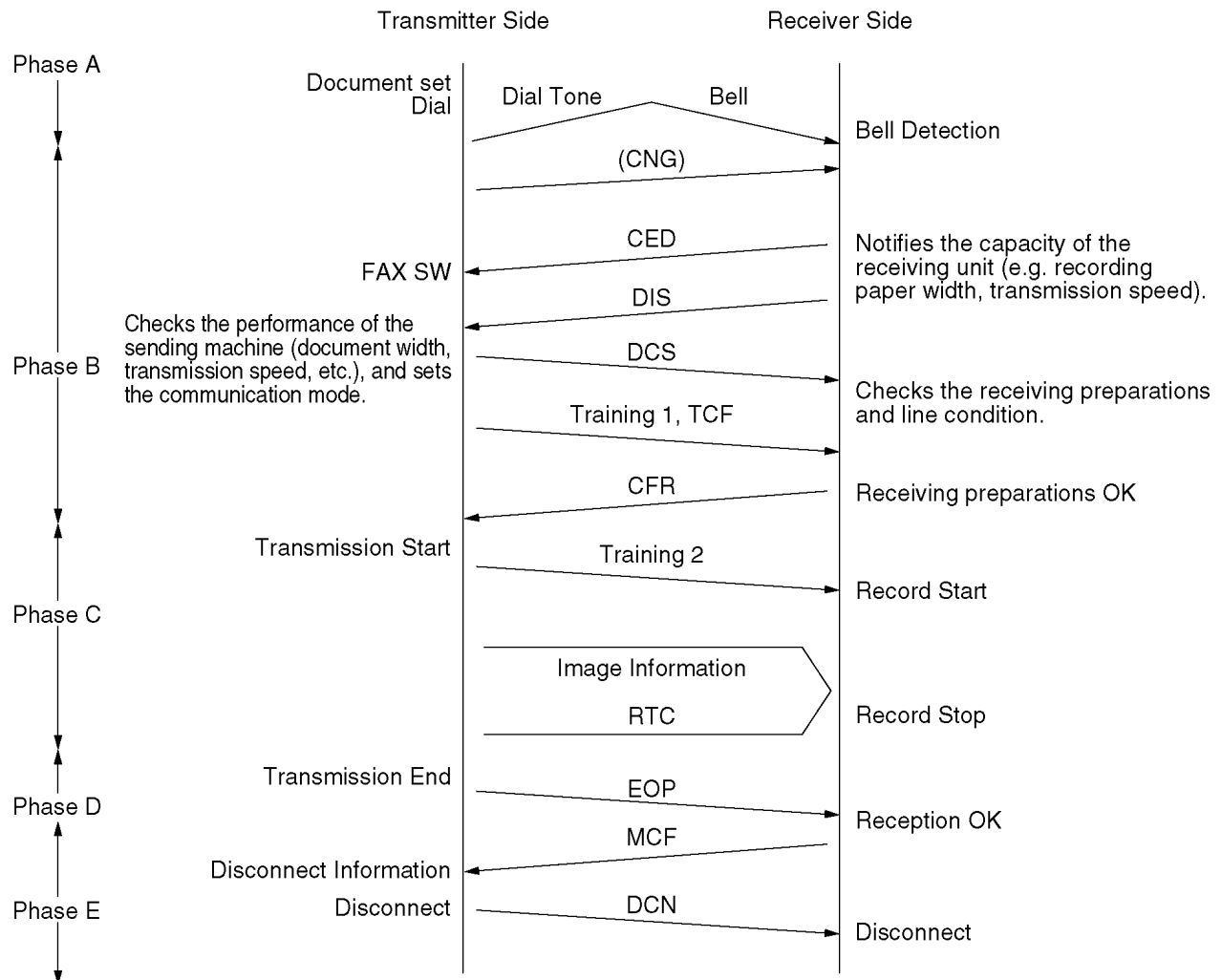
6. Explanation of Communication and Compression Technology

a. G3 Communication Signals (T. 30 Binary Process)

For G3 Facsimile communication, this is the procedure for exchanging control signals between the sending and receiving machines both before and after transmission of image signals.

Control signals at 300 bps FSK are: 1850 Hz...0, 1650Hz...1.

An example of a binary process in G3 communication is shown below.



Explanation of Signals

Control signals are comprised mainly of 8-bit identification signals and the data signals added to them. Data signals are added to DIS and DCS signals.

Signal.....DIS (Digital Identification Signal)

Identification Signal Format.....00000001

Function:

Notifies the capacity of the receiving unit. The added data signals are as follows.

Signal.....DCS (Digital Command Signal)

Identification Signal Format.....X1000001

Example

(Some models do not support the following items.):

Bit No.	DIS/DTC	DCS
1	Transmitter --- T.2 operation	
2	Receiver --- T.2 operation	Receiver --- T.2 operation
3	T.2 IOC = 176	T.2 IOC = 176
4	Transmitter --- T.3 operation	
5	Receiver --- T.3 operation	Receiver --- T.3 operation

Bit No.	DIS/DTC	DCS
6	Reserved for future T.3 operation features	
7	Reserved for future T.3 operation features.	
8	Reserved for future T.3 operation features.	
9	Transmitter --- T.4 operation	
10	Receiver --- T.4 operation	Receiver --- T.4 operation
11, 12, 13, 14 0, 0, 0, 0 0, 1, 0, 0 1, 0, 0, 0 1, 1, 0, 0 0, 0, 1, 0 0, 1, 1, 0 1, 0, 1, 0 1, 1, 1, 0 0, 0, 0, 1 0, 1, 0, 1 1, 0, 0, 1 1, 1, 0, 1 0, 0, 1, 1 0, 1, 1, 1 1, 0, 1, 1 1, 1, 1, 1	Data signaling rate V.27 ter fall back mode V.27 ter V.29 V.27 ter and V.29 Not used Reserved Not used V.27 ter and V.29 and V.33 Not used Reserved V.27 ter and V.29 and V.33 and V.17 Not used Reserved Not used V.27 ter and V.29 and V.33 and V.17 Not used Reserved Not used Reserved	Data signaling rate 2400 bit/s, V.27 ter 4800 bit/s, V.27 ter 9600 bit/s, V.29 7200 bit/s, V.29 14400 bit/s, V.33 12000 bit/s, V.33 Reserved Reserved 14400 bit/s, V.17 12000 bit/s, V.17 9600 bit/s, V.17 7200 bit/s, V.17 Reserved Reserved Reserved Reserved
15	R8×7.7 lines/mm and/or 200×200 pels/25.4mm	R8×7.7 lines/mm and/or 200×200 pels/25.4mm
16	Two-dimensional coding capability	Two-dimensional coding capability
17, 18 (0, 0) (0, 1) (1, 0) (1, 1)	Recording width capabilities 1728 picture elements along scan line length of 215 mm ± 1% 1728 picture elements along scan line length of 215 mm ± 1% 2048 picture elements along scan line length of 255 mm ± 1% 2432 picture elements along scan line length of 303 mm ± 1% 1728 picture elements along scan line length of 215 mm ± 1% 2048 picture elements along scan line length of 255 mm ± 1% Invalid	Recording width 1728 picture elements along scan line length of 215 mm ± 1% 2432 picture elements along scan line length of 303 mm ± 1% 2048 picture elements along scan line length of 255 mm ± 1% Invalid
19, 20 (0, 0) (0, 1) (1, 0) (1, 1)	Maximum recording length capability A4 (297 mm) Unlimited A4 (297 mm) and B4 (364 mm) Invalid	Maximum recording length A4 (297 mm) Unlimited B4 (364 mm) Invalid
21, 22, 23 (0, 0, 0) (0, 0, 1) (0, 1, 0) (1, 0, 0) (0, 1, 1) (1, 1, 0) (1, 0, 1) (1, 1, 1)	Minimum scan line time capability of the receiver 20 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$ 40 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$ 10 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$ 5 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$ 10 ms at 3.85 l/mm: $T_{7.7} = 1/2 T_{3.85}$ 20 ms at 3.85 l/mm: $T_{7.7} = 1/2 T_{3.85}$ 40 ms at 3.85 l/mm: $T_{7.7} = 1/2 T_{3.85}$ 0 ms at 3.85 l/mm: $T_{7.7} = T_{3.85}$	Minimum scan line time 20 ms 40 ms 10 ms 5 ms 0 ms
24	Extend field	Extend field
25	2400 bit/s handshaking	2400 bit/s handshaking
26	Uncompressed mode	Uncompressed mode
27	Error correction mode	Error correction mode
28	Set to "0".	Frame size 0 = 256 octets 1 = 64 octets
29	Error limiting mode	Error limiting mode
30	Reserved for G4 capability on PSTN	Reserved for G4 capability on PSTN
31	T.6 coding capability	T.6 coding enabled
32	Extend field	Extend field
33 (0) (1)	Validity of bits 17, 18 Bits 17, 18 are valid Bits 17, 18 are invalid	Recording width Recording width indicated by bits 17, 18 Recording width indicated by this field bit information
34	Recording width capability 1216 picture elements along scan line length of 151 ± mm 1%	Middle 1216 elements of 1728 picture elements
35	Recording width capability 864 picture elements along scan line length of 107 ± mm 1%	Middle 864 elements of 1728 picture elements
36	Recording width capability 1728 picture elements along scan line length of 151 ± mm 1%	Invalid
37	Recording width capability 1728 picture elements along scan line length of 107 ± mm 1%	Invalid
38	Reserved for future recording width capability.	
39	Reserved for future recording width capability.	

Bit No.	DIS/DTC	DCS
40	Extend field	Extend field
41	R8×15.4 lines/mm	R8×15.4 lines/mm
42	300×300 pels/25.4 mm	300×300 pels/25.4 mm
43	R16×15.4 lines/mm and/or 400×400 pels/25.4 mm	R16×15.4 lines/mm and/or 400×400 pels/25.4 mm
44	Inch based resolution preferred	Resolution type selection "0": neuritic based resolution "1": inch based resolution
45	Metric based resolution preferred	Don't care
46	Minimum scan line time capability for higher resolutions "0": $T_{15.4} = T_{7.7}$ "1": $T_{15.4} = 1/2T_{7.7}$	Don't care
47	Selective Polling capability	Set to "0".
48	Extend field	Extend field

Note 1 - Standard facsimile units conforming to T.2 must have the following capability: Index of cooperation (IOC)=264.

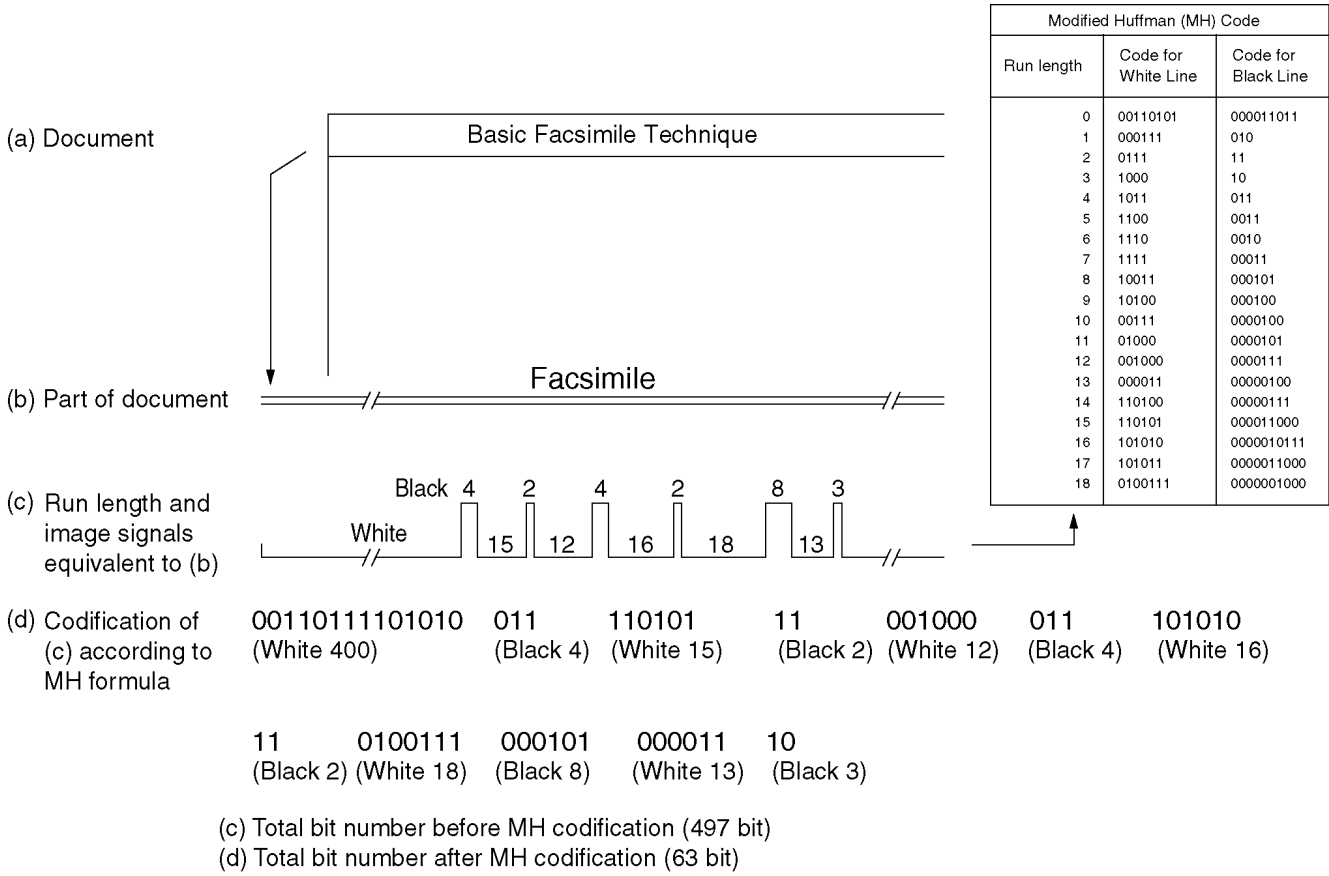
Note 2 - Standard facsimile units conforming to T.3 must have the following capability: Index of cooperation (IOC)=264.

Note 3 - Standard facsimile units conforming to T.4 must have the following capability: Paper length=297 mm.

Signal	Identification Signal Format	Function
Training 1	_____	A fixed pattern is transmitted to the receiving side at a speed (2400 to 9600 bps) designated by DCS, and the receiving side optimizes the automatic equalizer, etc., according to this signal.
TCF (Training Check)	_____	Sends 0 continuously for 1.5 seconds at the same speed as the training signal.
CFR (Confirmation to Receive)	X0100001	Notifies the sending side that TCF has been properly received. If TCF is not properly received, FTT (Failure To Train) X0100010 is relayed to the sender. The sender then reduces the transmission speed by one stage and initiates training once again.
Training 2	_____	Used for reconfirming the receiving side like training 1.
Image Signal	Refer to the next page.	_____
RTC (Return to Control)	_____	Sends 12 bits (0...01 × 6 times) to the receiver at the same speed as the image signal and notifies completion of transmission of the first sheet.
EOP (End of Procedure)	X1110100	End of one communication
MCF (Message Confirmation)	X0110001	End of 1 page reception
DCN (Disconnect)	X1011111	Phase E starts.
MPS (Multi-Page Signal)	X1110010	Completion of transmission of 1 page. If there are still more documents to be sent, they are output instead of EOP. After MCF reception, the sender transmits an image signal of the second sheet.
PRI-EOP (Procedural Interrupt-EOP)	X1111100	If there is an operator call from the sender, it is output after RTC.
PIP (Procedural Interrupt Positive)	X0110101	This is output when an operator call is received.

b. Redundancy Compression Process Coding Mode

This unit uses one-dimensional MH format.



8.5. NCU SECTION

8.5.1. GENERAL

This section is the interface between the telephone line and external telephone. It is composed of an EXT. TEL line relay (RLY101), bell detection circuit, pulse dial circuit, TAM interface circuit, line amplifier and sidetone circuits and a multiplexer.

8.5.2. EXT. TEL. LINE RELAY (RLY101)

1. Circuit Operation

Normally, this relay switches to the external telephone side (break) and switches to the open side (make) while OFF-HOOK.

{ IC501 (138) High Level → CN511 (9) High Level } → CN101 (9) High Level → Q102 ON → RLY101 (make)

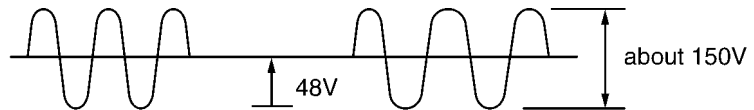
8.5.3. BELL DETECTION CIRCUIT

1. Circuit Operation

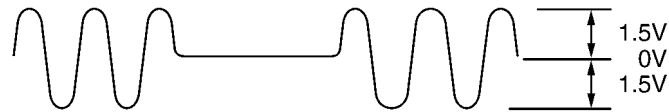
The signal waveform for each point is indicated below. The signal (low level section) input to pin 42 of ASIC IC501 on the digital board is read by ASIC and judged as a bell.

TEL LINE → PC101 (1, 2 - 4) → IC501 (42)

Between the Tip and Ring
from the telephone line



Between PC101 (1) and (2)



PC101 (4)/ASIC IC501 (42)



8.5.4. TAM INTERFACE CIRCUIT

This circuit is to switch between FAX receiving and the external TAM's message recording automatically. This circuit consists of line transformer, multiplexer, amplifier.

For details, please refer **TAM INTERFACE SECTION** (P.166).

8.5.5. PULSE DIAL CIRCUIT AND ON / OFF HOOK CIRCUIT

While OFF-HOOK, RLY101 is ON. Q102 turns on by pin (138) of IC501 as well. On the other hand, while ON-HOOK, Q102 turns OFF by pin (138) of IC501, then the line turns OFF. ON/OFF-HOOK, controlled by pin (138) of IC501, makes the pulse dial operation possible.

IC501 (138) LINE RLY Low Level → CN511 (9) → CN101 (9) → Q102 OFF → RLY101 OFF : DC Loop OFF

IC501 (138) LINE RLY High Level → CN511 (9) → CN101 (9) → Q102 ON → RLY101 ON : DC Loop ON

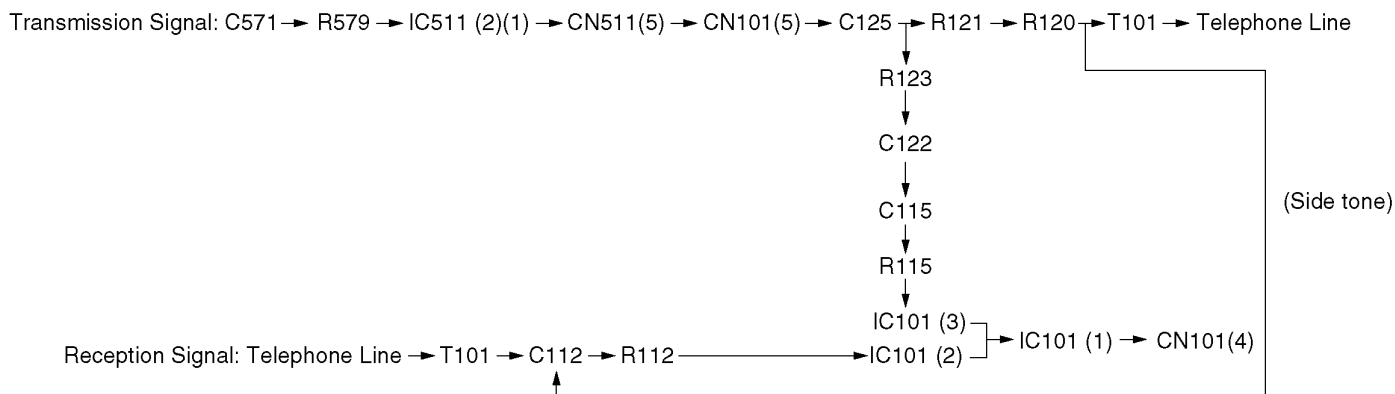
8.5.6. LINE AMPLIFIER AND SIDE TONE CIRCUIT

1. Circuit Operation

The reception signal output from the line transformer T101 is input to pin (2) of IC101 via C112, R112 and then the signal is amplified at pin (1) of IC101 and sent to the reception system at 11.6dB.

The transmission signal goes through C571 and R579 and enters IC511-pin (2), where the signal is amplified to about 24.8dB. Then, it is output from pin (1) of IC101 and transmitted to T101 via C125, R120 and R121. If the side tone circuit is not applied, the transmission signal will return to the reception amplifier via C112 and R112. When the side tone circuit is active, the signal output from IC101 pin (1) passes through C125, R123, C122, C115 and R115 and goes into the amplifier IC101 pin (3). This circuit is used to cancel the transmission return signal.

Side Tone Circuit



8.6. ITS (Integrated telephone System) and MONITOR SECTION

8.6.1. GENERAL

During the monitor operation, the speaker output passes through the power amplifier (IC519) [digital board].

The DTMF signal is output from the modem (IC505: digital board). The alarm tone, the key tone, bell tone, and beep are output from gate array IC501 (digital board). During a pulse dial operation, the monitor tone is output from gate array IC501.

8.6.1.1. TELEPHONE MONITOR

1. Function

This is the function when you are not holding the handset and can hear the caller's voice from the line.

2. Signal path

Refer to **CHECK SHEET**.

8.6.1.2. HANDSET CIRCUIT

1. Function

This circuit controls the conversation over the handset, i.e. the transmitted and received voices to and from the handset.

2. Signal path (Transmission signal)

Refer to **CHECK SHEET**.

3. Signal path (Reception signal)

Refer to **CHECK SHEET**.

8.6.1.3. MONITOR CIRCUIT

1. Function

This circuit monitors various tones, such as 1 DTMF tone, 2 Alarm/Beep/Key tone/Bell.

2. Signal path

a. DTMF MONITOR

(Speaker Operation)

Refer to **CHECK SHEET**.

(Handset Operation)

Refer to **CHECK SHEET**.

b. ALARM/BEEP/KEY TONE/BELL

Refer to **CHECK SHEET**.

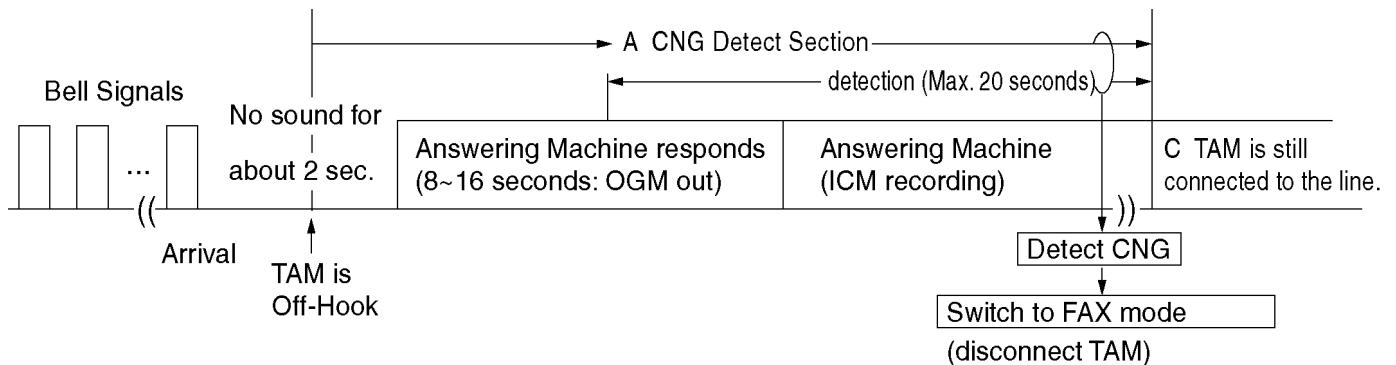
8.6.1.4. TAM INTERFACE SECTION

1. Function

If EXT. TAM is selected in the Receive mode, the unit receives documents for FAX calls or the external TAM records a voice message automatically.

To switch between the answering machine and facsimile in the EXT. TAM Mode.

#	EXTERNAL TAM OPERATION	UNIT OPERATION
1	When the bell signal rings as many times as the number memorized into the connected answering machine (TAM), the answering machine is connected to the line and the answering message is sent out to the line. (OGM out for 8 ~ 16 sec.)	The length of the answering message should be 8~16 seconds. While the message is being played, the unit starts to detect the CNG signal.(A) If the unit detects the CNG signal, it will switch to FAX receiving and disconnect the external TAM automatically.
2	After sending the OGM, the answering machine starts to record the message of the other party (ICM recording).	After the OGM of the external TAM is finished. If the unit cannot detect the CNG signal for about 30 seconds, the unit will disconnect the line. (C)



Attention 1:

No sound detection lasts 20 seconds after the telephone call is received at the answering machine. It switches to the facsimile.

Attention 2:

When the answering machine cannot answer the telephone call because of disconnection or the recording tape is full, the unit picks up the call after 5 rings (#006 in the feature). Then it switches to the facsimile.

8.6.1.4.1. CIRCUIT OPERATION

The TAM INTERFACE circuit consists of CNG signal from the other party's detection circuit, VOX detection circuit (to judge sound/no-sound) and RL101 (to separate EXT. TAM).

1. CNG/VOX signal detection circuit

The CNG signal from the other party's FAX is detected in MODEM IC505 (digital board).

(Signal path)

Refer to **CHECK SHEET**.

2. Remote receiving

This is the parallel-connected DTMF signal for the TEL or EXT.TEL mode between T and R. When the other party is a FAX, the unit switches to FAX receiving.

(Signal Path)

Detects the DTMF signal in the MODEM.

8.7. TEST CHART

8.7.1. ITU-T No.1 TEST CHART



THE SLEREXE COMPANY LIMITED

SAPORS LANE - BOOLE - DORSET - BH 25 8 ER

TELEPHONE BOOLE (945 13) 51617 - TELEX 123456

Our Ref. 350/PJC/EAC

18th January, 1972.

Dr. P.N. Cundall,
Mining Surveys Ltd.,
Holroyd Road,
Reading,
Berks.

Dear Pete,

Permit me to introduce you to the facility of facsimile transmission.

In facsimile a photocell is caused to perform a raster scan over the subject copy. The variations of print density on the document cause the photocell to generate an analogous electrical video signal. This signal is used to modulate a carrier, which is transmitted to a remote destination over a radio or cable communications link.

At the remote terminal, demodulation reconstructs the video signal, which is used to modulate the density of print produced by a printing device. This device is scanning in a raster scan synchronised with that at the transmitting terminal. As a result, a facsimile copy of the subject document is produced.

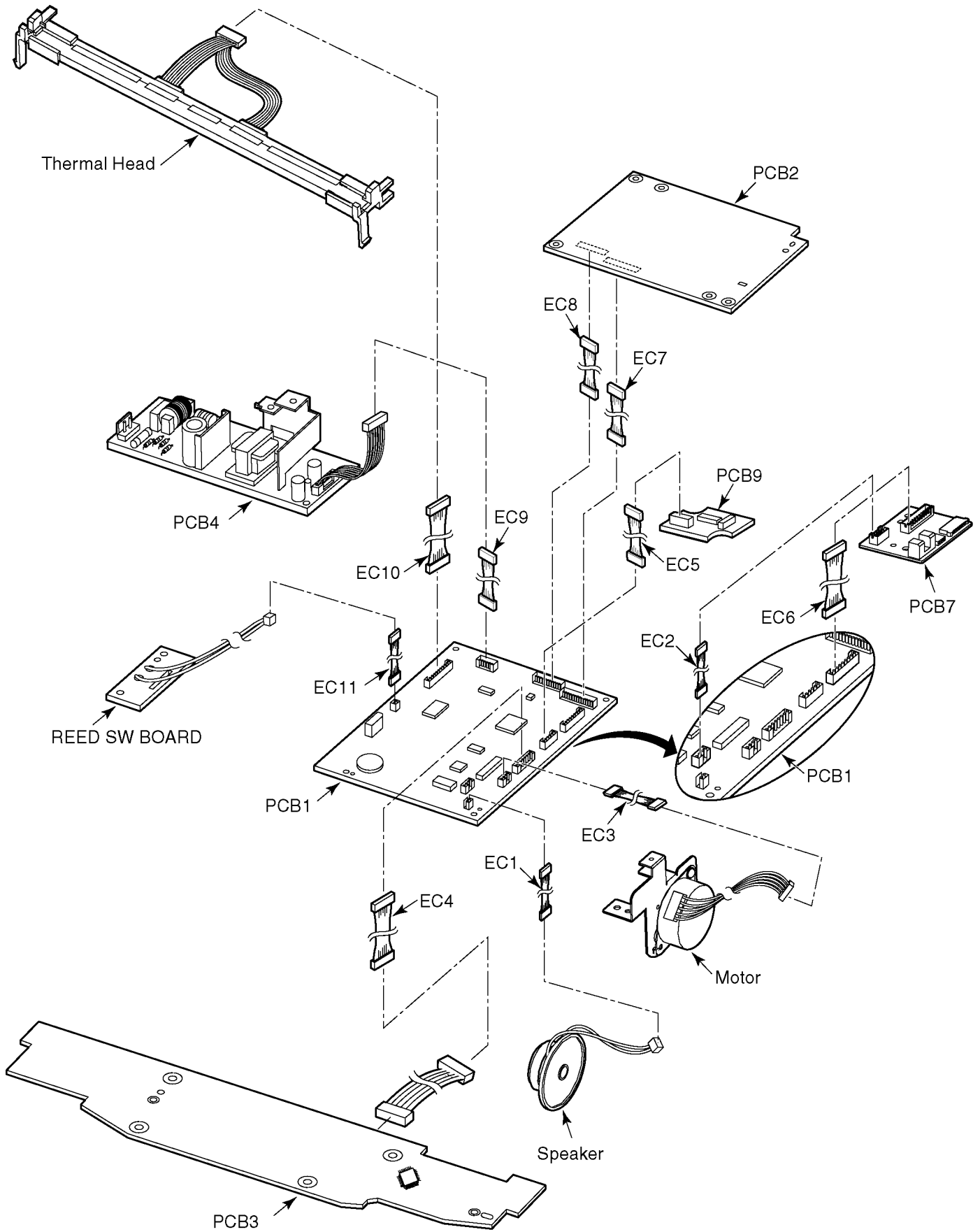
Probably you have uses for this facility in your organisation.

Yours sincerely,

Phil.

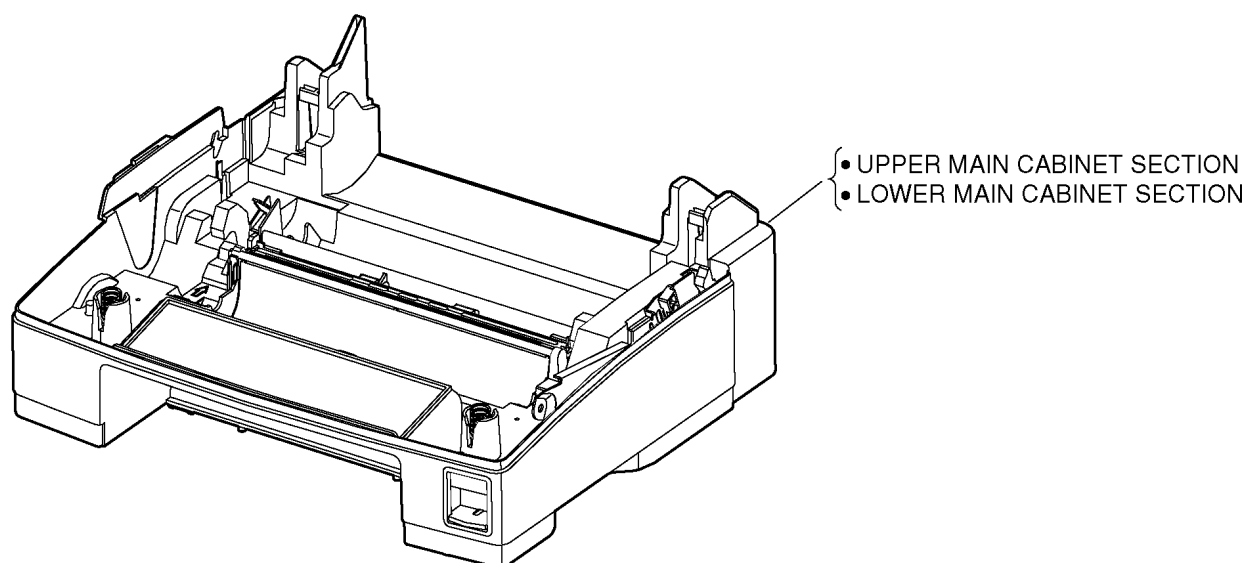
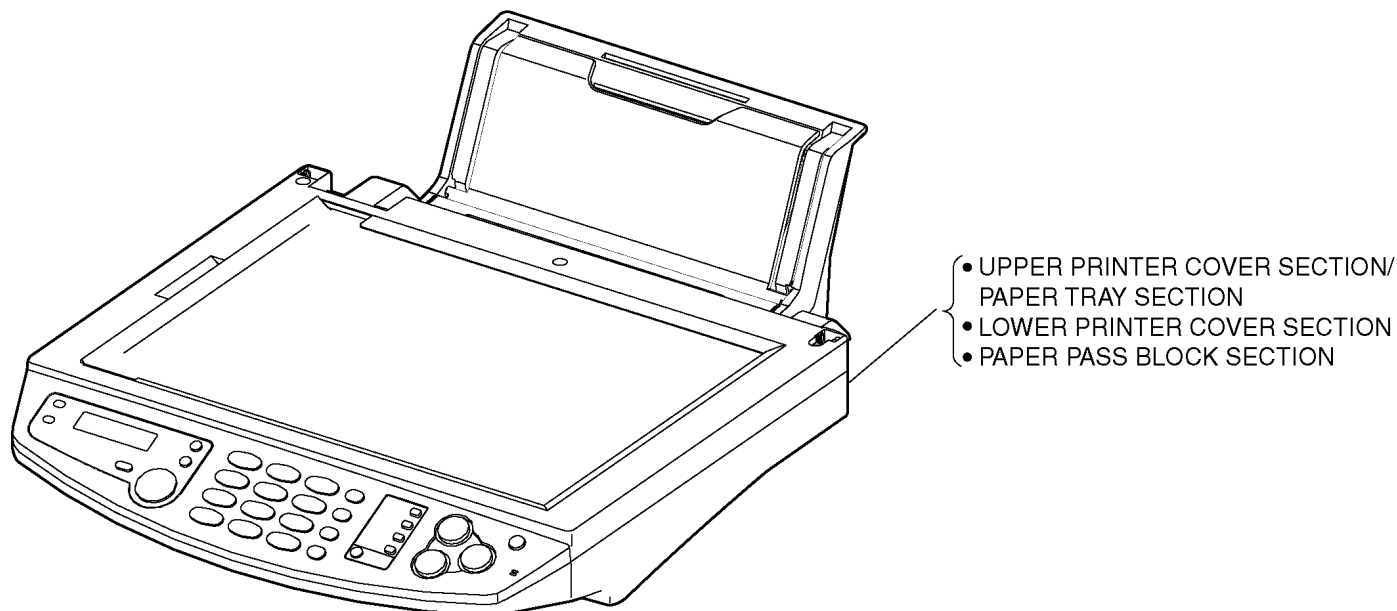
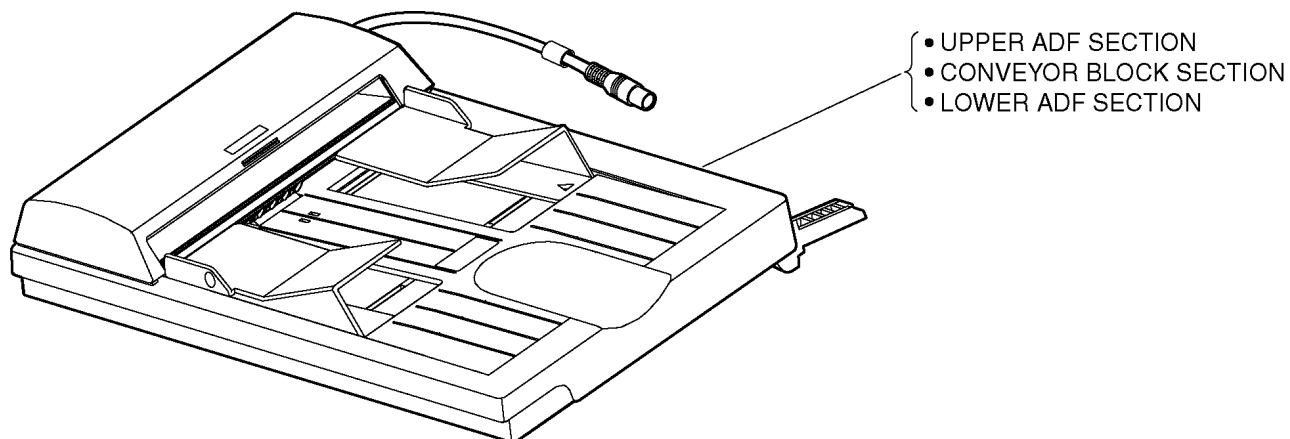
P.J. CROSS
Group Leader - Facsimile Research

9 FIXTURES AND TOOLS

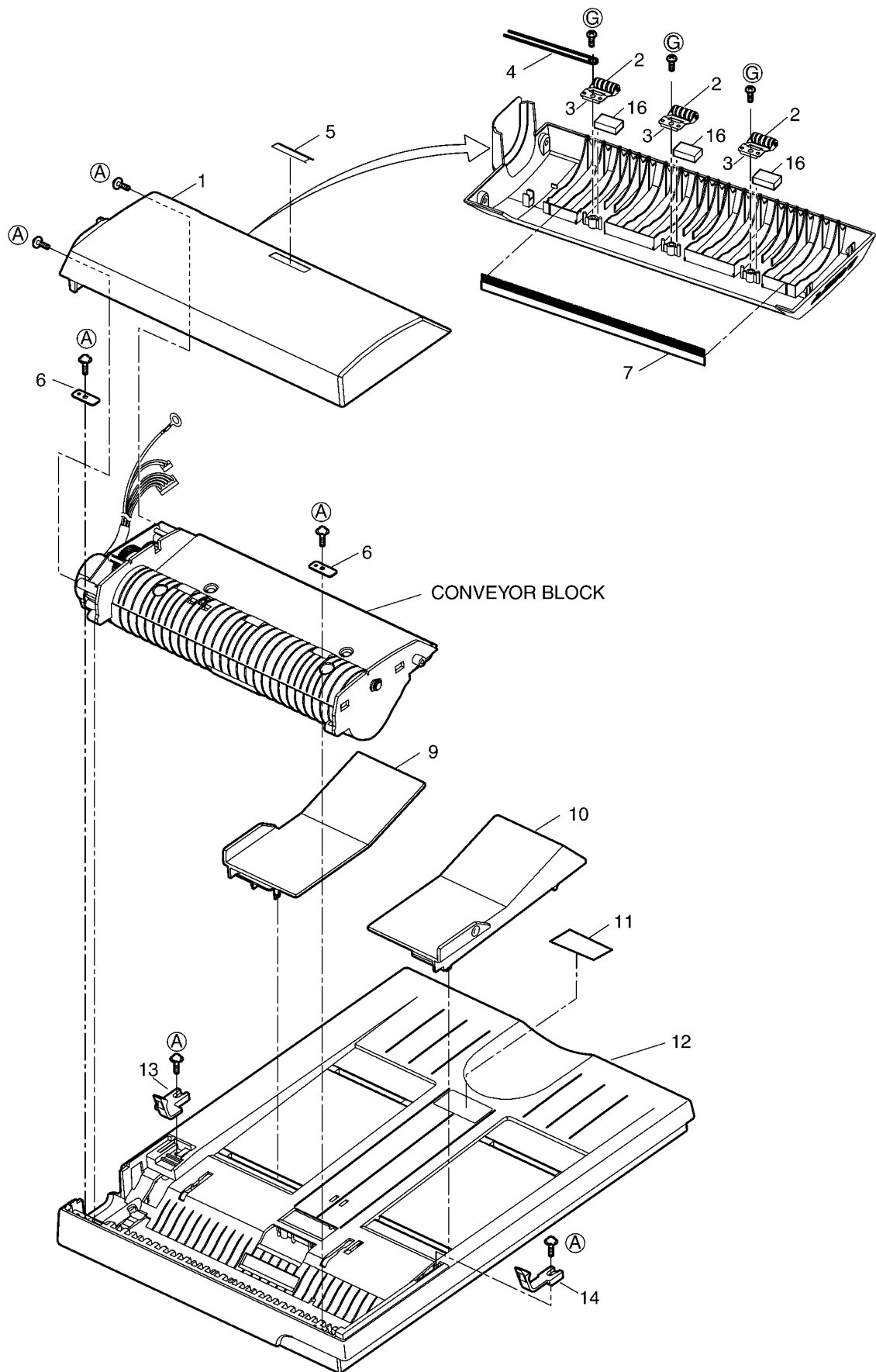


10 CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION

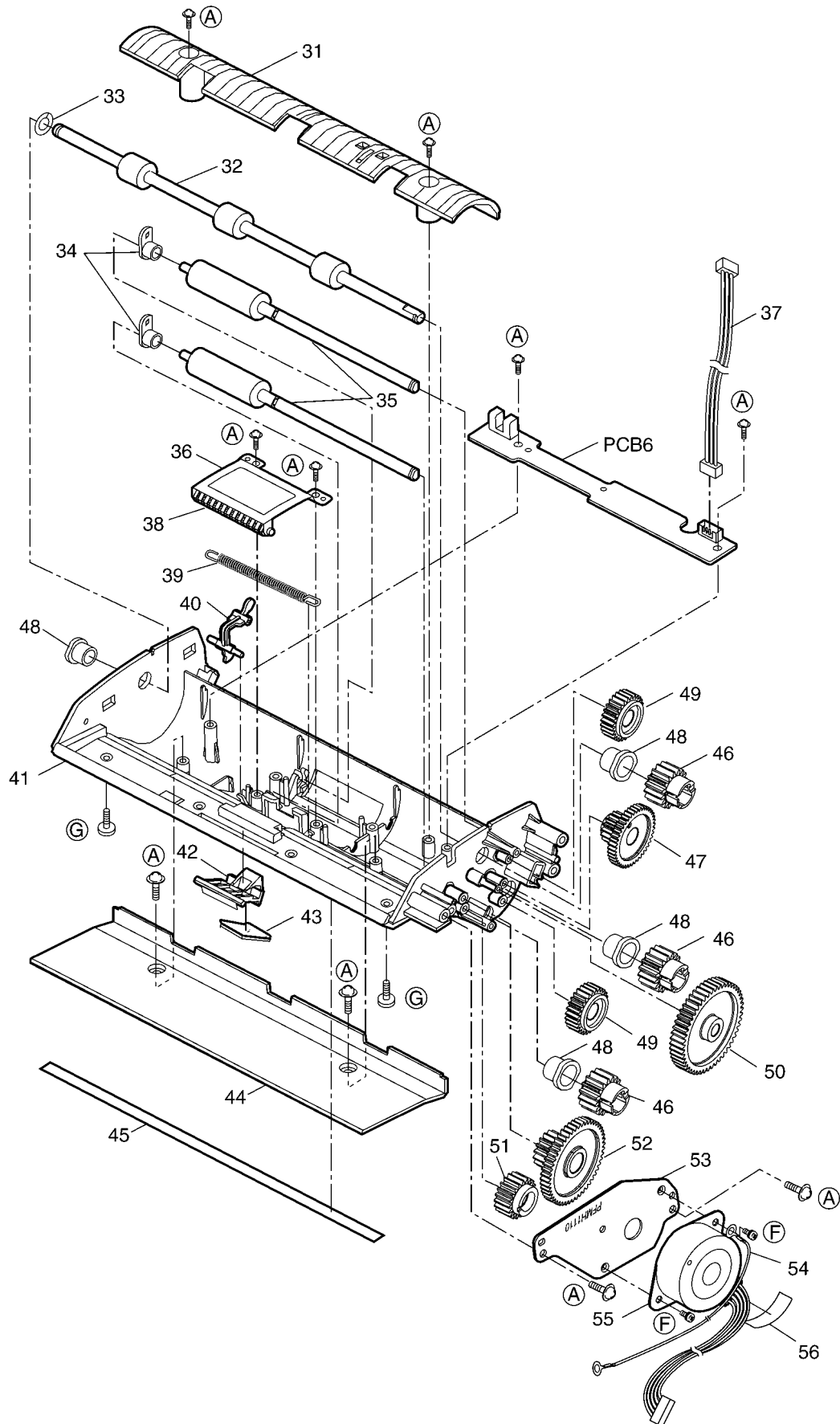
10.1. GENERAL SECTION



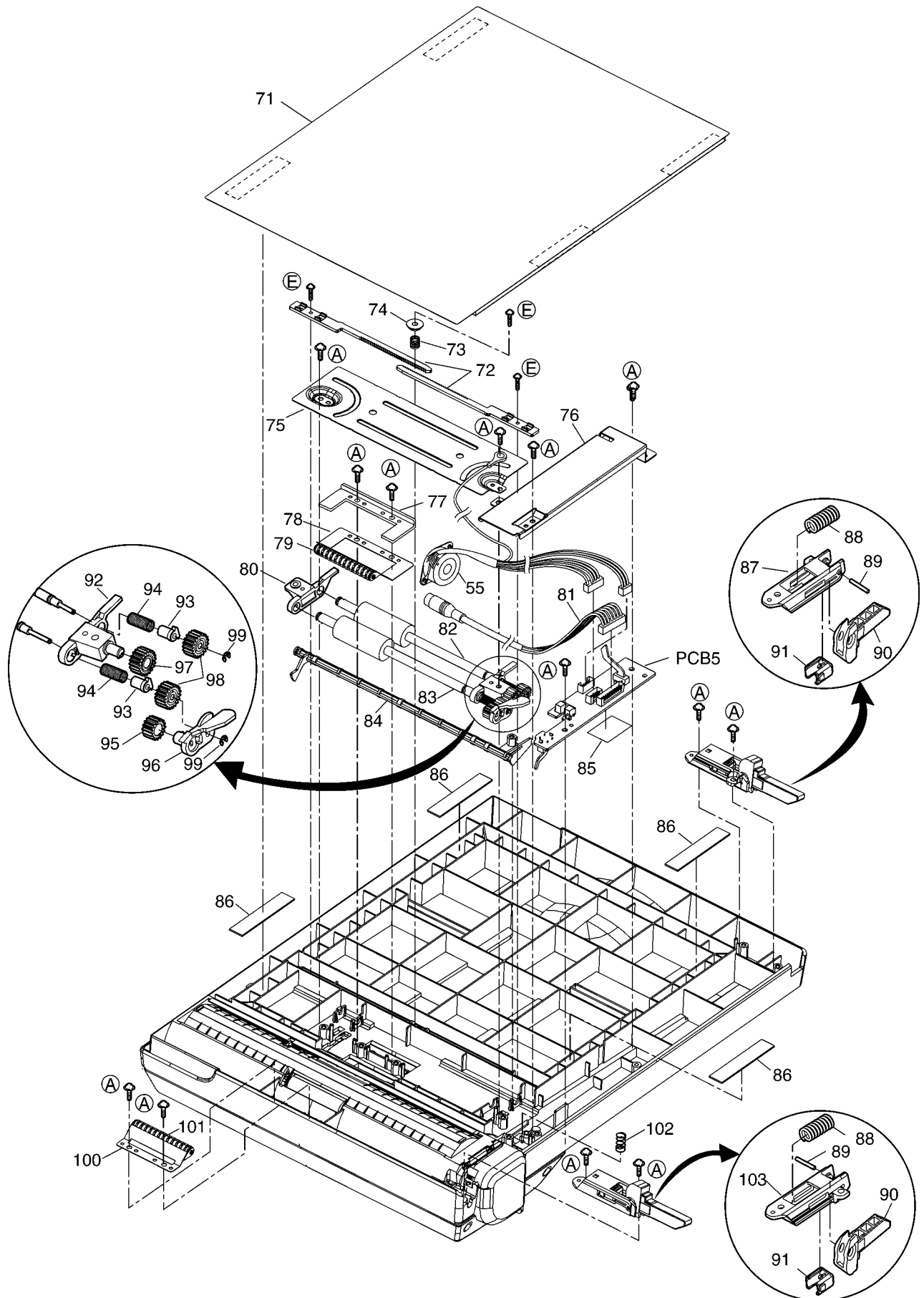
10.2. UPPER ADF SECTION



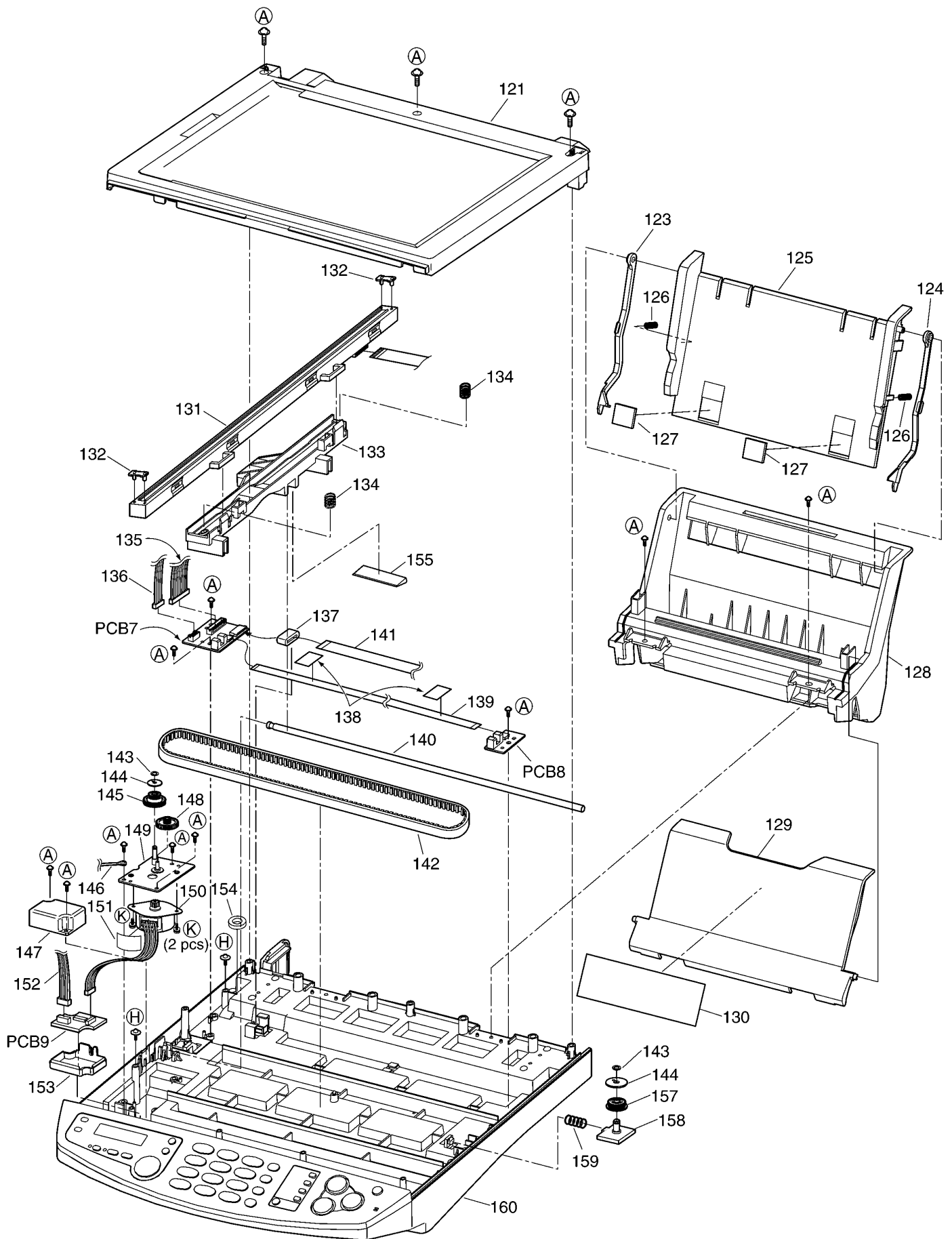
10.3. CONVERYOR BLOCK SECTION



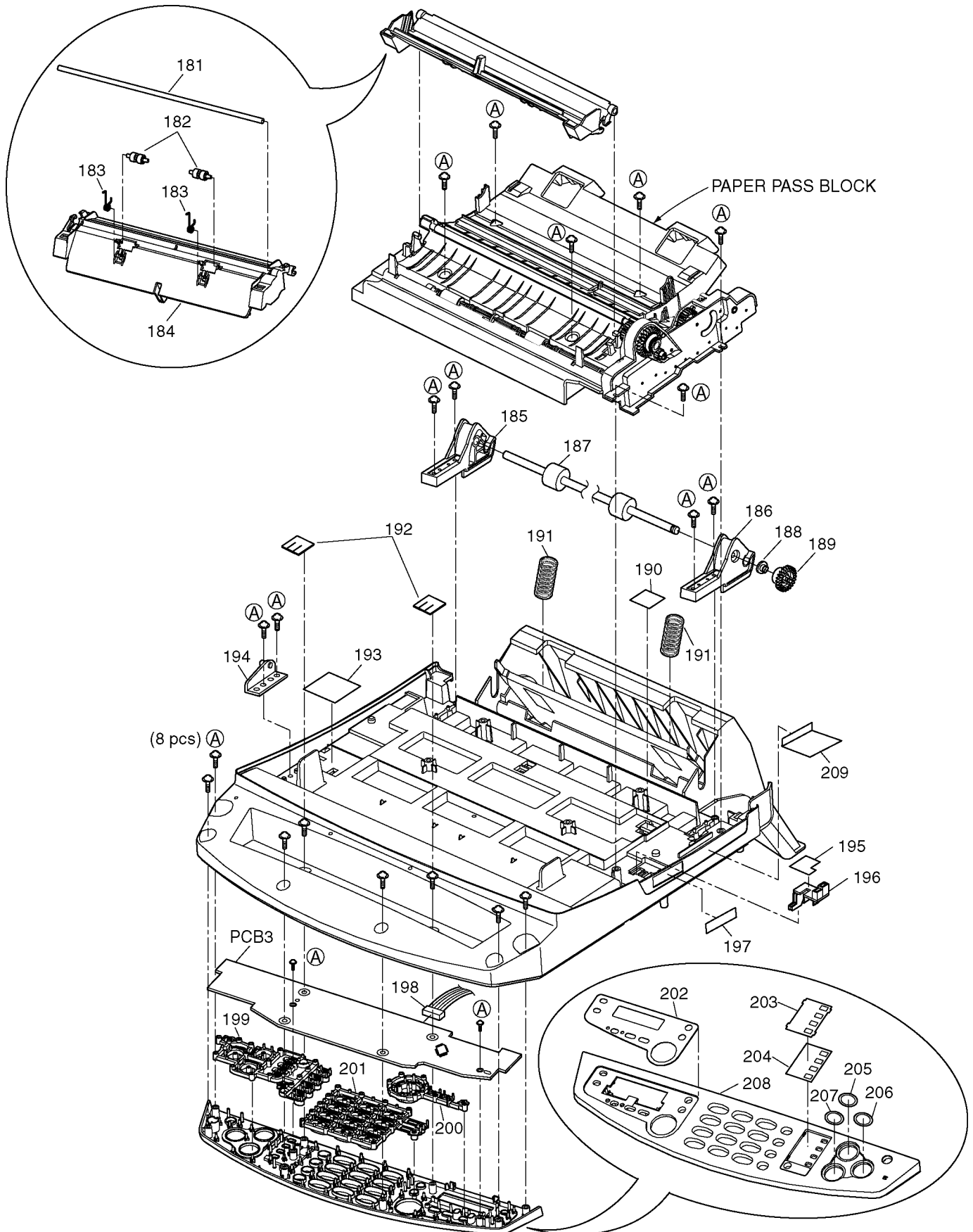
10.4. LOWER ADF SECTION



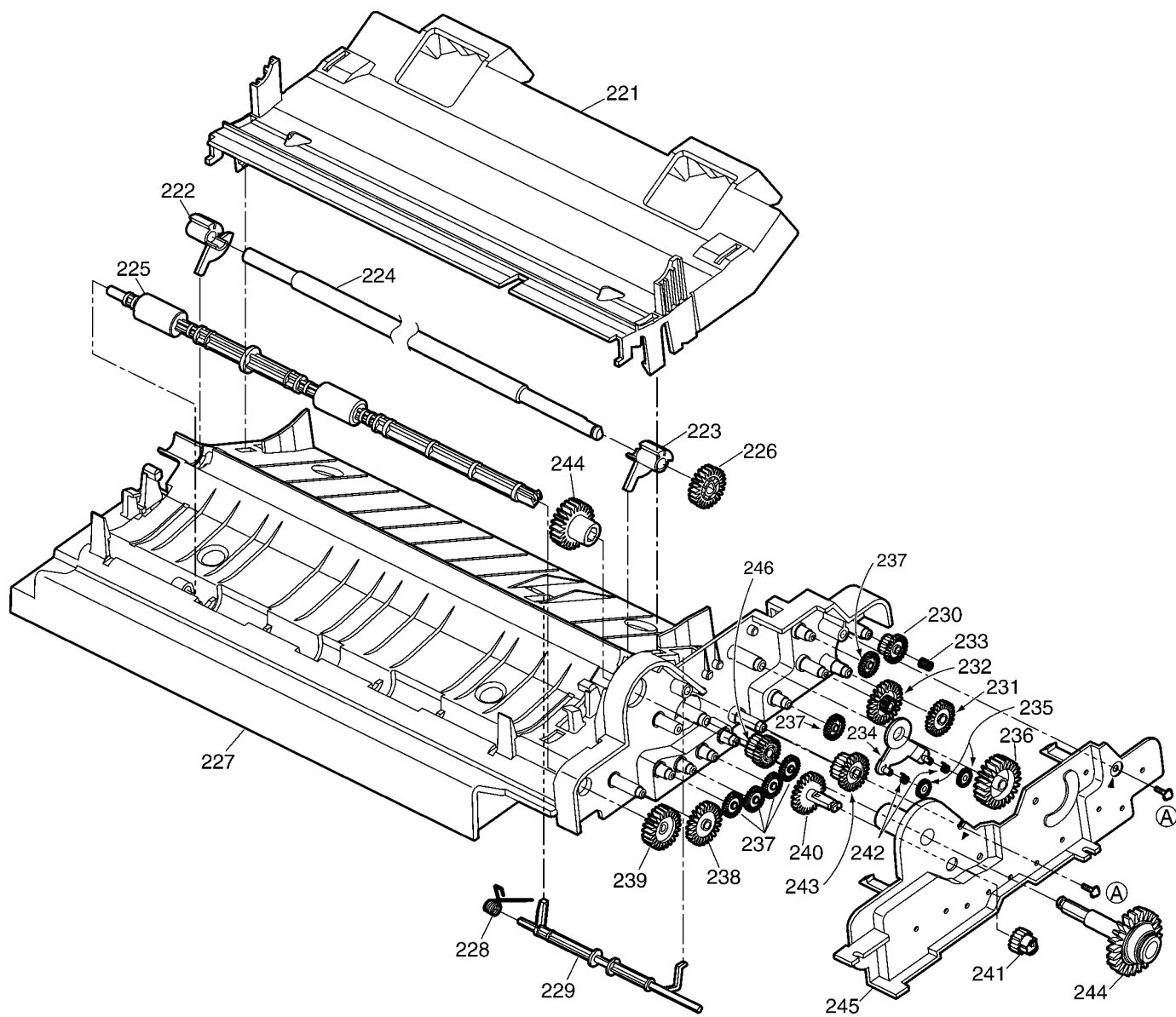
10.5. UPPER PRINTER COVER SECTION AND PAPER TRAY SECTION



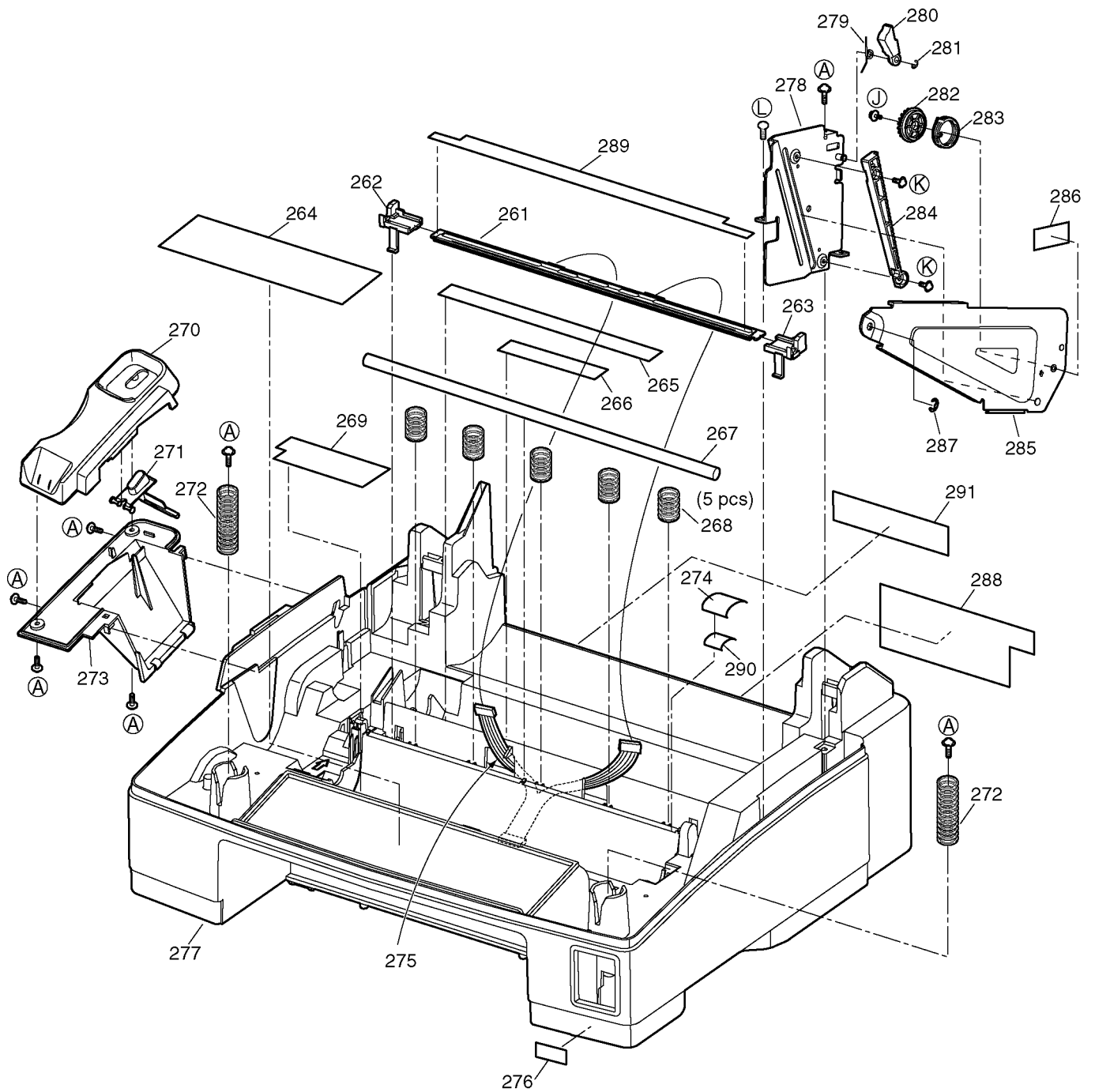
10.6. LOWER PRINTER COVER SECTION



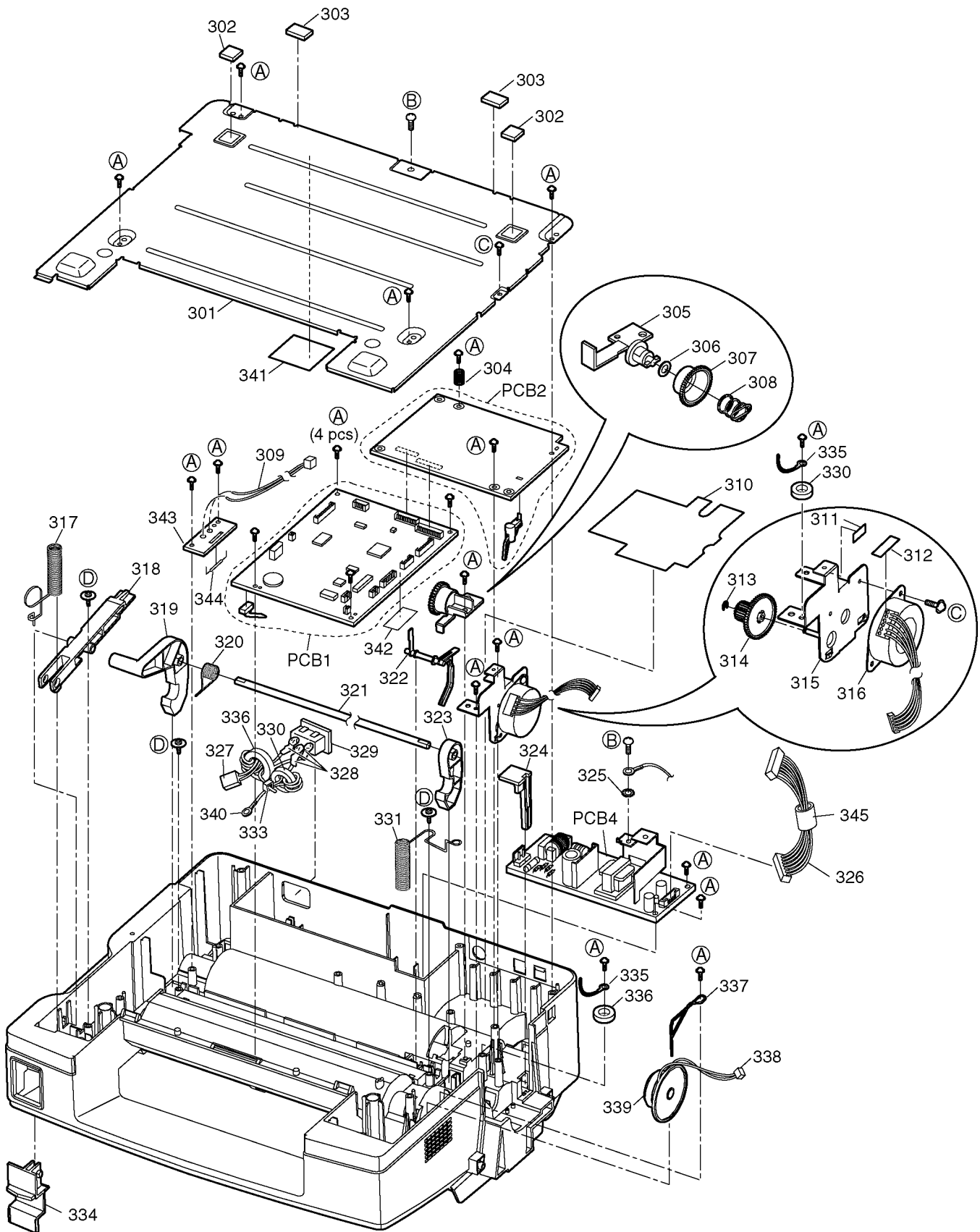
10.7. PAPER PASS SECTION



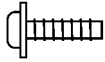
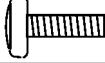
10.8. UPPER MAIN CABINET SECTION



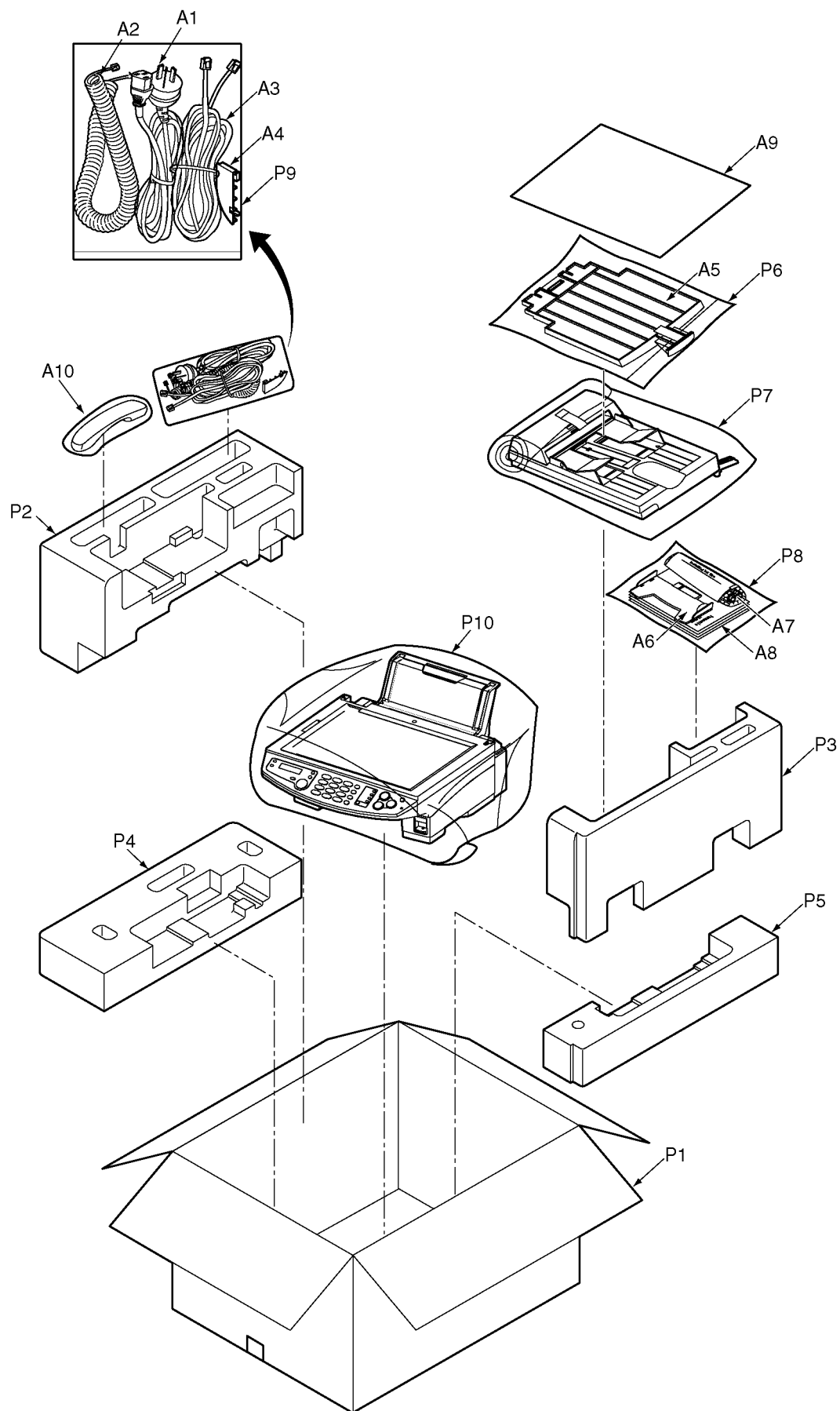
10.9. LOWER MAIN CABINET SECTION



10.10. ACTUAL SIZE OF SCREWS

	Parts No.	Illustration
Ⓐ	XTW3+S10P	
Ⓑ	XSB4+6	
Ⓒ	XTW3+U6L	
Ⓓ	PJHE5065Z	
Ⓔ	XTW2+R8PFN	
Ⓕ	XYN3+C6	
Ⓖ	XTB3+8G	
Ⓗ	XTW3+W8P	
Ⓙ	XYN3+F6	
Ⓚ	XTW3+6L	
Ⓛ	XTB4+10G	

11 ACCESSORIES AND PACKING MATERIALS



12 REPLACEMENT PARTS LIST

1. RTL (Retention Time Limited)

Note:

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing parts and product retention.

After the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by $\triangle$ mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

Unless otherwise specified;

All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F) P= μ F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQRD:Carbon
ERD:Carbon	ERG:Metal Oxide	PQRQ:Fuse
PQ4R:Chip	ERO:Metal Film	ERF:Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W

ECFD:Semi-Conductor	ECQD,ECKD,PQCBP,PQVP : Ceramic
ECQS:Styrol	ECQM,ECQV,ECQE,ECQU,ECQB : Polyester
PQCBX,ECUV:Chip	ECEA,ECSZ,ECOS : Electrolytic
ECMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others		
1H : 50V	05 : 50V	OF : 3.15V	OJ : 6.3V	1V : 35V	
2A : 100V	1 : 100V	1A : 10V	1A : 10V	50,1H : 50V	
2E : 250V	2 : 200V	1V : 35V	1C : 16V	1J : 63V	
2H : 500V		OJ : 6.3V	1E,25 : 25V	2A : 100V	

12.1. CABINET AND ELECTRICAL PARTS

12.1.1. UPPER ADF SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
1	PFKV1051Y1	COVER, TOP	PS-HB
2	PFDR1030Z	ROLLER, EXIT PINCH	POM-HB
3	PFUS1343Z	LEAF SPRING, EXIT PINCH ROLLER	
4	PFUS1351Z	TORSION SPRING, EXIT EARTH	
5	PFQT1899Z	INDICATION LABEL, PULL TO OPEN	
6	PFMH1111Z	METAL PARTS, ADF PIVOT	
7	PFJV1002Z	HOLDER, DISCHARGE BRUSH	
8	Not used		

Ref. No.	Part No.	Part Name & Description	Remarks
9	PFKR1021Y1	GUIDE, DOCUMENT (RIGHT)	ABS-HB
10	PFKR1022Y1	GUIDE, DOCUMENT (LEFT)	ABS-HB
11	PFQT1891Z	INDICATION LABEL, FACE DOWN	
12	PFKV1050V1	COVER	PS-HB
13	PFDE1177Z	LEVER, LOCK ADF	POM-HB
14	PFDE1178Z	LEVER, LOCK ADF	POM-HB
15	Not used		
16	PFHE1019Z	INSULATOR, IMASEN FORM	

12.1.2. CONVEYOR BLOCK SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
31	PFUE1012Z1	COVER, CONVEYOR EXIT	PS-HB
32	PFDN1056Z	ROLLER, EXIT	
33	PFNPD052080	WASHER	
34	PFDJ1056Z	SPACER, DRIVE ROLLER BUSH	POM-HB
35	PFDN1055Z	ROLLER, DRIVE	
36	PFUS1340Z	LEAF SPRING, FEED PINCH ROLLER	
37	PFJS03Q28Z	CONNECTOR, 3 PIN	
38	PFDR1029Z	ROLLER, FEED PINCH	POM-HB
39	PFUS1348Z	COIL SPRING	
40	PFDE1175Y	LEVER, DOCUMENT TOP	POM-HB
41	PFUE1014Z1	COVER, CONVEYOR MAIN	S
42	PFHR1297Z	GUIDE, SEPARATION RUBBER	ABS-HB
43	PFHG1128Z	RUBBER PARTS, SEPARATION	
44	PFKV1052Z1	COVER, DOCUMENT FEED	PS-HB
45	PFHX1512Z	METAL PARTS, WHITE STANDARD SHEET	
46	PFDG1249Z	GEAR	POM-HB
47	PFDG1266Z	GEAR	POM-HB
48	PFDJ1055Z	SPACER, DRIVE ROLLER BUSH	POM-HB
49	PFDG1250Z	GEAR	POM-HB
50	PFDG1265Z	GEAR	POM-HB
51	PFDG1251Z	GEAR	POM-HB
52	PFDG1267Z	GEAR	POM-HB
53	PFMH1110Z	METAL PARTS, ADF MOTOR PLATE	
54	WLK22TG17M3M	LEAD WIRE	
55	35S1S15DGNE	DC MOTOR	
56	PFHX1399Z	COVER, MOTOR SHEET	

12.1.3. LOWER ADF SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
71	PFHX1511Y	COVER, WHITE PLATE	
72	PFHR1298Z	RACK, GUIDE DOCUMENT	ABS-HB
73	PFUS1222Z	COIL SPRING	
74	PFDG1015Y	GEAR	POM-HB
75	PFUV1044Z	COVER, FEED MODULE	
76	PFUV1043Z	COVER, GEAR	
77	PFMH1117Z	METAL PARTS, SPRING SUPPORT	
78	PFUS1341Z	LEAF SPRING, DRIVE PINCH ROLLER	
79	PFDR1029Z	ROLLER, FEED PINCH	
80	PFDJ1054Z	SPACER, FEED MODULE BUSH	POM-HB
81	PFJS11P20Z	CONNECTOR, 11 PIN	
82	PFDN1053Z	ROLLER, FEED	
83	PFDN1054Z	ROLLER, SEPARATION	
84	PFDE1174Z	LEVER, DOCUMENT	POM-HB
85	PFHX1519Z	COVER, PCB RELAY ADF	
86	PFHE1068Z	TAPE, MAGIC	
87	PFHR1289Z	CHASSIS, HINGE	POM-HB
88	PFUS1350Z	COIL SPRING	
89	XPJ2A14VW	KEY-PIN	
90	PFHR1291Z	CAM, HINGE	POM-HB
91	PFHR1292Z	PLASTIC PARTS, HINGE SLIDER	POM-HB
92	PFDJ1053Z	SPACER, FEED MODULE BUSH	POM-HB
93	PFDE1163Z	SPACER, DELAY	POM-HB
94	PQUS10038Z	COIL SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
95	PFDG1245Z	GEAR	POM-HB
96	PFDE1173Z	ARM, SWING	POM-HB
97	PFDG1244Z	GEAR	POM-HB
98	PFDG1243Z	GEAR	POM-HB
99	XUC2FY	RETAINING RING	
100	PFUS1342Y	BSPRING	
101	PFDR1029Z	ROLLER, FEED PINCH	
102	PFUS1349Z	COIL SPRING	
103	PFHR1290Z	CHASSIS, HINGE	POM-HB

12.1.4. UPPER PRINTER COVER / PAPER TRAY SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
121	PFYCFB421M	COVER, SCANNER GLASS ASS'Y	PS-HB
122	Not used		
123	PFHR1343Y	ARM, CORNER FLAP (LEFT)	POM-HB
124	PFHR1344Y	ARM, CORNER FLAP (RIGHT)	POM-HB
125	PFKE1025W1	TRAY, PAPER CASSETTE	PS-HB
126	PFUS1391Z	COIL SPRING	
127	PFHG1088Z	RUBBER PARTS, PICK UP	
128	PFKV1070X1	COVER, CASSETTE	PS-HB
129	PFKS1071Y1	TRAY, PAPER CASSETTE LEVER	PS-HB
130	PFQT2128Z	INDICATION LABEL, PAPER SET	
131	N26ZBE000003	IMAGE SENSOR (CIS)	
132	PFHR1293Z	SPACER, CIS	POM-HB
133	PFDC1002Z	GUIDE, CARRIAGE BASE	POM-HB
134	PFUS1415Z	COIL SPRING	
135	PFJS10Q31Z	CONNECTOR, 10 PIN	
136	PFJS04Q42Z	CONNECTOR, 4 PIN	
137	PFLB1K002	INSULATOR	
138	PFHX1566Z	COVER, FFC SHEET	
139	PFJE1026Z	LEAD WIRE	
140	PFDF1072Z	SHAFT, CARRIAGE	
141	PFJE1025Z	LEAD WIRE	
142	PFDV1001Z	FLAT BELT	
143	PFNPD031054C	WASHER	
144	PFDE1170Z	PULLEY, FLANGE	POM-HB
145	PFDE1168Z	PULLEY, TIMING	POM-HB
146	WLL20YB53M3M	LEAD WIRE	
147	PFUV1045Z	COVER, DRIVER	PS-V0
148	PFDG1281Z	GEAR	POM-HB
149	PFMH1121Z	CHASSIS, CARRIAGE MOTOR	
150	35S1S150GNE	DC MOTOR	
151	PFHX1399Z	COVER, MOTOR SHEET	
152	PFJS06Q30Y	CONNECTOR, 6 PIN	
153	PFUV1046Z	COVER, DRIVER	PS-V0
154	PQLB1E1	INSULATOR	
155	PFHX1589Z	SPACER, CARRIAGE CIS SHEET	
156	Not Used		
157	PFDE1169Z	PULLEY, TENSION	POM-HB
158	PFMH1104Z	METAL PARTS, TENSION PULLEY	
159	PFUS1345Z	COIL SPRING	
160	PFKM1101Y1	CABINET BODY	PS-HB

12.1.5. LOWER PRINTER COVER SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
181	PFDF1083Z	SHAFT, RIBBON GUIDE	
182	PFDR1012Z	ROLLER, SUPPORT	POM-HB
183	PFUS1394Z	COIL SPRING	
184	PFUG1013Y	COVER, EXIT GUIDE	PS-HB
185	PFHR1342Z	ARM	PS-HB
186	PFHR1341Z	ARM	PS-HB
187	PFDN1058Z	ROLLER, PICK UP	
188	PFDE1187Z	GUIDE, DELAY	POM-HB
189	PFDG1276Z	GEAR	POM-HB
190	PFHX1577Z	COVER, PROTECTION CORE SHEET	PET-UL
191	PFUS1390Z	COIL SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
192	PFHX1246Z	COVER, SCREW	
193	PFHX1539Z	COVER, PROTECTION TONER SHEET	PET-UL
194	PFMH1105Z	METAL PARTS, PIVOT DOOR LOCK	
195	PFHX1585Z	COVER, PROTECTION LOCK SHEET	PET-UL
196	PFHR1345Y1	KNOB, STOPPER	ABS-HB
197	PFQT1959Z	INDICATION LABEL, CARRIAGE STOPPER	
198	PFJS08Q41Z	CONNECTOR, 8 PIN	
199	PFBX1174Y1	PUSH BUTTON, COPY KEY	ABS-HB
200	PFBX1176X1	PUSH BUTTON, NAVIGATOR KEY	ABS-HB
201	PFBX1175Z1	PUSH BUTTON, DIAL KEY	ABS-HB
202	PFGP1215W	PANEL, LCD	
203	PFGV1013Z	TRANSPARENT PLATE	
204	PFGD1048X	CARD, TEL	
205	PFGX1013Y	ORNAMENT, COPY KEY	
206	PFGX1014Y	ORNAMENT, FAX KEY	
207	PFGX1015Y	ORNAMENT, STOP KEY	
208	PFGG1176VI	GRILLE, OPERATION PANEL	PS-HB
209	PFHP1117Z	PAPER, CARRIAGE STOPPER SHEET	

12.1.6. PAPER PASS SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
221	PFUG1014W	COVER, PAPER GUIDE	PS-HB
222	PFDJ1062Y	SPACER, PLATEN SUPPORT	POM-HB
223	PFDJ1061Z	SPACER, PLATEN SUPPORT	POM-HB
224	PFDN1057Z	ROLLER, PLATEN	
225	PFDN1059Z	ROLLER, EXIT	
226	PFDG1277Z	GEAR	POM-HB
227	PFUA1039V	CHASSIS, RECORDING PAPER PASS	PS-HB
228	PFUS1393Z	COIL SPRING	
229	PFDE1185Y	LEVER, P. TOP	POM-HB
230	PFDG1280Z	GEAR	POM-HB
231	PFDG1275Z	GEAR	POM-HB
232	PFDG1274Z	GEAR	POM-HB
233	PFUS1410Z	COIL SPRING	
234	PFHR1346Y	ARM, GEAR	POM-HB
235	PFDG1159Z	GEAR	
236	PFDG1270Z	GEAR	POM-HB
237	PFDG1268Z	GEAR	POM-HB
238	PFDG1272Z	GEAR	POM-HB
239	PFDG1269Z	GEAR	POM-HB
240	PFDG1279Y	GEAR	POM-HB
241	PFDG1154Z	GEAR	
242	PFUS1231Y	COIL SPRING	
243	PFDG1271Z	GEAR	POM-HB
244	PFDX1032Z	GEAR, TORQUE LIMITER	
245	PFUV1053X	COVER, GEAR BLOCK	PS-HB
246	PFDG1273Z	GEAR	POM-HB

12.1.7. UPPER MAIN CABINET SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
261	PFJHS026Z	PRINTER UNITS, THERMAL HEAD	S
262	PFHR1338Y	GUIDE, HOLDER (LEFT)	POM-HB
263	PFHR1339Y	GUIDE, HOLDER (RIGHT)	POM-HB
264	PFQT1916Z	INDICATION LABEL, INK FILM	
265	PFHX1580Z	SPACER, SUPPLY BAR SHEET	
266	PFHX1579Z	SPACER, SUPPLY BAR SHEET	
267	PFDF1083Z	SHAFT, RIBBON GUIDE	
268	PFUS1388X	COIL SPRING	
269	PFQT1958W	INDICATION LABEL, BLUE GEAR	
270	PFKM1066Z1	CABINET BODY, HANDSET CRADLE	PS-HB
271	PFBH1015Z1	PUSH BUTTON, HOOK	ABS-HB
272	PFUS1402Z	COIL SPRING	
273	PFKF1047Y2	CABINET, HANDSET CRADLE	PS-HB
274	PFHX1615Z	SPACER, SHAFT SHEET (LONG)	
275	PFJS11Q69Y	CONNECTOR, 11 PIN	
276	PFQT1944Z	INDICATION LABEL, OPEN	
277	PFKM1100V1	CABINET BODY, BASE	PS-V0
278	PFMH1120Y	COVER, DOOR LOCK	

Ref. No.	Part No.	Part Name & Description	Remarks
279	PFUS1416Z	COIL SPRING	
280	PFHR1356Y	SPACER, DOOR LOCK STOPPER	
281	XUC3FY	RETAINING RING	
282	PFDG1273X	GEAR	POM-HB
283	PFUS1346Y	COIL SPRING	
284	PFHR1288Y	DAMPER, RACK	
285	PFMH1119Z	DOOR-LID, ARM DOOR LOCK	
286	PFHX1583Z	SPACER, DAMPER ARM SHEET	
287	XUC4FY	RETAINING RING	
288	PFGT2264Z-M	NAME PLATE, AL	S
289	PFHX1586Y	COVER, HEAD MOLD SHEET	
290	PFHX1614Z	SPACER, SHAFT SHEET(SHORT)	
291	PFQT1885Z	LABEL, USER CAUTION	

12.1.8. LOWER MAIN CABINET SECTION

Ref. No.	Part No.	Part Name & Description	Remarks
301	PFMD1060Z	FRAME, BOTTOM	
302	PFHA1005Z	RUBBER PARTS	
303	PFHX1382Z	SPACER, SENSOR SHEET	PVC
304	PFUS1358Z	COIL SPRING	
305	PFUA1040Z	CHASSIS, BACK TENSION	PS-HB
306	PFHS1029Z	COVER, BACK TENSION SHEET	
307	PFDG1160Z	GEAR	POM-HB
308	PFUS1232Z	COIL SPRING	
309	PFJS02Q39Y	CONNECTOR, 2 PIN	
310	PFHX1575Z	COVER, ROOF SHEET	PC-V0
311	PFHX1350Z	SPACER, HEAD SHEET	
312	PFHX1399Z	COVER, MOTOR SHEET	
313	XUC2FY	RETAINING RING	
314	PFDG1278Y	GEAR	POM-HB
315	PFMH1118Y	CHASSIS, MOTOR	
316	42S1S15D7NC	DC MOTOR	
317	PFUS1398Z	COIL SPRING	
318	PFDE1184Z	LEVER, OPEN	PS-HB
319	PFDE1183Z	ARM, LOCK LEVER (RIGHT)	POM-HB
320	PFUS1389Z	COIL SPRING	
321	PFDF1084Z	SHAFT, LOCK LEVER	
322	PFDE1186Z	LEVER, PEPPER TOP SENSOR	POM-HB
323	PFDE1182Z	ARM, LOCK LEVER (LEFT)	POM-HB
324	PFHR1340Y	SPACER, HOOK SW CONNECTOR	POM-HB
325	XWC4B	WASHER	
326	PFJS07Q43Z	CONNECTOR, 7 PIN	
327	PFJS02R19Y	CONNECTOR, 2 PIN	
328	PQMX10010Z	COVER, SUMI TUBE	
329	PFJP03S04Z	CONNECTOR, 3 PIN	S △
330	PQLB1E1	INSULATOR	
331	PFUS1413Z	COIL SPRING	
332		Not used	
333	PQHR945Z	BAND	
334	PFBC1095Z1	PUSH BUTTON, OPEN	ABS-HB
335	PQHM112Z	CLAMPER	
336	KR06TT251508	INSULATOR	
337	PFUS1338Y	TORSION SPRING	
338	PFJS02Q40Z	CONNECTOR, 2 PIN	
339	PFAS50P003Z	SPEAKER	S
340	WLR18YK26CM4	LEAD WIRE	S
341	PFHX1367Z	COVER, DIGITAL BOARD SHEET	
342	PFHX1367Z	COVER, DIGITAL BOARD SHEET	
343	PFUP1279Z-B	REED SW BOARD	
344	K0MA11000030	REED SWITCH	
345	J0KG00000001	INSULATOR, FERRITE CORE	

12.2. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PFJA03A006X	POWER CORD	△
A2	PQJA10126Z	CORD, HANDSET	

Ref. No.	Part No.	Part Name & Description	Remarks
A3	PQJA10075Z	CORD, TELEPHONE	
A4	PFKS1074Z1	TRAY, A4 SPACER	PS-HB
A5	PFKS1078Z1	TRAY, PAPER	PS-HB
A6	PFKS1072Y1	TRAY, REC PAPER STACKER	PS-HB
A7	PFPE1251Z	INK FILM	
A8	PFQX1915Z	INSTRUCTION BOOK	
A9	PFQW2059Z	LEAFLET, QUICK START SHEET	
A10	PFJXE0805Z	HANDSET	
P1	PFPK2430Z-M	GIFT BOX	S
P2	PFPN1279Z	CUSHION	
P3	PFPN1280Z	CUSHION	
P4	PFPN1281Z	CUSHION	
P5	PFPN1282Z	CUSHION	
P6	PFPH1046Z	PROTECTION COVER	
P7	PFPH1041Z	PROTECTION COVER	
P8	XZB32X45A04	PROTECTION COVER	
P9	XZB20X35A04	PROTECTION COVER	
P10	PFPH1040Y	PROTECTION COVER	

12.3. DIGITAL BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PFWP1FB423CN	DIGITAL BOARD ASS'Y (RTL)	
		(IC)	
IC501	C1ZBZ0001896	IC	
IC503	PFVIMS5148EF	IC	S
IC505	PFVIR676811	IC	
IC507	PFVII5510011	IC	
IC509	PQVITC4066BF	IC	S
IC511	PFVINJM4558M	IC	S
IC519	PQVIMC34119M	IC	S
IC520	C1ZBZ0002029	IC	
IC523	PFWIFB423CN	IC	
IC525	C0GAF00000008	IC	
		(TRANSISTORS)	
IC506	PFVTSI4431DY	TRANSISTOR(SI)	S
Q501	PQVTDTC143E	TRANSISTOR(SI)	S
Q502	2SB1322	TRANSISTOR(SI)	S
Q503	PQVTDTC143E	TRANSISTOR(SI)	S
Q504	2SB1322	TRANSISTOR(SI)	S
Q505	2SD1819A	TRANSISTOR(SI)	S
Q506	2SD1819A	TRANSISTOR(SI)	S
Q507	PQVTDTC143E	TRANSISTOR(SI)	S
Q508	2SD1819A	TRANSISTOR(SI)	S
Q509	2SD1819A	TRANSISTOR(SI)	S
Q510	PQVTDTC114EU	TRANSISTOR(SI)	S
Q511	2SD1819A	TRANSISTOR(SI)	S
Q514	2SB1218ARL	TRANSISTOR(SI)	
Q515	2SB1197K	TRANSISTOR(SI)	S
Q516	2SB1197K	TRANSISTOR(SI)	S
Q518	2SD1820A	TRANSISTOR(SI)	
Q519	2SB1197K	TRANSISTOR(SI)	S
Q523	2SB1197K	TRANSISTOR(SI)	S
Q524	PQVTDTC114EU	TRANSISTOR(SI)	S
Q525	UN5113	TRANSISTOR(SI)	S
Q526	PQVTDTC143E	TRANSISTOR(SI)	S
Q527	PQVTDTC143E	TRANSISTOR(SI)	S
Q528	PQVTDTC143E	TRANSISTOR(SI)	S
Q529	PQVTDTC143E	TRANSISTOR(SI)	S
Q531	PQVTDTC143E	TRANSISTOR(SI)	S
Q532	PQVTDTC143E	TRANSISTOR(SI)	S
Q533	PQVTDTC143E	TRANSISTOR(SI)	S
		(DIODES)	
D501	PFVDRMLS245	DIODE(SI)	S
D502	PFVDRMLS245	DIODE(SI)	S
D503	PQVDRLS73T	DIODE(SI)	S
D505	PQVDNCD56DT	DIODE(SI)	S
		(BATTERY)	
BAT501	PFSU1004Z	BATTERY	S
		(CAPACITORS)	
C502	ECUV1H104ZFV	0.1	S

Ref. No.	Part No.	Part Name & Description	Remarks
C503	ECEA1CK101	100	S
C504	PQCUV1C105ZF	1	S
C506	PQCUV1C105ZF	1	
C509	ECUV1H102KBV	0.001	S
C510	ECUV1H104ZFV	0.1	S
C513	ECUV1H104ZFV	0.1	S
C514	ECUV1H104ZFV	0.1	S
C515	ECUV1H104ZFV	0.1	S
C516	ECUV1H104ZFV	0.1	S
C518	ECUV1H222KBV	0.0022	S
C519	ECUV1C104KBV	0.1	S
C522	ECUV1C104KBV	0.1	S
C523	ECUV1H150JCV	15p	S
C524	ECUV1H104ZFV	0.1	S
C525	ECUV1H120JCV	12p	S
C526	ECUV1H102KBV	0.001	S
C527	ECUV1H104ZFV	0.1	S
C529	ECUV1H104ZFV	0.1	S
C531	ECUV1H104ZFV	0.1	S
C533	ECUV1H104ZFV	0.1	S
C534	ECEA1CK101	100	S
C535	ECUV1H104ZFV	0.1	S
C536	ECUV1H104ZFV	0.1	S
C537	ECUV1H104ZFV	0.1	S
C539	ECUV1H101JCV	100p	S
C540	ECJ1VC1H100D	10p	
C541	ECJ1VC1H100D	10p	
C542	ECUV1H104ZFV	0.1	S
C544	ECUV1H104ZFV	0.1	S
C545	ECUV1H104ZFV	0.1	S
C546	ECUV1H104ZFV	0.1	S
C547	ECUV1H104ZFV	0.1	S
C548	ECEA1CK101	100	S
C549	ECUV1C104KBV	0.1	S
C550	ECUV1H330JCV	33p	S
C551	ECEA1CK101	100	S
C553	ECUV1H472KBV	0.0047	S
C554	ECUV1H472KBV	0.0047	S
C559	ECUV1H104ZFV	0.1	S
C560	ECUV1H104ZFV	0.1	S
C564	ECEA1CKA100	10	S
C565	ECEA1CKA100	10	S
C566	ECUV1H104ZFV	0.1	S
C567	ECUV1H102KBV	0.001	S
C568	ECUV1H102KBV	0.001	S
C569	ECUV1H104ZFV	0.1	S
C570	ECUV1C273KBV	0.027	S
C571	ECUV1C104KBV	0.1	S
C572	ECUV1H103KBV	0.01	S
C573	ECUV1C104KBV	0.1	S
C574	ECEA1CK101	100	S
C575	ECUV1H104ZFV	0.1	S
C576	ECUV1C104KBV	0.1	S
C577	ECUV1C104KBV	0.1	S
C578	ECUV1H104ZFV	0.1	S
C579	ECUV1C104KBV	0.1	S
C580	ECUV1H560JCV	56p	S
C581	ECUV1H223KBV	0.022	S
C582	pQCUV1H104ZF	0.1	S
C583	ECUV1H104ZFV	0.1	S
C584	ECUV1H151JCV	150p	S
C585	ECUV1H104ZFV	0.1	S
C586	ECUV1C104KBV	0.1	S
C588	ECEA1HKS100	10	S
C598	ECJ1VC1H100D	10p	
C599	ECJ1VC1H100D	10p	
C600	ECUV1H560JCV	56p	S
C601	ECUV1C104KBV	0.1	S
C605	ECUV1H104ZFV	0.1	S
C608	ECUV1H104ZFV	0.1	S
C609	ECUV1H104ZFV	0.1	S
C611	ECUV1H104ZFV	0.1	S
C614	ECUV1H104ZFV	0.1	S

Ref. No.	Part No.	Part Name & Description	Remarks
C618	ECUV1H102KBV	0.001	S
C619	ECUV1H104ZFV	0.1	S
C620	ECUV1H104ZFV	0.1	S
C621	ECUV1H104ZFV	0.1	S
C622	ECEA0JKA221	220	S
C623	ECEA1CK101	100	S
C625	ECEA1CK101	100	S
C626	ECUV1H104ZFV	0.1	S
C628	ECUV1H104ZFV	0.1	S
C634	ECUV1H104ZFV	0.1	S
C635	ECUV1H104ZFV	0.1	S
C639	ECEA1HKA4R7	4.7	S
C640	ECEA1HKA4R7	4.7	S
C641	ECUV1H102KBV	0.001	S
C642	ECUV1C104KBV	0.1	S
C643	ECUV1H681KBV	680p	S
C644	ECUV1H681KBV	680p	S
C645	ECEA1CK101	100	S
C646	ECUV1C104KBV	0.1	S
C647	ECUV1H102KBV	0.001	S
C648	ECUV1H102KBV	0.001	S
C649	ECUV1H102KBV	0.001	S
C650	ECUV1H102KBV	0.001	S
C651	ECUV1H102KBV	0.001	S
C652	ECUV1H102KBV	0.001	S
C654	ECUV1H104ZFV	0.1	S
C655	ECUV1H104ZFV	0.1	S
C657	ECUV1H472KBV	0.0047	S
C658	ECUV1H472KBV	0.0047	S
C671	ECUV1H102KBV	0.001	S
C672	ECUV1H102KBV	0.001	S
C674	ECUV1H104ZFV	0.1	S
C675	ECUV1H391JCV	390p	S
C676	ECEA1HKA4R7	4.7	S
C679	ECUV1H104ZFV	0.1	S
C680	ECUV1H104ZFV	0.1	S
C681	ECUV1H104ZFV	0.1	S
C682	ECUV1H104ZFV	0.1	S
		(CONNECTORS)	
CN503	PQJP10G30Z	CONNECTOR, 10P	S
CN504	PQJP8G30Z	CONNECTOR, 8P	S
CN505	PQJP11G30Z	CONNECTOR, 11P	S
CN506	PQJP7G30Y	CONNECTOR, 7P	S
CN508	K1MN08A00017	CONNECTOR, 8P	
CN510	PQJP02G100Z	CONNECTOR, 2P	
CN511	PQJP14A19Z	CONNECTOR, 14P	
CN512	PQJP2G30Z	CONNECTOR, 2P	S
CN513	PQJP12A19Z	CONNECTOR, 12P	
CN514	PQJP4G30Y	CONNECTOR, 4P	S
CN515	PQJP6G30Y	CONNECTOR, 6P	S
CN516	PFJP04A23Z	CONNECTOR, 4P	S
		(FUSES)	
F501	PFRB0031125T	FUSE	S
F502	PFRB0031125T	FUSE	S
F503	PFRB0031315T	FUSE	
F504	PFRB0031025T	FUSE	
		(COILS)	
L506	J0JCC0000042	COIL	
L507	PQLQR2KA113	COIL	S
L509	PQLQR2KA20T	COIL	S
L510	PQLQR2KA113	COIL	S
L512	PQLQR2KA20T	COIL	S
L514	J0JCC0000042	COIL	
L515	PQLQR2KA113	COIL	S
L516	PQLQR2KA20T	COIL	S
L517	PQLQR2KA20T	COIL	S
L519	PQLQR2KA113	COIL	S
L520	PQLQR2KA20T	COIL	S
L522	PQLQR2KA20T	COIL	S
L523	PQLQR2KA20T	COIL	S
L524	PQLQR2KA20T	COIL	S
L525	PQLQR2KA20T	COIL	S
L526	PQLQR2KA20T	COIL	S

Ref. No.	Part No.	Part Name & Description	Remarks
L533	PQLQR2KA20T	COIL	S
L534	PQLQR2KA20T	COIL	S
L535	PQLQR2KA20T	COIL	S
L536	PQLQR2KA20T	COIL	S
L537	PQLQR2KA20T	COIL	S
L538	PQLQR2KA20T	COIL	S
L539	PQLQR2KA20T	COIL	S
L540	PQLQR2KA20T	COIL	S
L541	PQLQR2KA20T	COIL	S
L542	PQLQR2KA20T	COIL	S
L543	PQLQR2KA20T	COIL	S
L544	PQLQR2KA20T	COIL	S
		(CERAMIC FILTERS)	
L527	J0JHC0000035	CERAMIC FILTER	
L528	J0JHC0000035	CERAMIC FILTER	
L529	J0JHC0000035	CERAMIC FILTER	
L530	J0JHC0000035	CERAMIC FILTER	
L531	J0JHC0000035	CERAMIC FILTER	
L532	J0JHC0000035	CERAMIC FILTER	
		(PHOTO ELECTRIC TRANSDUCER)	
PS1	PFVIRM574SL	PHOTO SENSOR	S
		(RESISTORS)	
L518	ERJ3GEY0R00	0	
L545	ERJ3GEY0R00	0	
L546	ERJ3GEY0R00	0	
L547	ERJ3GEY0R00	0	
L548	ERJ3GEY0R00	0	
L549	ERJ3GEY0R00	0	
L550	ERJ3GEY0R00	0	
L551	ERJ3GEY0R00	0	
L552	ERJ3GEY0R00	0	
L553	ERJ3GEY0R00	0	
L554	ERJ3GEY0R00	0	
L555	ERJ3GEY0R00	0	
L557	ERJ3GEY0R00	0	
L558	ERJ3GEY0R00	0	
L559	ERJ3GEY0R00	0	
R501	ERJ3GEYJ562	5.6k	
R502	ERJ3GEYJ472	4.7k	
R503	ERJ3GEYJ101	100	
R504	ERJ3GEYJ181	180	
R505	ERJ3GEYJ101	100	
R506	ERJ3GEYJ181	180	
R507	ERJ3GEYJ101	100	
R510	ERJ3GEYJ101	100	
R511	ERJ3GEYJ101	100	
R512	ERJ3GEYJ101	100	
R513	ERJ3GEYJ102	1k	
R514	ERJ3GEYJ821	820	
R515	ERJ3GEYJ101	100	
R516	ERDS1VJ152	1.5k	S
R517	ERJ3GEYJ101	100	
R522	ERJ3GEYJ223	22k	
R523	ERJ3GEYJ433	43k	
R526	ERJ3EKF1101	1.1k	
R529	ERJ3EKF3602	36k	
R531	ERJ3GEYJ334	330k	
R532	ERJ3GEYJ475	4.7M	
R533	ERJ3GEYJ203	20k	
R534	ERJ3GEYJ821	820	
R536	ERDS1VJ152	1.5k	S
R538	ERJ3GEYJ101	100	
R539	ERJ3GEYJ101	100	
R540	ERJ3GEYJ101	100	
R541	ERJ3GEYJ101	100	
R542	ERJ3GEYJ101	100	
R543	ERJ3GEYJ101	100	
R544	ERJ3GEYJ222	2.2k	
R545	ERJ3GEYJ471	470	
R548	ERJ3GEYJ103	10k	
R549	ERJ3GEYJ101	100	
R550	ERJ3GEYJ103	10k	
R551	ERJ3GEYJ101	100	

Ref. No.	Part No.	Part Name & Description	Remarks
R552	ERJ3GEYJ470	47	
R553	ERJ3GEYJ105	1M	
R554	ERJ3GEYJ472	4.7k	
R555	PQ4R18XJ220	22	S
R556	ERJ6GEYJ6R8	6.8	
R557	ERJ3GEYJ181	180	
R558	ERJ3GEYJ272	2.7k	
R559	ERJ3GEYJ103	10k	
R560	ERJ3GEYJ103	10k	
R561	ERJ3GEYJ472	4.7k	
R563	ERJ3GEYJ221	220	
R564	ERJ3GEYJ103	10k	
R565	ERJ3GEYJ222	2.2k	
R566	ERJ3GEYJ102	1k	
R567	ERJ3GEYJ102	1k	
R568	ERJ3GEYJ103	10k	
R569	ERJ3GEYJ683	68k	
R570	ERJ3GEYJ474	470k	
R571	ERJ3GEYJ105	1M	
R572	ERJ3GEYJ185	1.8M	
R573	ERJ3GEYJ222	2.2k	
R574	ERJ3GEYJ152	1.5k	
R575	ERJ3GEYJ103	10k	
R576	ERJ3GEYJ103	10k	
R577	ERJ3GEY0R00	0	
R579	ERJ3GEYJ333	33k	
R580	ERJ3GEYJ154	150k	
R581	ERJ3GEYJ103	10k	
R582	ERJ3GEYJ103	10k	
R583	ERJ3GEYJ333	33k	
R584	ERJ3GEYJ392	3.9k	
R585	ERJ3GEYJ564	560k	
R586	ERJ3GEYJ153	15k	
R587	ERJ3GEYJ473	47k	
R589	ERJ3GEYJ224	220k	
R590	ERJ3GEYJ224	220k	
R591	ERJ3GEYJ123	12k	
R592	ERJ3GEYJ472	4.7k	
R593	ERJ3GEYJ563	56k	
R594	ERJ3GEYJ682	6.8k	
R597	ERJ3GEYJ334	330k	
R600	ERJ3GEYJ473	47k	
R605	ERDS1VJ1R2	1.2	
R606	ERDS1VJ1R2	1.2	
R607	ERJ3GEYJ182	1.8k	
R609	ERJ3GEYJ222	2.2k	
R610	ERJ3GEYJ183	18k	
R611	ERJ3GEYJ472	4.7k	
R612	ERJ3GEYJ472	4.7k	
R613	ERJ3GEYJ472	4.7k	
R614	ERJ3GEYJ472	4.7k	
R615	ERJ3GEYJ222	2.2k	
R616	ERJ3GEYJ472	4.7k	
R619	ERJ3GEYJ104	100k	
R620	ERJ8GEYJ2R2	2.2	
R621	ERJ3GEYJ4R7	4.7	
R622	PQ4R10XJ331	330	S
R625	ERJ3GEYJ101	100	
R626	ERJ3GEYJ101	100	
R629	ERJ3GEYJ181	180	
R644	ERJ3GEYJ472	4.7k	
R645	ERJ3GEYJ222	2.2k	
R646	PQ4R18XJ000	0	S
R647	ERJ3GEYJ103	10k	
R648	ERJ3GEYJ123	12k	
R649	ERJ3GEYJ103	10k	
R650	ERJ3GEYJ154	150k	
R651	ERJ3GEYJ114	110k	
R653	ERJ3GEYJ101	100	
R654	ERJ3GEYJ101	100	
R655	ERJ3GEYJ101	100	
R656	ERJ3GEYJ101	100	
R659	ERJ3GEYJ472	4.7k	

Ref. No.	Part No.	Part Name & Description	Remarks
R660	ERJ3GEYJ472	4.7k	
R661	ERJ3GEYJ222	2.2k	
R662	ERJ3GEYJ472	4.7k	
R663	ERJ3GEYJ472	4.7k	
R664	ERJ3GEYJ332	3.3k	
R665	ERJ3GEYJ332	3.3k	
R666	ERJ3GEYJ563	56k	
R667	ERJ3GEYJ563	56k	
R668	ERJ3GEYJ331	330	
R669	ERJ3GEYJ331	330	
R670	ERJ3GEYJ562	5.6k	
R671	ERJ3GEYJ562	5.6k	
R672	ERJ3GEYJ103	10k	
R673	ERJ3GEYJ101	100	
R674	ERJ3GEYJ101	100	
R675	ERJ3GEYJ101	100	
R676	ERJ3GEYJ101	100	
R678	ERJ3GEYJ563	56k	
R679	ERJ3GEYJ562	5.6k	
R680	ERJ3GEYJ472	4.7k	
R681	ERJ3GEYJ101	100	
R682	ERJ3GEYJ222	2.2k	
R683	ERJ3GEYJ472	4.7k	
R684	ERJ3GEYJ472	4.7k	
R685	ERJ3GEYJ222	2.2k	
R686	ERJ3GEYJ472	4.7k	
R687	ERJ3GEYJ101	100	
R699	ERJ3GEY0R00	0	
R700	ERJ3GEY0R00	0	
R701	ERJ3GEY0R00	0	
R702	ERJ3GEYJ102	1k	
R703	ERJ3GEYJ102	1k	
R704	ERJ3GEYJ102	1k	
R705	ERJ3GEYJ103	10k	
R712	ERJ3GEYJ563	56k	
R713	ERJ3GEYJ563	56k	
R714	ERJ3GEYJ562	5.6k	
R715	ERJ3GEYJ562	5.6k	
R716	ERJ3GEYJ221	220	
R717	ERJ3GEYJ472	4.7k	
R718	ERJ3GEYJ222	2.2k	
R719	ERJ3GEYJ472	4.7k	
R729	ERJ3GEYJ103	10k	
R730	ERJ3GEYJ103	10k	
R746	ERJ3GEYJ103	10k	
R747	ERJ3GEYJ103	10k	
R748	ERJ3GEYJ103	10k	
R749	ERJ3GEYJ103	10k	
R750	ERJ3GEYJ103	10k	
R751	ERJ3GEYJ103	10k	
R752	ERJ3GEYJ103	10k	
R753	ERJ3GEYJ103	10k	
R757	ERJ3GEYJ181	180	
R758	ERJ3GEYJ181	180	
R759	ERJ3GEYJ181	180	
R760	ERJ3GEYJ181	180	
R762	ERJ3GEY0R00	0	
R763	ERJ3GEYJ101	100	
R764	ERJ3GEY0R00	0	
R765	ERJ3GEY0R00	0	
R766	ERJ3GEY0R00	0	
		(COMPONENTS PARTS)	
RA506	EXB38V101JV	RESISTOR ARRAY	
RA509	EXB38V101JV	RESISTOR ARRAY	
RA510	EXB38V101JV	RESISTOR ARRAY	
RA511	EXB38V101JV	RESISTOR ARRAY	
RA513	EXB38V103JV	RESISTOR ARRAY	
RA514	EXB38V101JV	RESISTOR ARRAY	
RA515	EXB38V101JV	RESISTOR ARRAY	
RA516	EXB38V101JV	RESISTOR ARRAY	
RA517	EXB38V101JV	RESISTOR ARRAY	
		(SWITCH)	
SW1	PFSH1A02Z	SWITCH	

Ref. No.	Part No.	Part Name & Description	Remarks
		(CRYSTAL OSCILLATOR)	
X501	PFVCCFS32Z	CRYSTAL OSCILLATOR	S
X502	PFVBKB240ZAT	CRYSTAL OSCILLATOR	S
X503	PFVC32256ZAT	CRYSTAL OSCILLATOR	S

12.4. ANALOG BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PFWP2FB423CN	ANALOG BOARD ASS'Y (RTL)	△
		(ICs)	
IC101	PQVINJM2904F	IC	S
IC102	PQVIBA12003	IC	S
		(TRANSISTORS)	
Q101	2SD1819A	TRANSISTOR(SI)	S
Q102	PQVTDTC143E	TRANSISTOR(SI)	S
Q103	2SD1819A	TRANSISTOR(SI)	S
Q104	PQVTDTC114EU	TRANSISTOR(SI)	S
Q105	PQVTDTC114EU	TRANSISTOR(SI)	S
Q107	2SC2235	TRANSISTOR(SI)	S
Q108	2SB1218ARL	TRANSISTOR(SI)	
		(DIODES)	
D101	MA4056	DIODE(SI)	S
D102	MA4056	DIODE(SI)	S
D103	1SS119	DIODE(SI)	S
D105	1SS119	DIODE(SI)	S
D106	1SS119	DIODE(SI)	S
D107	PQVDS1ZB60F1	DIODE(SI)	S
D112	MA7160	DIODE(SI)	S
		(CAPACITORS)	
C102	ECEA0JKA470	47	S
C108	ECQE2E105KZ	1	S
C111	ECUV1H102KBV	0.001	S
C112	ECUV1H153KBV	0.015	S
C113	ECUV1C104KBV	0.1	S
C114	ECUV1C473KBV	0.047	S
C115	ECUV1H153KBV	0.015	S
C116	ECUV1H820JCV	82p	S
C118	ECUV1H104ZFV	0.1	S
C121	ECUV1C473KBV	0.047	S
C122	ECUV1H472KBV	0.0047	S
C124	ECUV1H153KBV	0.015	S
C125	ECEA1HKS100	10	S
C131	ECUV1H103KBV	0.01	S
C132	ECEA1CKA100	10	S
C133	ECEA0JKA470	47	S
C134	ECUV1H472KBV	0.0047	S
C135	ECUV1C473KBV	0.047	S
C136	ECEA0JKA470	47	S
C137	ECUV1H103KBV	0.01	S
C138	ECUV1H103KBV	0.01	S
C139	ECUV1C473KBV	0.047	S
C140	ECUV1C473KBV	0.047	S
C142	ECUV1H221JCV	220p	S
C143	ECUV1C104KBV	0.1	S
C145	ECUV1C104KBV	0.1	S
C151	ECKD2H681KB	680p	S
C152	ECKD2H681KB	680p	S
C153	ECEA1HKS100	10	S
C154	ECUV1H103KBV	0.01	S
C155	ECEA1CKA100	10	S
C159	ECUV1H103KBV	0.01	S
		(CONNECTORS & JACKS)	
CN101	PQJS14A10Z	CONNECTOR	S
CN102	PFJJ1T01Z	JACK	S
CN103	PFJJ1T01Z	JACK	S
CN104	PQJJ1TB18Z	JACK	S
CN105	PQJS12A10Z	CONNECTOR	S
CN106	K1CB110B0001	CONNECTOR	
		(COMPONENTS PART)	
J121	EXCELD35	COMPONENTS PART	
		(COILS)	
L101	PFLE003	COIL	S

Ref. No.	Part No.	Part Name & Description	Remarks
L102	PQLQR2KA213	COIL	S
L103	PQLQR2KA213	COIL	S
L104	PQLQR3T102S	COIL	S
L105	PQLQR3T102S	COIL	S
L107	PQLQR2KA113	COIL	S
L108	PQLQR2KA113	COIL	S
L109	PQLQR2KA113	COIL	S
L110	PQLQR2KA113	COIL	S
		(PHOTO ELECTRIC TRANSDUCERS)	
PC101	0N3181	PHOTO COUPLER	△ S
PC104	PQVIPC817CD	PHOTO COUPLER	△ S
		(THERMISTOR)	
POS101	PFRT002	THERMISTOR	△ S
		(RESISTORS)	
J117	ERDS1TJ102	1k	S
J125	ERJ3GEY0R00	0	
R101	ERJ3GEYJ123	12k	
R102	ERJ3GEYJ682	6.8k	
R103	ERJ3GEYJ222	2.2k	
R104	ERDS2TJ220	22	S
R105	ECEA1HKN3R3	3.3	
R106	ERDS1VJ103	10k	S
R107	ERDS1TJ473	47k	S
R108	ERJ3GEYJ393	39k	
R111	ERJ3GEYJ104	100k	
R112	ERJ3GEYJ124	120k	
R114	ERJ3GEYJ183	18k	
R115	ERJ3GEYJ124	120k	
R116	ERJ3GEYJ124	120k	
R117	ERJ3GEYJ683	68k	
R118	ERJ3GEYJ222	2.2k	
R119	ERJ3GEYJ334	330k	
R120	ERDS2TJ680	68	S
R121	ERDS2TJ561	560	S
R122	ERJ3GEYJ562	5.6k	
R123	ERJ3GEYJ681	680	
R124	ERJ3GEYJ682	6.8k	
R125	ERJ3GEYJ222	2.2k	
R131	ERJ3GEYJ101	100	
R132	ERJ3GEYJ473	47k	
R133	ERJ3GEYJ331	330	
R134	ERJ3GEYJ562	5.6k	
R135	ERJ3GEYJ105	1M	
R136	ERJ3GEYJ152	1.5k	
R137	ERJ3GEYJ331	330	
R138	ERJ3GEYJ152	1.5k	
R139	ERJ3GEYJ562	5.6k	
R140	ERJ3GEYJ562	5.6k	
R141	ERJ3GEYJ394	390k	
R142	ERJ3GEYJ394	390k	
R143	ERJ3GEYJ222	2.2k	
R144	ERJ3GEYJ103	10k	
R145	ERJ3GEYJ105	1M	
R146	ERJ3GEYJ822	8.2k	
R147	ERJ3GEYJ822	8.2k	
R148	ERJ3GEYJ822	8.2k	
R149	ERJ3GEYJ680	68	
R151	ERJ3GEYJ472	4.7k	
R152	ERJ3GEYJ153	15k	
R153	ERJ3GEYJ472	4.7k	
R154	ERDS2TJ220	22	S
R155	ERJ3GEYJ103	10k	
R156	ERJ3GEYJ103	10k	
R157	ERJ3GEYJ103	10k	
R158	ERJ3GEYJ152	1.5k	
R159	ERJ3GEYJ103	10k	
R164	ERJ3GEYJ101	100	
R165	ERJ3GEYJ472	4.7k	
R167	ERJ3GEYJ224	220k	
R168	ERJ3GEYJ472	4.7k	
R169	ERJ3GEY0R00	0	
		(RELAY)	
RLY101	PFSL003Z	RELAY	△ S

Ref. No.	Part No.	Part Name & Description	Remarks
		(VARISTORS)	
SA101	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	S
SA102	PFRZ001Z	VARISTOR (SURGE ABSORBER)	△ S
ZNR101	ERZVA7D121	VARISTOR	
		(SWITCH)	
SW101	PFSH1A011Z	SWITCH	
		(TRANSFORMER)	
T102	PFLT8E003	TRANSFORMER	△ S

12.5. OPERATION BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB3	PFLP1410CX-A	OPERATION BOARD ASS'Y (RTL)	
		(ICs)	
IC301	MN7D032Z9J	IC	
		(CONNECTOR)	
CN301	PQJP8G43Y	CONNECTOR, 8 PIN	S
		(LIQUID CRYSTAL DISPLAY)	
CN302	L5DAAF00001	LIQUID CRYSTAL DISPLAY	
		(COIL)	
R315	PQLQR2KA20T	COIL	S
		(SWITCHES)	
SW301	PQSH1A105Z	PUSH SWITCH	S
SW302	PQSH1A105Z	PUSH SWITCH	S
SW303	PQSH1A105Z	PUSH SWITCH	S
SW304	PQSH1A105Z	PUSH SWITCH	S
SW305	PQSH1A105Z	PUSH SWITCH	S
SW306	PQSH1A105Z	PUSH SWITCH	S
SW307	PQSH1A105Z	PUSH SWITCH	S
SW308	PQSH1A105Z	PUSH SWITCH	S
SW309	PQSH1A105Z	PUSH SWITCH	S
SW310	PQSH1A105Z	PUSH SWITCH	S
SW311	PQSH1A105Z	PUSH SWITCH	S
SW312	PQSH1A105Z	PUSH SWITCH	S
SW313	PQSH1A105Z	PUSH SWITCH	S
SW314	PQSH1A105Z	PUSH SWITCH	S
SW315	PQSH1A105Z	PUSH SWITCH	S
SW316	PQSH1A105Z	PUSH SWITCH	S
SW318	PQSH1A105Z	PUSH SWITCH	S
SW319	PQSH1A105Z	PUSH SWITCH	S
SW320	PQSH1A105Z	PUSH SWITCH	S
SW322	PQSH1A105Z	PUSH SWITCH	S
SW323	PQSH1A105Z	PUSH SWITCH	S
SW324	PQSH1A105Z	PUSH SWITCH	S
SW325	PQSH1A105Z	PUSH SWITCH	S
SW326	Not used		
SW327	PQSH1A105Z	PUSH SWITCH	S
SW328	PQSH1A105Z	PUSH SWITCH	S
SW329	PQSH1A105Z	PUSH SWITCH	S
SW332	PQSH1A105Z	PUSH SWITCH	S
SW333	PQSH1A105Z	PUSH SWITCH	S
SW334	PQSH1A105Z	PUSH SWITCH	S
SW335	PQSH1A105Z	PUSH SWITCH	S
SW338	PQSH1A105Z	PUSH SWITCH	S
SW340	PQSH1A105Z	PUSH SWITCH	S
		(RESISTORS)	
J321	ERJ3GEY0R00	0	
J322	ERJ3GEY0R00	0	
R301	ERJ3GEYJ101	100	
R302	ERJ3GEYJ101	100	
R303	ERJ3GEYJ183	18k	
R305	ERJ3GEYJ222	2.2k	
R306	ERJ3GEYJ222	2.2k	
R307	ERJ3GEYJ821	820	
R312	Not used	270	
R313	ERJ3GEYJ101	100	

Ref. No.	Part No.	Part Name & Description	Remarks
R314	ERJ3GEYJ101	100	
R316	ERJ3GEYJ101	100	
R318	ERJ3GEYJ4R7	4.7	
		(CAPACITORS)	
C301	ECUV1C104KBV	0.1	S
C303	ECEA0JKS101	100	
C304	ECUV1H331JCV	330P	S
C305	ECUV1H101JCV	100P	S
C306	ECUV1H100JCV	10P	S
C308	ECUV1C104KBV	0.1	S
C309	ECUV1H331JCV	330P	S
C310	ECUV1C224ZFV	0.22	S
C314	ECUV1C224ZFV	0.22	S
C321	ECUV1C224ZFV	0.22	S

12.6. POWER SUPPLY BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB4	N0AC2GJ00001	POWER SUPPLY BOARDS ASS'Y (RTL)	
		(ICs)	
IC101	PFVIFA5317P	IC	
IC201	AN1431T	IC	
IC202	AN7805F	IC	
		(TRANSISTORS)	
Q101	2SK2651	TRANSISTOR (SI)	△
		(DIODES)	
D101	PFVD1N4005	DIODE (SI)	△
D102	PFVD1N4005	DIODE (SI)	△
D103	PFVD1N4005	DIODE (SI)	△
D104	PFVD1N4005	DIODE (SI)	△
D105	PFVDEG01C	DIODE (SI)	S
D106	MA165	DIODE (SI)	S
D107	MA4220	DIODE (SI)	S
D108	PQVDERA1802	DIODE (SI)	S
D201	PFVDSF5LC20U	DIODE (SI)	S
D202	PFVD11DQ10	DIODE (SI)	S
		(CAPACITORS)	
C101	ECQU2A224MG	0.22	△
C102	ECQU2A104MG	0.1	△
C103	PFKD2E3KH102	1000p	S
C105	PFKDE2GA222M	2200p	△
C106	PFCEA450AX68	68	S
C108	ECKD3A102KBP	0.001	
C109	ECA1VHG470	47p	
C110	PFKDD2GA222M	2200p	S
C119	ECKD3A470KBP	47p	
C121	ECUV1H472KBV	0.0047	S
C122	ECUV1A224KBV	0.22	S
C123	ECUV1H561JCV	560p	S
C124	ECUV1E104KBV	0.1	S
C201	PFCEA35F471	470p	S
C202	ECKN3A102KBP	0.001	
C203	PFCEA16B470	47p	S
C204	PFCEA35A47M	47	S
C205	PFCEA50A47M	1	S
C206	ECKN3A102KBP	0.001	
C221	ECUV1E104KBV	0.1	
C222	ECUV1H104ZFV	0.1	S
		(CONNECTORS)	
CN301	PQJP7G30Z	CONNECTOR	△ S
CN31	PQJP2D98Z	CONNECTOR	△ S
		(FUSE)	
F101	PQBA2153-15	FUSE	△ S
		(COIL)	
L101	ELF15N005A	COIL	
		(COMPONENTS PART)	
L103	EXCELD35	COMPONENTS PART	

Ref. No.	Part No.	Part Name & Description	Remarks
		PHOTO ELECTRIC TRANSDUCER	
PC101	PFVIPC123	PHOTO COUPLER	△ S
		(RESISTORS)	
R101	ERDS1J105	1M	
R102	ERDS2TJ334	330k	
R103	ERDS2TJ334	330k	
R104	ERG2SJ304	300k	
R105	ERX2SJR22	0.22	
R106	ERG2SJ470	47	
R107	ERG2SJ304	300k	
R108	ERDS2FJ150	15	
R109	ERDS2TJ100	10	
R121	ERJ3GEYJ103	10k	
R122	ERJ3GEYJ331	330	
R124	ERJ3GEYJ181	180	
R125	ERJ3GEYJ103	10k	
R126	ERJ3GEYF562	5.6k	
R127	ERJ3GEYJ182	1.8k	
R128	PQ4R10XJ101	100	S
R136	PQ4R10XJ104	100k	S
R137	PQ4R10XJ104	100k	S
R202	ERG2SJ152	1.5k	
R203	PQ4R10XJ000	0	
R221	PQ4R10XJ222	2.2k	S
R222	PQ4R10XJ222	2.2k	S
R223	PQ4R10XJ101	100	S
R224	PQ4R10XJ273	27k	S
R225	PQ4R10XJ332	3.3k	S
		(TRANSFORMER)	
T101	PFLTSRW226V	TRANSFORMER	S
		(THERMISTOR)	
TH101	PFRT57235S80	THERMISTOR	S
		(VARIABLE RESISTOR)	
VR201	EVNDJAA03B53	VARIABLE RESISTOR	
		(VARISTOR)	
ZNR1	ERZV10DK751U	VARISTOR	△

12.7. ADF RELAY BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB5	PFLP1448MZ-A	ADF RELAY BOARD ASS'Y (RTL)	
		(CONNECTORS)	
CN500	PQJP5G30Y	CONNECTOR, 5 PIN	S
CN501	K1KA11A00032	CONNECTOR, 11 PIN	
CN502	PQJP3G30Z	CONNECTOR, 3 PIN	S
		(OTHERS)	
SW500	PFSH1A003Z	SWITCH	S
SW501	PFSH1A008Z	SWITCH	S
PS500	CNA1006N	PHOTO ELECTRIC TRANSDUCER	
R503	PQ4R18XJ223	RESISTOR, 22k	

12.8. PF SENSOR BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB6	PFLP1448MZ-B	PF SENSOR BOARD ASS'Y (RTL)	
		(CONNECTOR)	
CN503	PQJP3G30Z	CONNECTOR, 3P	S
		(PHOTO ELECTRIC TRANSDUCER)	
PS501	PQVIPS4506	PHOTO SENSOR	S

12.9. CIS RELAY BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB7	PFLP1448MZ-C	CIS RELAY BOARD ASS'Y (RTL)	
		(CAPACITORS)	
C501	ECUV1H151JCV	150p	
C502	ECUV1H151JCV	150p	
		(CONNECTORS)	
CN504	PQJP4G30Y	CONNECTOR, 4P	S
CN505	PQJP10G30Y	CONNECTOR, 10P	S
CN506	K1MN03B00016	CONNECTOR, 3P	
CN507	K1MN10B00082	CONNECTOR, 10P	
		(PHOTO ELECTRIC TRANSDUCER)	
PS502	PQVIPS4506	PHOTO SENSOR	S
		(RESISTORS)	
R501	ERJ3GEY0R00	0	
R502	ERJ3GEY0R00	0	

Ref. No.	Part No.	Part Name & Description	Remarks
	KM79811245C0	BASIC FACSIMILE TECHNIQUE (for training service technicians)	

Note:

Tools and Extension Cords are useful for servicing.
(They make servicing easy.)

12.10. CIS SENSOR BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB8	PFLP1448MZ-D	CIS SENSOR BOARD ASS'Y (RTL)	
		(CONNECTOR)	
CN508	K1MN03B00016	CONNECTOR, 3P	
		(PHOTO ELECTRIC TRANSDUCER)	
PS503	PQVIPS4506	PHOTO SENSOR	S

12.11. SCAN MOTOR DRIVE BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB9	PFLP1448MZ-E	SCAN MOTOR DRIVER BOARD ASS'Y (RTL)	
		(IC)	
IC500	PFVIT2003APS	IC	S
		(DIODE)	
D500	MA7160	DIODE	
		(CONNECTORS)	
CN509	PQJP6G30Y	CONNECTOR, 6P	S
CN510	PQJP5G30Y	CONNECTOR, 5P	S

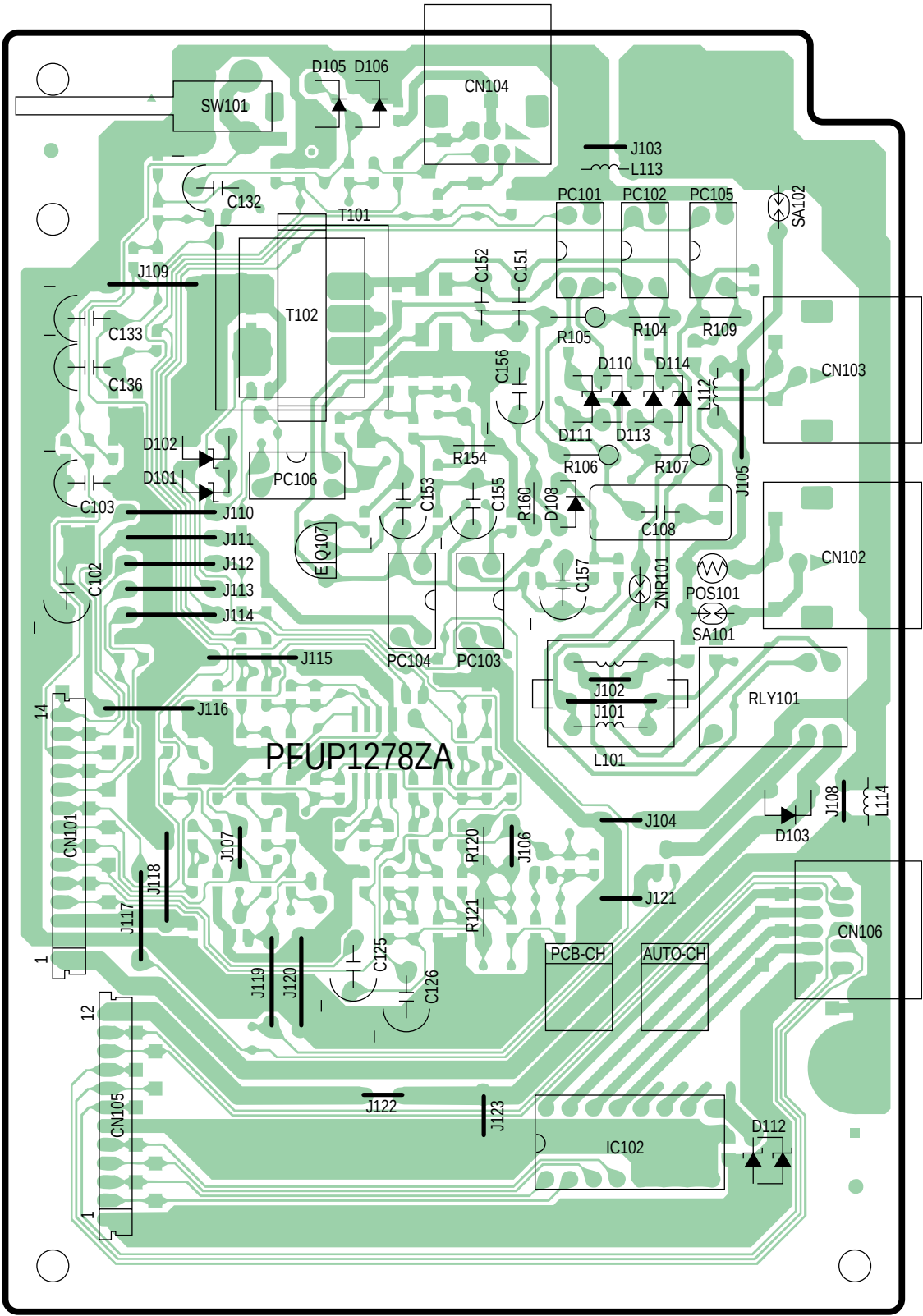
12.12. FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
EC1	PQZZ2K12Z	EXTENSION CORD, 2 PIN	
EC2	PQZZ4K5Z	EXTENSION CORD, 4 PIN	
EC3	PQZZ4K5Z	EXTENSION CORD, 4 PIN	
EC4	PQZZ8K18Z	EXTENSION CORD, 8 PIN	
EC5	PQZZ6K7Z	EXTENSION CORD, 6 PIN	
EC6	PQZZ10K4Z	EXTENSION CORD, 10 PIN	
EC7	PFZZ14K4Z	EXTENSION CORD, 14 PIN	
EC8	PFZZ12K2Z	EXTENSION CORD, 12 PIN	
EC9	PQZZ7K5Z	EXTENSION CORD, 7 PIN	
EC10	PFZZ11K12Z	EXTENSION CORD, 11 PIN	
EC11	PQZZ2K6Z	EXTENSION CORD, 2 PIN	



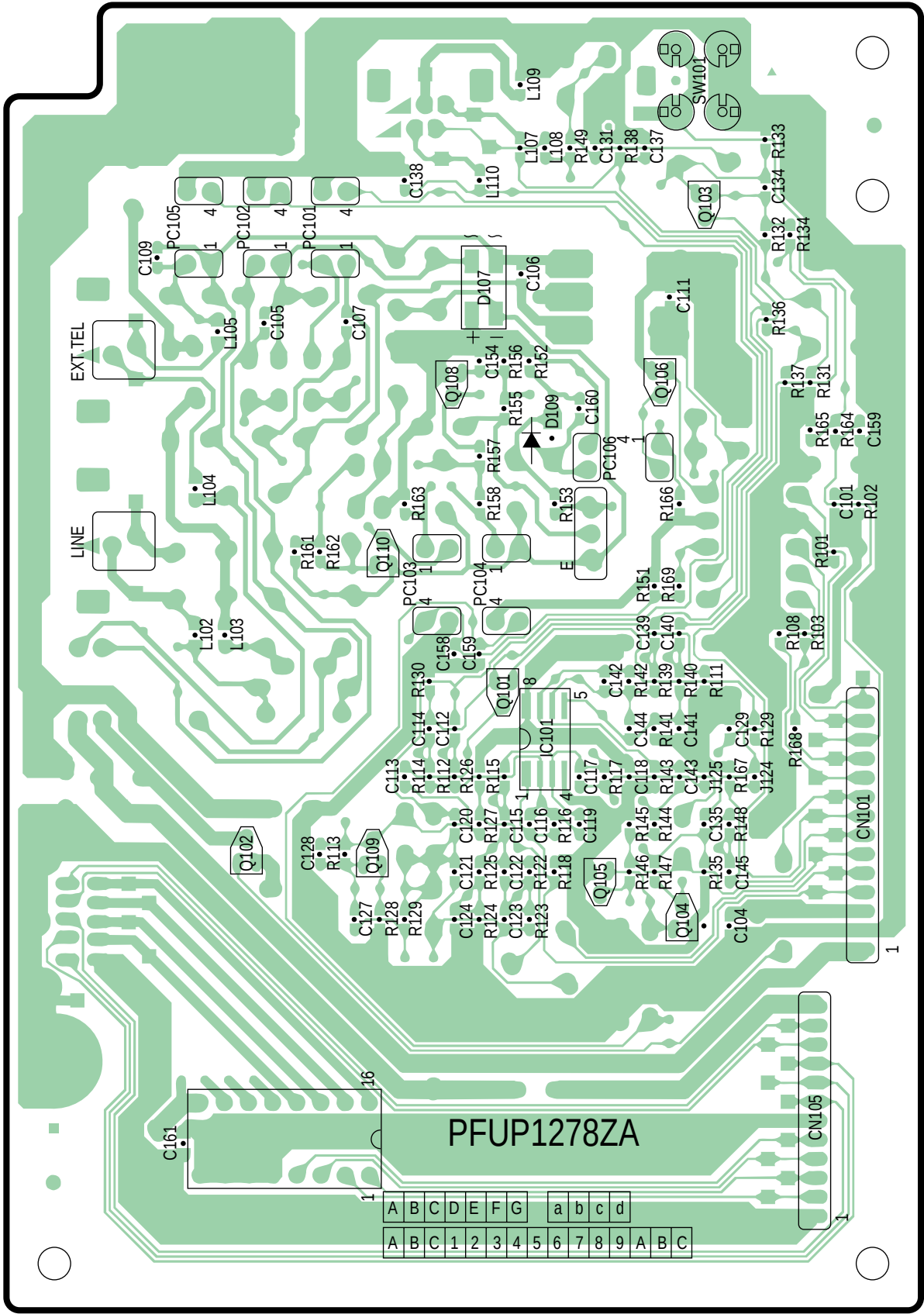
13.2. ANALOG BOARD (PCB2)

13.2.1. ANALOG BOARD: COMPONENT VIEW



KX-FB423CN : ANALOG BOARD : COMPONENT VIEW

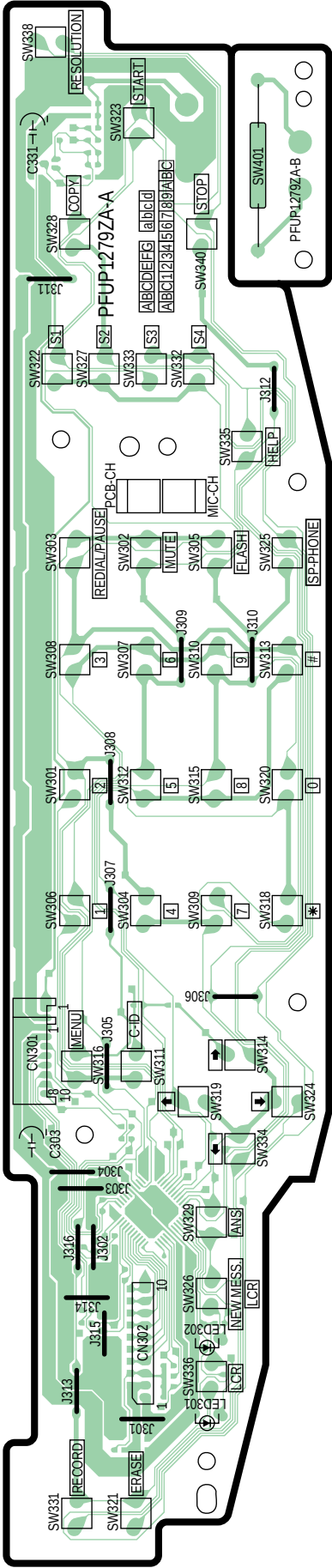
13.2.2. ANALOG BOARD: BOTTOM VIEW



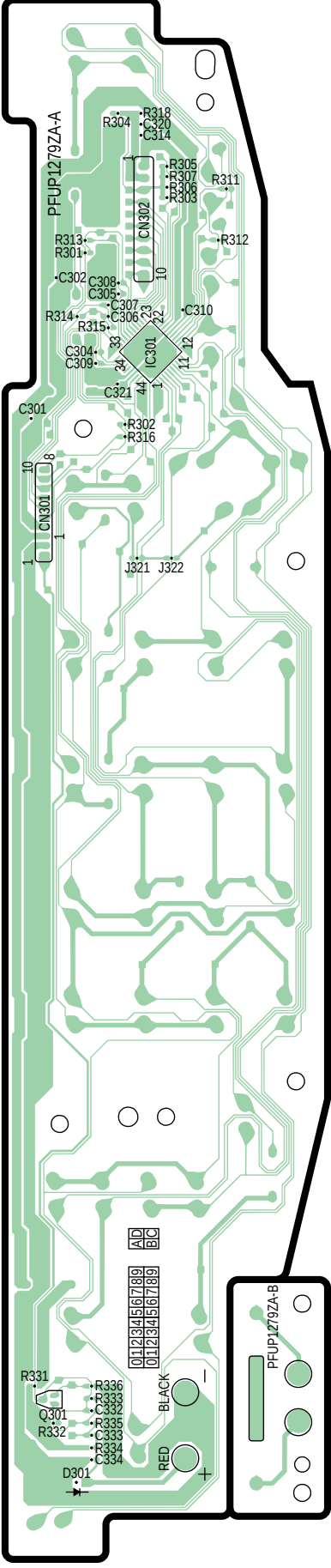
KX-FB423CN : ANALOG BOARD : BOTTOM VIEW

13.3. OPERATION BOARD (PCB3) / REED SW BOARD

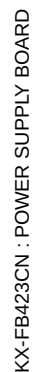
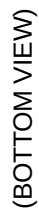
(COMPONENT VIEW)



(BOTTOM VIEW)

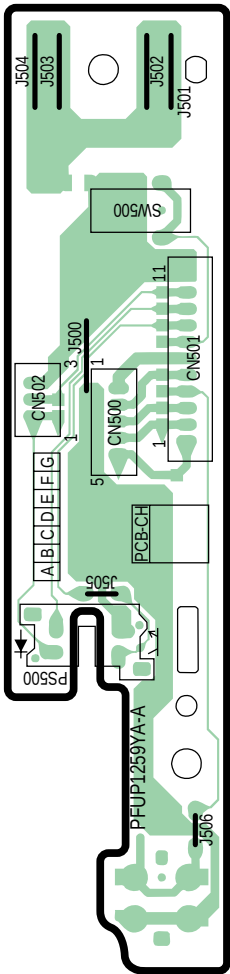


KX-FB423CN : OPERATION BOARD / REED SW BOARD

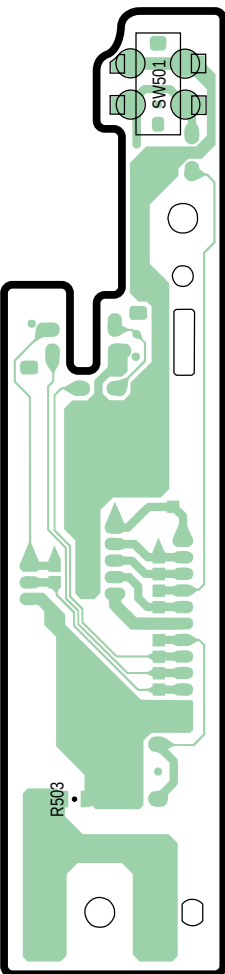


13.5. SENSOR BOARDS (PCB5/PCB6/PCB7/PCB8/PCB9)

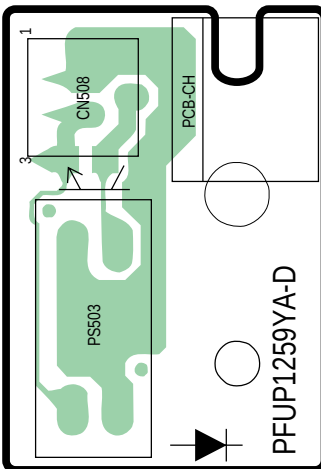
ADF RELAY BOARD (PCB5) : COMPONENT VIEW



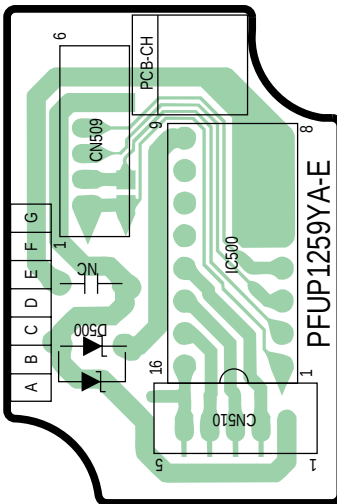
ADF RELAY BOARD (PCB5) : BOTTOM VIEW



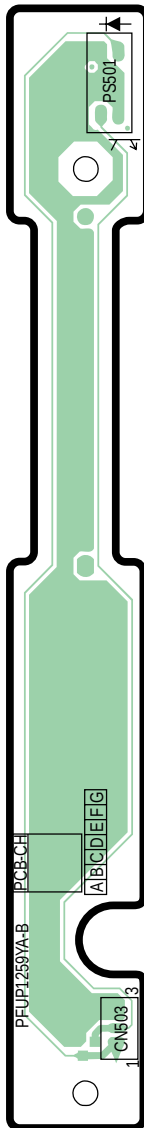
CIS SENSOR BOARD (PCB8)



SCAN MOTOR DRIVER BOARD (PCB9)

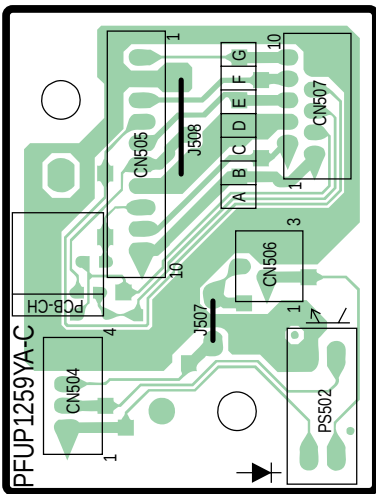


PF SENSOR BOARD (PCB6)

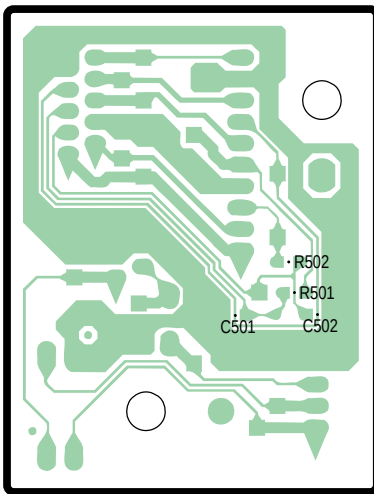


KX-FB423CN : SENSOR BOARDS

CIS RELAY BOARD (PCB7) : COMPONENT VIEW



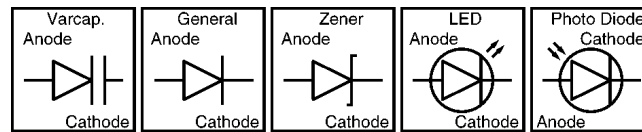
CIS RELAY BOARD (PCB7) : BOTTOM VIEW



14 FOR THE SCHEMATIC DIAGRAMS

Note:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.
- 3.



Important safety notice

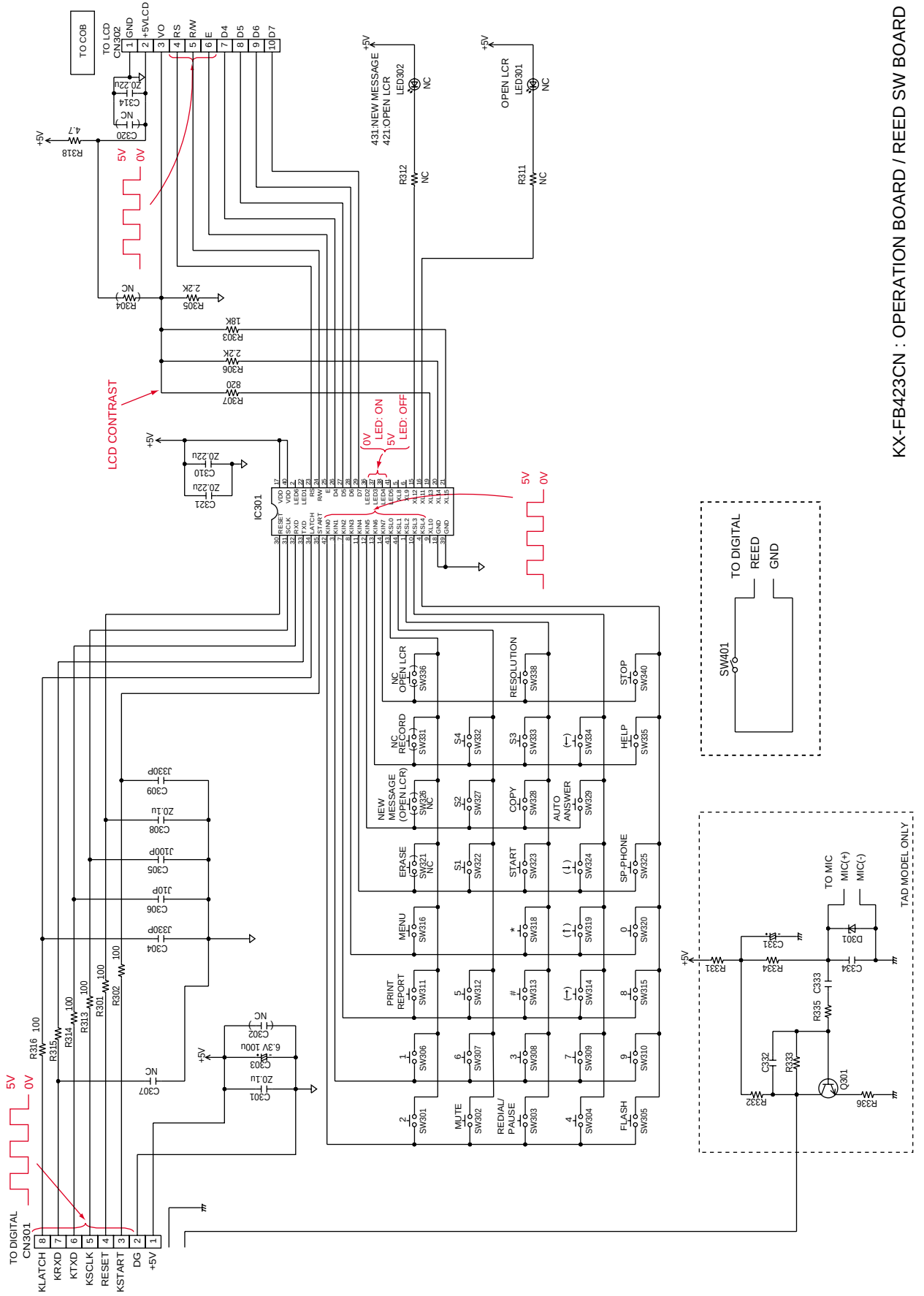
Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.





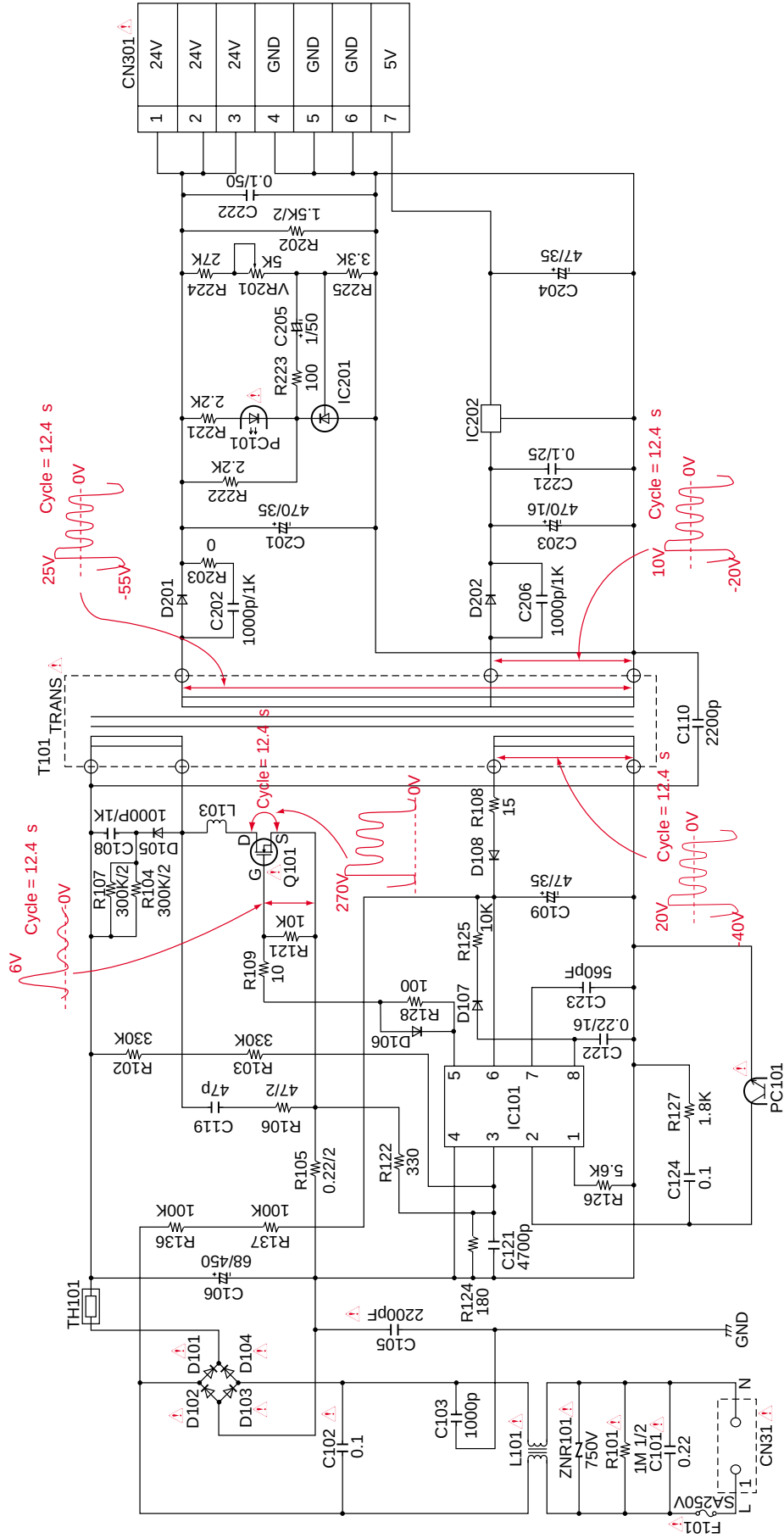
16 SCHEMATIC DIAGRAM

16.1. OPERATION BOARD (PCB3) / REED SW BOARD



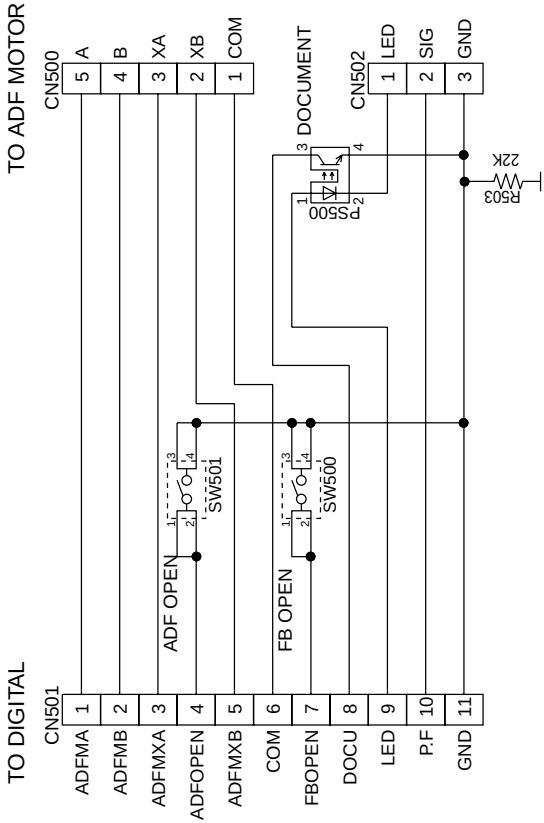
KX-FB423CN : OPERATION BOARD / REED SW BOARD

16.2. POWER SUPPLY BOARD (PCB4)

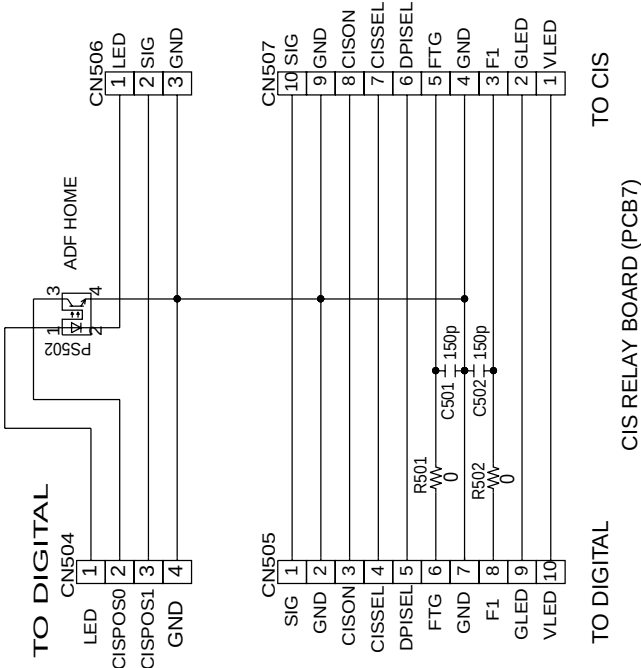


KX-FB423CN : POWER SUPPLY BOARD

16.3. SENSOR BOARDS (PCB5/PCB6/PCB7/PCB8/PCB9)

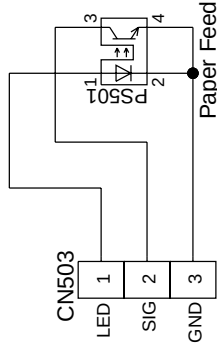


ADF RELAY BOARD (PCB5)

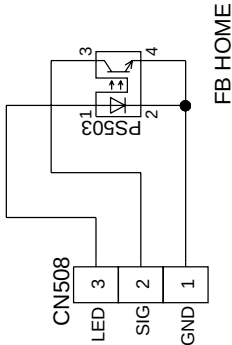


TO CIS

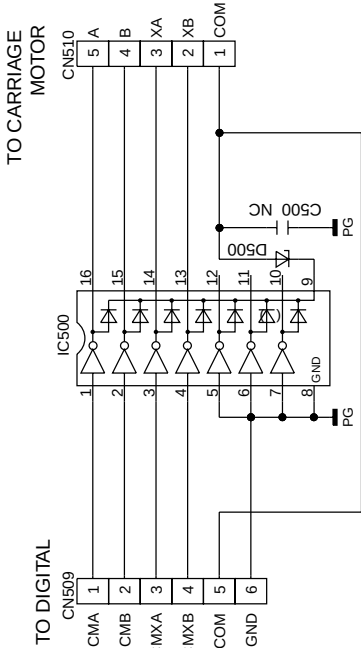
CIS RELAY BOARD (PCB7)



PF SENSOR BOARD (PCB6)



CIS SENSOR BOARD (PCB8)



SCAN MOTOR DRIVER BOARD (PCB9)

KX-FB423CN : SENSOR BOARDS

