DRAFT

MONOTYPE 31 CHANNEL PUNCHES TROUBLE SHOOTING CHART

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
Sticking punch pins. Dragging punch pins. Partial perforation. (ghosting) No perforation.	Honeywell or Harting	Punch return spring recess not concentric with pin hole in guide plate or stripper plate	Change plate(s)	Sketch A
		Damaged stripper plate holes due to careless closure of punch gate	Clear obstruction using tool G.T.E. 1112 or replace plate	Sketch A
		Worn or broken punch return spring. Punch return spring too long or too short. Wrong punch pin (Harting pins are shorter). Blunt punch pin. Damaged punch pin. Broken solenoid arm. Excessive dust and congealed lubricant. No lubrication. Wrong lubricant.	Replace Clean Lubricate correctly	Sketch A Handbook
		Poor quality paper. Lumps or joins in paper.	Replace paper Check batch quality	
		Plate which carries punch gate hinges bowed outwards effectively increasing dimension, Note 1.	Replace	Sketch A
		Punchings receptacle needs emptying.	Empty regularly	Handbook

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
		Punch gate latch loose or incorrectly adjusted.	Adjust.	
		Misalignment of solenoid levers and punch pins.	Adjust solenoid block position for optimum alignment.	
	Honeywell	Misalignment of solenoid levers and punch pins.	Levers may be set slightly between tufnol guide and pin	Sketch A
	Harting	Misalignment of solenoid levers and punch pins.	Slight repositioning of solenoids may achieve better alignment.	Drg. XA3333 Drg. XA3334 For Assy. 54900
	Honeywell	Solenoid lever binding on tufnol guide.	Reset lever	Sketch A
		Lever pivot worn and locking.	Replace solenoid	
	Harting	Solenoid lever or linkage freedom impaired.	Adjust solenoid positions for best result	Drg. XA3333 Drg. XA3334 For Assy. 54900
		Rear solenoid pivot pin missing.	Replace solenoid block with modified version	Advise Salfords

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
	Honeywell	Abutment screw adjustment incorrect. Broken abutment comb. (if fitted)	Adjust residual screw position for abutment gap of 0.060" to 0.063" use tool 54083A. If abutment comb broken or worn:- Replace all abutment screws with 18324 (modified) and do not replace abutment comb.	Sketches A.B.C.
	Honeywell	Loose solenoid coil impeding armature action	Secure coil with adhesive or replace solenoid.	Sketch A
	Honeywell or Harting	Loose solenoid.	Tighten screws and check alignment.	
No paper feed. Variable pitch feed.	Honeywell or Harting	Loose or damaged flexible coupling between step Motor and sprocket shafts	Tighten screws onto shaft flats. Replace coupling (Compress Coupling .015")	
		Insufficient engagement between paper and sprocket wheel.	Check for bowed punch gate mounting plate.. Replace if necessary. Check punch gate latch.	
		Solenoid blocks incorrectly positioned, impeding rotation of sprocket wheel.	Adjust solenoid block position, but check lever/pin alignment.	

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
		Faulty stepping motor	Check for rotor binding on slator when hot by carefully rotating by hand with power off. Replace motor if necessary.	
		Loose steeping motor	Tighten motor securing screws but check perforation / sprocket hole alignment.	
		Faulty pivots on paper sensing arms causing variable tension on paper entering punch gate.	Check pivots for wear. Lubricate pivots. Replace if necessary.	
		Insufficient supply of paper to sprocket wheel.	See following notes on paper reel-out problems	

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
		Sprocket hole pitching in paper varying. Lumps or joins in paper	Check paper for quality.	
Perforations consistently out of alignment with sprocket holes	Honeywell or Harting	Paper not aligned on sprocket wheel when first fed through punch gate or due to the effect of dragging punch pins Insufficient engagement of paper with sprocket wheel	Align paper correctly. If misalignment occurs after a period of running, check direction of misalignment as a guide to faulty punch pin. Check paper/ sprocket engagement as described above.	
		Incorrect sprocket holes in paper.	Use correct paper	
		Sprocket hole pitching in paper varying. Lumps or join in paper.	Check paper batch for quality	
		Punch gate alignment incorrect	Realign. Note; when removing punch gate always mark position of hinge block for correct reassembly.	

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
Insufficient paper supply from paper roll	Honeywell or Harting	Reel-out capstan system slipping and supplying insufficient paper.	Clean capstan roller bearings. Check loading roller for free fall on to rubber roller. Lightly lubricate loading roller slots and rubber roller bearings. KEEP OIL OFF RUBBER ROLLER. Clean rubber roller with methylated spirit.	
		Paper roll jamming on spindle	Check for damaged spools. Adjust stop collar for slight roll retardation.	
		Worn drive motor or gear-box. Insufficient lubrication in gearbox leading to excessive noise.	Change motor and or gear box. Lubricate gears with high melting point grease and bearings with light oil.	
Continuous or irregular paper reel-out	Honeywell or Harting	Lower paper sensing arm not moving freely Lever spring damaged	Check arm pivots for wear or tightness. Very sparingly lubricate pivots with light oil. Check for arm rubbing on main plate in elongated slot. Check spring.	
Irregular or no paper wind-up	Honeywell or Harting	Upper paper sensing arm not moving freely Lever spring damaged	Check for pivot wear tightness, interference with side plate slot etc, as for lower arm. Check spring	

FAULT	PUNCH	POSSIBLE MECHANICAL CAUSE	REMEDY	REFERENCE
		Gearbox motor rotor jamming Gearbox worn or needs lubricating	Change motor and/or gearbox. Lubricate gears with molybdenum grease and bearings with light oil.	
		Paper tensioning system over-adjusted, thus over-loading wind-up motor and possibly tearing paper.	Readjust by rotating clockwise	
		Flanged take-up spool not engaging drive spiggot.	Check for damaged or incorrectly inserted spool. Check release catch for correct operation.	
Wind-up roll irregularities Too tight Too loose Edges tearing against metal spool flanges	Honeywell or Harting	Damaged or bent flanges on wind-up spool	Replace	
		Loose spring loaded plunger pivot for wind-up spool	Replace complete end plate carrying plunger	
		Paper tension too tight or too loose	Adjust tension device for best result. Check all guides for parallelism and positions of guide collars for best guidance. Note:- the loose bail roller held by the large diameter collars need not be parallel with other fixed guide spindles, but may be	

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			adjusted for best wind-up results. The paper must run in the large roller recess. Aim to obtain equal tension on both edges of the paper between the tension device and the driven wind-up spool.	

FAULT	PUNCH	POSSIBLE ELECTRONIC FAULT	REMEDY	REFERENCE
Sticking punch pins · Dragging punch pins	Honeywell or Harting	Faulty punch amplifier :- e.g. transistor MP1612B short circuit transistor BFY51 short circuit	Replace circuit board D.C. test and replace if necessary Note:-Failure of transistor will normally cause failure of punch solenoid protection fuse, but transistors with high leakage current may induce prolonged operation of solenoid, leading to pin drag etc. without initial fuse failure. Note that failure of either BFY51 will cause the fuse to fail but will also cause the high power base resistor for the MP1612B (or A) to become overheated, leading to burning of the circuit board.	54062-1 Sh. 1, 2. 54003 Sh. 3 For Honeywell 55019 Sh. 1, 2. 54900 Sh. 3 For Harting
		e.g. Dry soldered connexion	Inspect and resolder	" "
		e.g. Dirty edge connexions	Clean with suitable solvent or contact cleaner.	" "
		Failure of punch amp bias supply. (Honeywell +42.5V, Harting +32V)	Symtoms similar to high transistor leakage current fault. Check power pack and connexions to circuit board.	54005 Sh. 3, 13, 15, 16 For Honeywell 54900 Sh. 3 54860 Sh. 3, 4. For Harting

FAULT	PUNCH	POSSIBLE ELECTRONIC FAULT	REMEDY	REFERENCE
	Harting	Incorrect paper feed signal delay	Change or logic check Function Indicator circuit board. Forward paper feed signal delay should be 1.5 - 2.5mS for correctly adjusted punch solenoid system	55067-1 Mechanical fault Notes
	Harting or Honeywell	Fault in paper feed system	See notes on paper feed faults	

FAULT	PUNCH	POSSIBLE ELECTRONIC FAULT	REMEDY	REFERENCE
No perforation Partial perforation	Honeywell or Harting	Punch protection fuse failure	Replace <u>once</u> with correct fuse but check for fault if replacement fuse fails. DO NOT FEED WITH FUSES primarily, check punch amplifier, short circuit solenoid coil, incorrect data signal conditions such as continuous d.c. level from perforator or tape converter.	54005 Sh. 3 Handbook For Honeywell 54900 Sh. 3 For Harting
		Protection fuse loose in its clip holder Open circuit solenoid	Carefully reset clip springs or replace complete holder. Check solenoid resistance	
		General wiring fault	Check wiring continuity using an ohmeter with reference to circuit diagrams. On data signalling wiring check contacts in data connector and soldered connexions on edge connectors. On solenoid power wiring check soldered joints on fuse clip, edge connector, solenoid connector tag block and Harting solenoids. Also check solenoid for intermittent open circuit where lead wires enter encapsulation.	54005 Sh. 3 For Honeywell 54900 Sh. 3 For Harting

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		Faulty punch amplifier	Replace or check as above for dry soldered connexions dirty edge connexions etc.	See Above
		Incorrect data signal	Check for correct data input signal:- Honeywell 3mS Harting 6mS Amplitude +2.8V to +5V. = Active, with or without punch connected	Handbook
		Punch power supply failure +35V Honeywell 7Amp +25V Harting 10Amp (per solenoid)	Check power pack for wiring faults failed components etc. Check operation of punch with simulator to load power pack	5/005 Sh. 3 13, 15, 16. For Honeywell 5/900 Sh.3 5/860 Sh. 3, " " For Harting
		Mains supply voltage regulation poor or incompatible with mains selector setting in punch This may cause marginal mechanical or electronic faults to become effective	Check mains regulation for long term variation Check for nearby equipment (welding gear for example, which may produce very temporary reductions in mains voltage effecting one or two frames of punching). Check mains selection tappings on power supply transformers.	" "
		Punch inhibit system fault.	Check for correct logical condition on punch inhibit data connexion. Change or check Function Indicator Logic.	

FAULT	PUNCH	POSSIBLE ELECTRONIC FAULT	REMEDY	REFERENCE
No paper feed. Irregular paper feed. Alignment between sprocket holes and perforation varying irregularly, particularly on repetitive automatic perforation (e.g. Electronic Perforator line fill or Tape Converter drive). Continuous paper feed when punch switched on	Honeywell or Harting	Stepping motor power supply failure	Check power supply and all connexions to motor.	" "
		Failure of paper feed signals	Check signals from associated equipment (Same as punch data signals) Check manual feed switch signals. Check manual feed switches.	54005 Sh. 3 54100 Sh. 1, 2 For Honeywell 54900 Sh. 3 55067-1 For Harting
		Failure of 5V power supply	Monitor 5V supply while removing Function/ indicator, Motor drive circuit boards and data input connector. If 5volts appears check for short circuit on relevant board or connector. If 5V does not appear check wiring for short circuit. lastly check power supply for fault (especially zeners).	
		Failure of motor drive or Function Indicator circuit board	Change circuit board or check logic. Use manual feed switches to check successive switching of motor coils. If only one stepping direction is affected suspect Function Indicator circuit board or relevant direction manual feed switch, or connexions.	54100-1 Sh.1 2. 54183-1 Sh.1 2. 54005 Sh.3 For Honeywell 55020-1 Sh.1 2. 55067-1 Sh.1 2. 54900 Sh.3 For Harting

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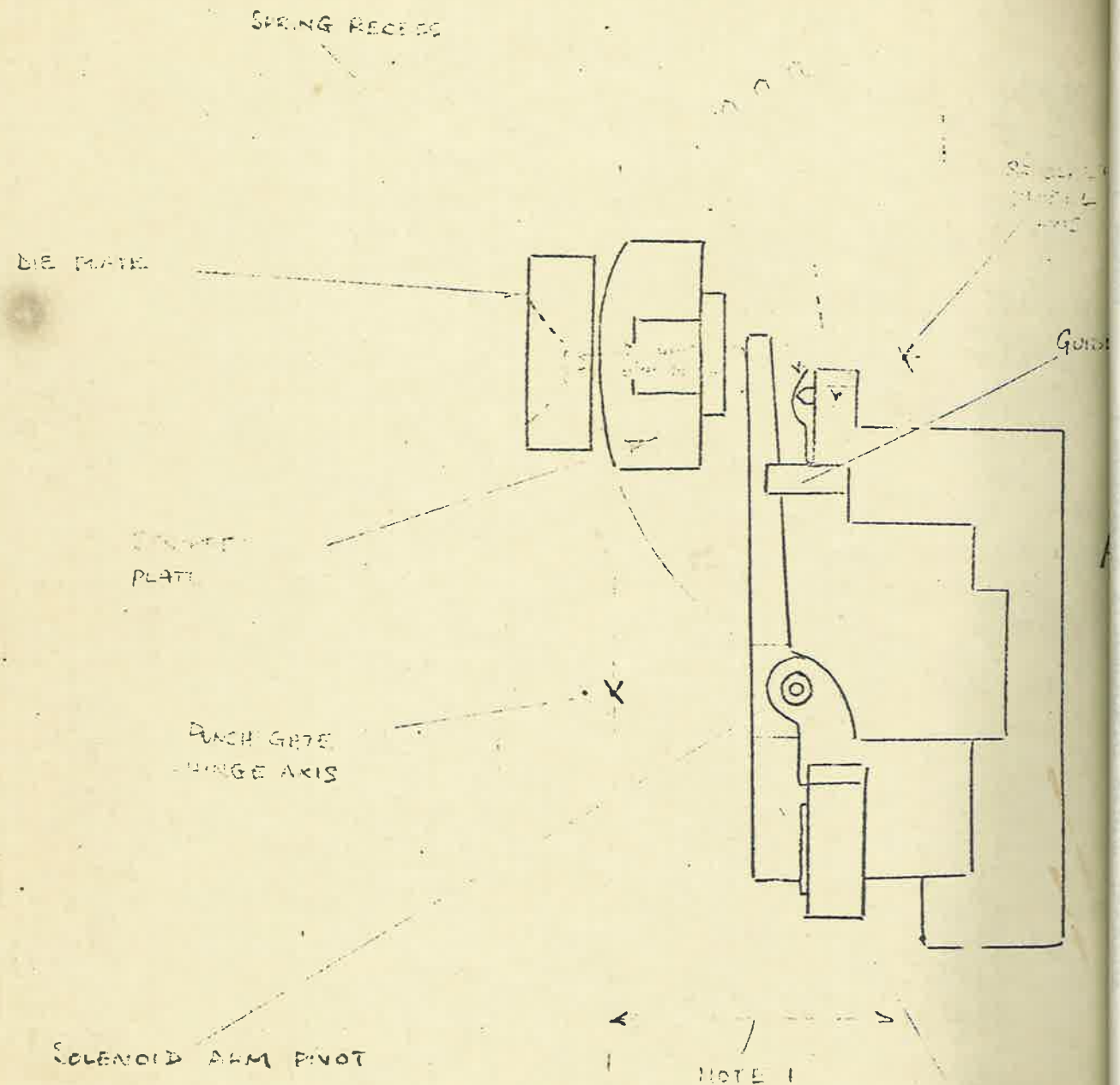
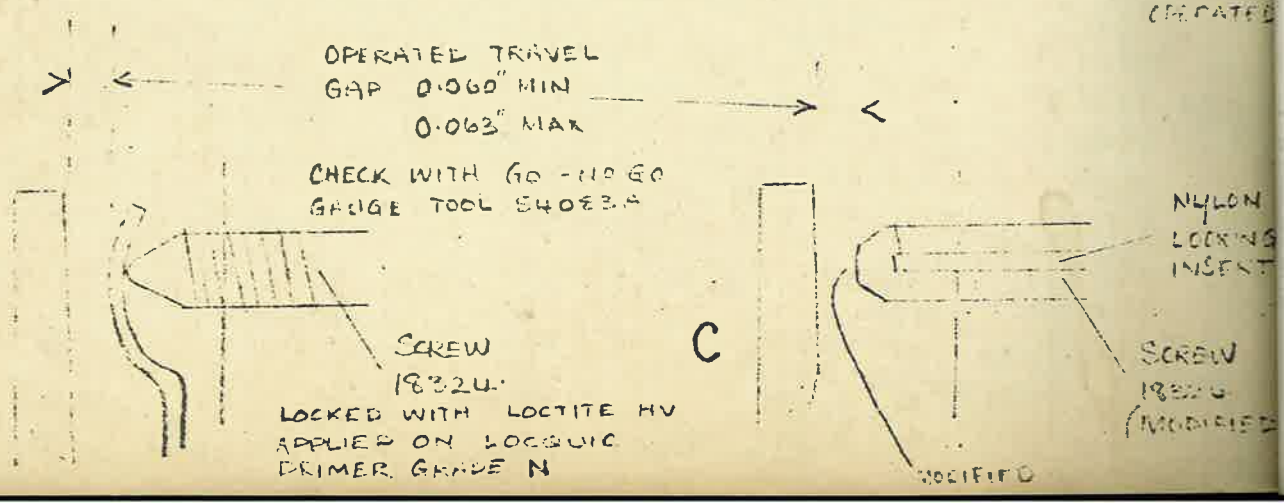
	Honeywell or Harting	Mains supply voltage regulation poor or uncompatible with mains supply selector setting in punch.	Check as for Perforation faults. Note that severe mains-borne electrical interference may affect paper feed. Check for external local sources of interference. Also check paper wind-up and reel out motor switching systems (actuated by paper sensing arms), Faulty suppression components or poor microswitch contacts. Avoid sensing arm flutter by optimum adjustment of associated microswitches, particularly on reel-out arm.	See Mechanical fault possibilities concerning paper sensing arms
		Stepping motor faulty	Check coil continuities	See mechanical fault possibilities

FAULT	PUNCH	POSSIBLE ELECTRONIC FAULT	REMEDY	REFERENCE
Alignment of sprocket holes and perforations incorrect but erro constant	Honeywell or Harting	Paper incorrectly fed onto sprocket wheel	Load paper correctly.	
		Misalignment occurs after a period of running.	Suspect sticking punch. Examine perforated paper for punch drag effects, lumps or joins in paper.	See electronic and mechanical fault possibilities concerning punch faults.
Paper reel out or wind-up system fault (Both systems are identical electrically except for switching sense)	Honeywell or Harting	Failure of motor to drive gearbox. D.C. braking not effective.	Motor winding failure Check solder joints and screw terminal connexions.	54003 Sh.3 13, 15, 16 For Honeywell 54900 Sh.2 54860 Sh.3, 4. For Harting
		Reel-out or wind-up failure. D.C. braking effective.	Failure in mains supply circuit to gearbox motor. Check suppression components connexions and mains/ d.c. microswitch.	" "
		Motor drives gearbox but overruns when switched off (i.e. No braking).	Failure of +24V braking supply. Check power supply, relevant connexions, components and mains/ d.c. microswitch.	" "

FAULT	PUNCH	POSSIBLE ELECTRONIC FAULT	REMEDY	REFERENCE
Failure of tight tape indicator No lamp or lamp illuminated continuously	Honeywell or Harting	Faulty or wrongly adjusted microswitch. Faulty Function/Indicator circuit board. Lamp failed Faulty lamp holder.	Check microswitch for continuity and correct position. Replace or check Function Indicator circuit board. Replace lamp check holder	


SPRING RECESS
DIE PLATE
PUNCH GATE HINGE AXIS
NOTE 1


OPERATED TRAVEL
GAP 0·060" MIN
0·063" MAX
CHECK WITH GO - NO GO GAUGE TOOL 540838
SCREW 18324
LOCKED WITH LOCTITE HV APPLIED ON LOCQUIC PRIMER GRADE N
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