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TRAINEE'S GUIDE
for
NAVAL SCHOOLS
TELETYPE MAINTENANCE

CLASS C

VOLUME 2

A-160-0023
A-160-0024

Chief of Naval Technical Training
JUNE 1972

DEPARTMENT OF THE NAVY
CHIEF OF NAVAL TECHNICAL TRAINING
NAVAL AIR STATION
MILLINGTON, TENNESSEE 38054

IN REPLY REFER TO:

FOREWORD

1. NAVTRA 41047, Trainee's Guide for Naval Schools, Teletype Maintenance, Class C, Volume 2, is approved for use in the Teletype Maintenance courses A-160-0023 and A-160-0024.

2. This publication supersedes volume 2 of all previous trainee guides developed for the course.

3. Commands are invited to submit explicit comments and recommendations on the contents of this publication to the Chief of Naval Technical Training (N3).

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Head, Individual Technical
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RECORD OF CHANGES

No.	Authority	Substance	Entered By	Date

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TERMINOLOGY AND AUTOMATIC TYPER

Gear Power Train, Internal Expansion CLUTCH
Main Shaft, Selector Clutch, Range Finder and Distortion

INTRODUCTION

This assignment sheet is a check of your understanding of material taught thus far in the MOD 28 ASR Course. Careful preparation of the following assignment will not only improve your value to the Navy, but will actually enhance your understanding of the troubles, symptoms, and overall operation of teletype machines.

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 19 through 28
NAVSHIPS 0967-173-6010, Vol. I

QUESTIONS

1. What is the purpose of the rheostat in a teletype loop?

2. What is the definition of "A train of parts" as used in the AN/UGC-6K?

3. What is the purpose of an eccentric as used in the AN/UGC-6K?

4. What parts are considered to be a source of power within the AN/UGC-

5. What gears must be changed to change the operating speed of the automatic typer?

6. What is the purpose of a clutch latch lever?

7. Name the three stop clutches on the main shaft from left to right.

8. What power source rotates the selector clutch stop arm CW? (right view)

9. What are the three components of distortion?

10. What are the terminating points and color of wires connected to pins 1, 2, 3, and 4 of the selector magnets on the automatic typer used in the AN/UGC-6K?

AUTOMATIC TYPER

Selecting and Transfer Mechanisms, Code Bar Clutch and positioning of the Code Bars

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 29 through 35
NAVSHIPS 0967-173-6010, Vol. I
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. With a spacing condition present at the selector magnets, what prevents a selecting lever from riding to the low of its cam?

2. When will the common transfer lever move top to the rear for a mark?

3. How would the automatic typer operate with #2 transfer lever/intermediate arm spring missing?

4. In relation to the character cycle, when does the code bar clutch engage?

5. What holds the code bars in their last operated position?

6. What power source shifts the code bars?

7. What is the modification kit part number for an improved code bar positioning mechanism? State section, page number, part number and name.

8. What is the part number for the code bar clutch trip shaft lever? State section, page number, part number and name.

9. What is the manufacturers designation and which wiring diagram is utilized for the TT-437/UG?

10. What are the distant terminating points, pin numbers and color of wires used to wire in the signal bell in a TT-437/UG?

AUTOMATIC TYPER

ADJUSTMENTS

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 36 through 38
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 2-1-1J
NAVSHIPS 0967-173-6010, Vol. I
NAVSHIPS 0967-173-6020, Vol. II
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. Why is it advisable to use an open-end wrench to loosen/tighten the link clamp screw when making the selector magnet bracket adjustment?

2. How must the spacing lock lever be positioned when measuring the clearance between the upper surface of the armature extension and the lower surface of the spacing lock lever?

3. What tool is used to adjust the transfer lever eccentric?

4. What damage could be caused if requirement (2) on the selector magnet bracket adjustment was not properly made?

5. Why should the transfer lever eccentric be adjusted with the high side of the eccentric upward?

6. What code combination must be selected in order to meet the requirement of the intermediate arm backstop bracket, and what position must the code bar shift lever link be in?

7. Why is a preliminary check necessary prior to placing a machine under power?

8. What is the Navy designation for the automatic typer used in the AN/UGC-15?

9. What is the manufactures designation of the electrical service unit used in the AN/UGC-5B?

10. What is the horsepower rating of the LMU-14? State section and page number.

AUTOMATIC TYPER

Function and Typebox Clutches, the Typebox and Vertical Positioning

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 39 through 43
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. When the function clutch engages, it will extend motion to what?

2. In relation to the rotation of the code bar clutch, when will the code bars be shifted?

3. What power source moves the typebox clutch trip lever out of engagement with the clutch shoe lever?

4. How many vertical rows of type pallets does the typebox contain?

5. With the code combination 12-45 selected, what stops the upward travel of the vertical positioning levers?

6. What is the power to completely straighten the vertical positioning levers?

7. With blank selected, which notch of the vertical positioning lock levers engage the vertical positioning levers?

8. What is the normal stop position of the typebox?

9. What is the part number of the typebox carriage track? State section, page number, train of parts and noun name.

10. What is the part number for the "R" type pallet in the typebox? State section, page number, train of parts and noun name.

Assignment Sheet 2-3-1A

AUTOMATIC TYPER

Horizontal Positioning, Ribbon Mechanism, Normal Spacing, and Spacing Cutout

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 44 through 55
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 2-2-1J
NAVSHIPS 0967-173-6020, Vol. II

QUESTIONS

1. What would be the symptom if requirement (1) on the typebox clutch trip lever was made with the follower arm roller on the high of the code bar clutch cam?

2. Why is side play necessary between the typebox clutch latch lever and trip arm?

3. What adjustments will require rechecking if any change is made to the rocker shaft bracket eccentric stud adjustment? List job sheet and adjustment number.

4. During horizontal positioning, which shift slide drive link will move the decellerating slide into contact with the horizontal motion stop slides?

5. With the number three code bar to the right, which side of the typebox will the print hammer strike?

6. With the --345 code combination selected, in which side and in what vertical row will the print hammer strike the typebox?

7. The decellerating slide strikes what to print in the 4th vertical row?

8. In relation to the rotation of the typebox clutch, when will the ribbon mechanism reverse?

9. What are the movements of the spacing trip lever and the power for each movement during normal spacing?

10. Name two of the safety features built into the spacing mechanism of the AN/UGC-6K.

AUTOMATIC TYPER

PRINTING A CHARACTER, TYPICAL FUNCTIONS, NORMAL AND LOCAL CARRIAGE RETURN

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 56 through 63
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 2-3-1J
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. What would be the symptom with the bottom portion of the printing arm slide missing?

2. What power source moves the print hammer bail to the front?

3. What holds the print hammer operating bail in its normal stop position

4. What power source moves a function lever to its operating position?

5. What is the power source and the initial movement of the function bar reset bail?

6. What power source moves a function pawl down in the rear?

7. In relation to the rotation of the function clutch and the character cycle, when is the carriage return function lever latch stripped off?

8. What slot in the function box is the carriage return function bar located?

9. What is the function of the dashpot mechanism?

10. During local carriage return, what is the power to move the carriage return lever up in front?

Assignment Sheet 2-4-2A

AUTOMATIC TYPER

Spacing Suppression, Signal Bell, Letters/Figures Function, LF Mechanism, and ALFCR Mechanisms

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REFERENCE

NAVTRA 41046, Trainee's Guide, Vol. I, pages 64 through 78

QUESTIONS

1. What power source prevents the spacing clutch from engaging during spacing suppression?

2. What prevents the signal bell function bar from being selected when lower case "s" is selected?

3. When the figures function lever is moving to the rear, which direction will the letters/figures code bar have be moving.

4. What power source moves the right shift link breaker slide rod?

5. When the letters/figures code bar fork is moving right, which direction will the left shift link breaker slide rotate?

6. What power source strips off the line feed function pawl when in the single line feed mode of operation?

7. What is the purpose of the line feed function lever in slot 34 of the function box?

8. What are all the conditions under which the carriage return slide arm will move to the front of the machine?

9. What are all the conditions under which the line feed slide arm will move to the front of the machine?

10. What power source strips off the line feed on carriage return blocking function lever latch?

Assignment Sheet 2-4-3A

AUTOMATIC TYPER

ACRLF, Remote Keyboard Lock and Mechanical Adjustments

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 79 through 83
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 2-4-1J
NAVSHIPS 0967-173-6010, Vol. I
NAVSHIPS 0967-173-6020, Vol. II
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. What would be the symptom with the automatic carriage return bell crank spring missing?

2. Upon receipt of the second consecutive blank, how many function bars will be selected?

3. What is the purpose of the remote keyboard lock mechanism?

5. What would be the symptom if the caution point on the printing track adjustment (A) was ignored?

6. If the printing and typebox carriages return to the left with obviously too much force, what adjustments should be checked?

7. What is the minimum acceptable points of range for the automatic typer, according to Teletype Corporation specifications?

8. What damage could occur if the printing carriage position was adjusted off center?

9. What is the part number of the plunger lock spring in the keyboard? State section, page number, train of parts and noun name.

10. What are the distant terminating points, pin numbers and color of wires attached to the signal line break switch in the AN/UGC-6K?

AUTOMATIC TYPER

Cleaning Tanks and Mechanical Adjustments

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 84 through 85
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 2-5-1J
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. When replacing the front plate on the automatic typer, what caution points must be observed?

2. What parts may block removal/replacement of the selector clutch cam sleeve assembly?

3. How many trip lever/latch lever springs are removed when pulling the main shaft of the automatic typer?

4. When reassembling clutches that have cams and disks marked "0", which way is the marked side faced in relation to the clutch side?

5. What caution points should you check when replacing the function box?

6. What type cleaning fluid is normally used in the ultrasonic cleaner?

7. How often must a teletype machine be cleaned when operating at 100 wpm?

8. What is the part number of the ribbon reverse detent lever spring? State section, page, train of parts and noun name.

9. What is the part number of the spacing clutch trip lever springs? State section, page, train of parts and noun name.

10. What is the part number for the spacing clutch shoe lever? State section, page, train of parts and noun name.

Assignment Sheet 3-1-1A

KEYBOARD

Lockball Mechanism, Signal Generator Clutch and Mechanism

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 89 through 94
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. What is the power law for the keyboard?

2. How many lockballs are required in the lockball mechanism?

3. What would be the most probable trouble if you were able to depress two keys at the same time?

4. How would the keyboard operate with an open in the circuit to the clutch trip magnet?

5. What power source moves the clutch stop lever out of the path of the signal generator clutch shoe lever?

6. What is the purpose of the signal generator mechanism?

7. When a key is depressed, what holds the unselected code bars to the left?

8. State the operation, from depressing a key, to closing the marking contacts, including powers.

9. What power source moves a transfer lever up?

10. What is the part of the drive link spring? State section, page, train of parts and noun name.

KEYBOARD

Resetting Signal Generator Clutch, Clutch Trip Delay, Repeat, Linebreak, Local Keyboard Lock and Unlock, and Character Counter

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 95 through 105
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. What moves the bottom of the code bar bail to the left?

2. In relation to the rotation of the signal generator clutch, when are the code bars reset?

3. What power source moves the universal bail latch lever up in the rear?

4. How would the keyboard operate with the universal bail latch lever spring missing?

5. Why isn't the code lever universal bail rotated when a function key is depressed?

6. How would the keyboard operate with the non-repeat lever spring missing?

7. What power source moves the keyboard unlock function lever up in the front?

8. What power source rotates the lockbar latch CW?

9. The character counter will operate in what positions of the keyboard control knob?

10. What is the part number for the anti-bounce latch spring? State section, page, train of parts and noun name.

Assignment Sheet 3-1-3A

KEYBOARD

Mechanical Adjustments

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REFERENCES

NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 3-1-1J
NAVSHIPS 0967-173-6020, Vol. II
NAVSHIPS 0967-173-6030, Vol. III

QUESTIONS

1. What would be the symptom if the transfer bail detent plate in the keyboard was maladjusted?

2. With the character counter at the mid-point of its scale, the keyboard controls knob in "K" position, a carriage return is selected, but the counter fails to respond, what would be the most probable trouble?

3. How would the keyboard operate with the clutch stop lever maladjusted to the extreme CCW position?

4. When making the universal bail latch lever adjustment, what position must the eccentric be in?

5. What could result from too much backlash when making the intermediate gear bracket adjustment?

6. Why must the character counter stop lever and counter stroke adjustments be made with the machine under power?

7. What would be the symptom with the signal generator contact toggle maladjusted fully CCW? (top view)

8. What is the spring tension requirement for the code lever universal bail spring?

9. What is the part number for the modification kit to provide electrical signal line break mechanism? State section, page, and figure number.

10. What is the part number for the LMU-3 motor assembly? State section, page and figure number.

PERFPRATOR

Keyboard Control Knob, Engaging Perforator Function Clutch and Punch Mechanism

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 107 through 116
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 4-1-1J and 4-1-2J

QUESTIONS

1. With the keyboard control knob in the "T" position, what moves the code bar extensions to the left?

2. With the keyboard control knob in the "KT" position, what is the power to rotate the latch CCW?

3. What power source moves the perforator function clutch trip lever out of the path of the shoe lever?

4. When the perforator main trip lever is rotated CCW, which direction will the punch slide reset bail rotate, and under what power?

5. In what position(s) of the keyboard control knob, will the margin indicator lamp operate?

6. What power source rotates the punch slide latches CCW?

7. What rotates the retractor bail CW, and under what power?

8. What power source resets the code bar extensions in the "KT" position?

9. What moves the rocker bail to the left?

10. How many adjustments are affected by the toggle operating arm (B) adjustment?

Assignment Sheet 4-3-1A

PERFORATOR

Tape Feed, Feed Hole Spacing, Transfer Mechanism, Typewheel, Axial Positioning and Axial Correcting

INTRODUCTION

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 117 thouugh 125
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 4-2-1J

QUESTIONS

1. What direction will the die wheel rotate when the rocker bail is moving to the left?

2. What power source moves the perforator feed pawl up?

3. In what position must the feed pawl eccentric and the die wheel eccentric be for a preliminary check?

4. What special guage must be used to check the feed hole spacing adjustment?

5. What power source rotates the #5 pulse beam CW? (top view)

6. What power source rotates the #5 bell crank CW?

7. Which axial row will the print hammer strike, with the code combination --345 selected?

8. With #1 impulse marking, and the operating blade moving to the right, in what direction will the lower eccentric rotate?

9. What is the purpose of the axial correcting mechanism?

10. What power source moves the axial crank pin to the front?

PERFORATOR

Rotary Positioning, Correcting, Letters/Figures Shift, Printing Mechanism, Ribbon Mechanism, and Power Backspace

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REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 126 through 147
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 4-3-1J

QUESTIONS

1. What code combination is required to position the typewheel to the #3 CW rotary row?

2. With the code combination 1-345 selected, and the rocker bail moving to the right, how many axial units of movements will be imparted to the typewheel and in what direction?

3. What would be the symptom if the letters and figures function blades were switched?

4. As the letters function blade is moving down and letters arm assembly is rotated CCW, the figures extension arm will rotate in what direction under the power of what?

5. When adjusting the letters-figures yield arms, what will aid you in measuring the required clearance?

6. When maiing the lifter arm eccentric screw (B) adjustment, which function blade must the clearance be measured?

7. What is the power source to print?

8. What is the power source for ribbon feed?

9. How would the tape backspace mechanism operate with the segment gear spring missing?

10. What moves the dirve link latch to the left?

Assignment Sheet 5-1-1A

TYPING REPERFORATOR AND TRANSMITTER DISTRIBUTOR ENGAGING/DISENGAGING TD CLUTCH, TAPE FEED, SENSING, START-STOP, TIGHT OR TANGLED TAPE AND TAPE OUT SENSING

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REFERENCE

NAVTRA 41046, Trainee's Guide, Vol. I, pages 148 through 161
NAVSHIPS 0967-173-6010, Vol. I

QUESTIONS

1. What would be the symptom in the reperforator with the punch slide reset bail spring missing?

2. What power source moves the reperforator main trip lever from underneath the clutch release?

3. What is the normal stop position of the TD drive arm eccentric?

4. How would the TD operate with the main bail spring missing?

4. How would the TD operate with the main bail spring missing?

5. How would the TD operate with the clutch trip lever spring missing?

6. What power source rotates the TD transfer bail CW?

7. When the control lever is moved from the run to the stop position, what is the power to move the tape out sensing pin down?

8. What are the switches that must be closed in order for the TD to operate?

9. When a tangled tape is felt at the tight ot tangled tape bail, what is the power to open the start-stop and tight tape switch?

10. What are the distant terminating points, pin numbers and color of wires attached to the tape out contact assembly?

Assignment Sheet 6-1-1A

TRANSMITTER DISTRIBUTOR and BASIC ELECTRICITY

INTRODUCTION

This assignment sheet is a check of your understanding of material taught thus far in the MOD 28 ASR Course. Careful preparation of the following assignment will not only improve your value to the Navy, but will actually enhance your understanding of the troubles, symptoms, and overall operation of teletype machines.

DIRECTIONS

Answer the following questions and place your answers on a separate sheet of paper. Refer to the Technical Manual and the Trainee's Guide as necessary. Your work will be collected, graded, reviewed in class, and returned to you. Fill in the correct answers on this page as the assignment is reviewed. This will provide you with a correct ready reference for future use. Turn in the completed assignment to your division officer at 0730 of the following morning.

REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 162 through 164
NAVTRA 41047, Trainee's Guide, Vol. II, Job Sheet 5-1-1J
NAVSHIPS 0967-173-6020, Vol. II

QUESTIONS

1. What position must the TD clutch be in to move the sensing pins to their lower most position?

2. What section, page, and adjustment would you check if the TD continued to run with the tight and tangled bail lifted to its extreme upward position?

3. What requirement must be met in relation to the main bail eccentric adjustment (D)?

4. What is the minimum and maximum spring tension required for the TD feed pawl spring?

5. What is a capacitor normally used for in the AN/UGC-6K?

6. Explain the difference between current flow in a series circuit as compared to current flow in a parallel circuit.

7. What is the formula for total resistance in a series circuit? In a parallel circuit?

8. What would a volmeter read across an open circuit between two check points?

9. What will a volmeter read across a shorted circuit between two check points?

10. In a circuit with three resistors of 20, 80, and 100 ohms resistance respectively, what would be the total resistance if the circuit was a series circuit? If the circuit was a parallel circuit?

Assignment Sheet 6-2-1A

AC and DC CIRCUITS, SELECTOR MAGNET DRIVER and TELETYPE PANELS

INTRODUCTION

This assignment sheet is a check of your understanding of material taught thus far in the MOD 28 ASR Course. Careful preparation of the following assignment will not only improve your value to the Navy, but will actually enhance your understanding of the troubles, symptoms, and overall operation of teletype machines.

DIRECTIONS

Answer the following questions and place your answers on a separate sheet of paper. Refer to the Technical Manual and the Trainee's Guide as necessary. Your work will be collected, graded, reviewed in class and returned to you. Fill in the correct answers on this page as the assignment is reviewed. This will provide you with a correct ready reference for future use. Turn in the completed assignment to your division officer at 0730 of the following morning.

REFERENCE

NAVTRA 41046, Trainee's Guide, Vol. I, pages 164 through 174

QUESTIONS

1. What would be the symptom with an open in the AC portion of the line shunt relay circuit? Explain why.

2. What would be the symptom with a short between C-39 and C-37? Explain why.

3. What would be the symptom with an open between C-125 and C-126, provided the clutch trip magnet armature was cammed out? Explain why.

4. What would be the symptom with a short between U-3 and U-5? Explain why.

5. What would be the symptom with a short between A1 and A2? Explain why.

6. What would be the symptom with the spacing contacts in the TD signal generator maladjusted closed?

7. What symptoms would you have with the 1 amp slow blow fuse blown?

8. Which lamps would be affected with an open between C-147 and C-148, and how would they be affected?

9. If you suspected a bad selector magnet driver, how would you by-pass it to check it out?

10. What types of teletype panels may a teletype repairman be expected to come into contact with?

Assignment Sheet 8-1-1A

AN/UGC-20

INTRODUCTION

This assignment sheet is a check of your understanding of material taught thus far in the MOD 28 ASR Course. Careful preparation of the following assignment will not improve your value to the Navy, but will actually enhance your understanding of the troubles, symptoms, and overall operation of teletype machines.

DIRECTIONS

Answer the following questions and place your answers on a separate sheet o of paper. Refer to the Technical Manual and the Trainee's Guide as necessary. Your work will be collected, graded, reviewed in class and returned to you. Fill in the correct answers on this page as the assignment is reviewed. This will provide you with a correct ready reference for future use. Turn in the completed assignment to your division officer at 0730 of the following morning.

REFERENCES

NAVTRA 41046, Trainee's Guide, Vol. I, pages 180 through 198
NAVSHIPS 0967-059-9010

QUESTIONS

1. What are the major components of the AN/UGC-20?

2. What function does the distributor mechanism perform?

3. What power source rotates a rocker lever CW? (right view)

4. When the contact reset bail is rotated CW, which direction will the spacing contact wires move?

5. What power source rotates the local carriage return bail CCW? (left view)

6. What power source moves the carriage return trip link to the front?

7. In relation to the character cycle, when does the solenoid reset contacts close?

8. What would be the symptom if #5 contact wire was shorted against the DC terminal strip?

9. How would the automatic typer operate with a short across the stop contacts?

10. What tool is used to make the universal contact adjustment in the keyboard transmitter?

JOB SHEET 2-1-1J

AUTOMATIC TYPER

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the Automatic Typer.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-7, Section 573-115-700.

JOB STEPS — PAGE

_____ _____ 1. Selector Magnet Bracket — 9, 10

CAUTION: Req 2 MUST be met or a cracked armature may result. Use an open end wrench to loosen/tighten the Link Clamp Screw, a screwdriver may damage rear magnet. After once checked by instructor, ANY re-adjustment to the selector magnet bracket MUST BE RE-CHECKED by an instructor prior to putting machine under power.

NOTE: Req 2, play must be taken down by lightly resting finger tip on spacing lock lever to get clearance.

_____ _____ 2. Selector Armature Spring — 12

NOTE: Check Only 2 button anti-freeze device. 21 grams approximate 1 ounce.

_____ _____ 3. Selector Clutch Stop Arm — 17

All one stop clutches will be adjusted with the trip lever/stop lever inside edge, flush with the inside of the shoe lever. All 3 stop clutches will be adjusted so that 2 of them are flush and the third must have some overbite.

4. Codebar Clutch Trip Lever (check only) — 23

_____ _____ 5. Code Bar Shift Lever Drive Arm — 21

NOTE: Clearance measured with play taken upward.

_____ _____ 6. Transfer Lever Eccentric 19

NOTE: Take up play in code bars by gently stroking shift bar away from rear code bar shift lever. Visually determine which code bar shift bar is farthest from shift lever. Utilize Tommy Wrench, TTY part number 73404, to make this adjustment.

_____ _____ 7. Intermediate Arm Backstop Bracket 20

NOTE: Same as note 5, stroke away from front code bar shift lever.

_____ _____ 8. Code Bar Shift Lever Link Bracket 22

CAUTION: Set near minimum and equalize

NOTE: Visually determine closet code bar shift. Take up play by gently stroking shift levers away from notch in code bar shift bars.

_____ Preliminary Check

After preliminary check refine adjustments, run machine for 10 minutes, recheck adjustments, place name on board for final.

_____ Final Check

JOB SHEET 2-2-1J

AUTOMATIC TYPER

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the Automatic Typer.

EQUIPMENT

AN/UGC-6K Teletypewriter Set

Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-7, Section 573-115-700

JOB STEPS

				Page
_____	_____	1.	Function Clutch Trip Lever (check only)	24
_____	_____	2.	Clutch Trip Shaft Set Collar (RQR 1 ONLY)	25
_____	_____	3.	Type Box Clutch Trip Lever Eccentric Post	27
_____	_____	4.	Type Box Clutch Trip Lever (RQR 1 & 2)	28
_____	_____	5.	Rocker Shaft Bracket Eccentric Stud (Set at approximately .075 for peak operation)	32

CAUTION: Any change to this adjustment will require rechecking of items on Job Sheets 2, 3, and 4 marked with an asterisk (*). This adjustment must be correct for preliminary.

NOTE: Eccentric must be down to the rear.

STOP: HAVE INSTRUCTOR CHECK FOR BINDING.

_____	_____	*6.	Right Vertical Positioning Lever Eccentric Stud	33
_____	_____	*7.	Left Vertical Positioning Lever Eccentric Stud	34

NOTE: Left and right vertical positioning levers should buckle at the same time. Measurement can be taken at link extension, or while visually observing the right side and feeling the left link with a finger of the left hand placed at the point of buckling and slowly rotating the Main Shaft to the position where the links just begin to buckle. Rock main shaft back and forth to determine if buckling of both links occur at the same time. Correct one or both if necessary.

_____ _____ *8. Vertical Positioning Lock Levers (RQR 1 & 2)

NOTE: Must be locked in place prior to printing.

_____ Preliminary Check

After preliminary check refine adjustments, run machine for 10 minutes, recheck adjustments, place name on board for final.

_____ Final Check

JOB SHEET 2-3-1J

AUTOMATIC TYPER

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the Automatic Typer.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Volume 2, ISS-7, Section 573-115-700.

JOB STEPS — PAGE

_____ _____ *1. Horizontal Positioning Drive Linkage — 40

CAUTION: All 4 screws MUST be tight.

NOTE: Check to ensure that when the horizontal positioning drive link that is straight is pulled downward and released it pops back to the fully straightened position. Check both sides and refine if necessary.

_____ _____ *2. Reversing Slide Brackets (C) — 39

_____ _____ 3. Spacing Clutch Trip Lever (Check Only) — 26

_____ _____ *4. Spacing Trip Lever Bail Cam Plate — 36

_____ _____ 5. Function Reset Bail Blade (RQR 1 & 2) — 37

CAUTION: Loosen all screws when repositioning blade to avoid bowing.

_____ _____ 6. Carriage Draw Wire Rope — 42

CAUTION: Use only enough tension on CR spring to hold rope tight.

NOTE: Slack in upper draw wire rope should be equalized between front/rear. Loosen rope clamp screw on CRSD and equalize by feel.

_____ _____ 7. Oscillating Rail Slide Positioning — 35

CAUTION: ANY CHANGE requires a recheck of LEFT MARGIN, PRINTING CARRIAGE POSITION, RIGHT MARGIN WITH ACR/LF ADJUSTMENTS

_____ Preliminary Check

After preliminary check refine adjustments, DO NOT run machine place name on board for final.

_____ Final Check

JOB SHEET 2-4-1J

AUTOMATIC TYPER

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the Automatic Typer.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-7, Section 573-115-700.

JOB STEPS			Page
_____	_____	1. Left Margin (RQR 1, 2, and 3)	47
_____	_____	2. Carriage Return Latch Bail (A)	44
_____	_____	3. Carriage Return Lever	45
_____	_____	4. Carriage Return Spring	43
_____	_____	5. Line Feed Clutch Trip Shaft Set Collars (RQR 2 & 3)	25
_____	_____	6. Line Feed Clutch Trip Lever Eccentric Post	27
_____	_____	7. Line Feed Clutch Trip Lever Adjusting Screw	27
_____	_____	8. Line Feed Spur Gear Detent Eccentric (Check Only)	96
_____	_____	9. Printing Carriage Position	51

NOTE: OFF-CENTER adjustment causes excessive wear to print hammer and type pallets.

_____ _____ 10. Shift Linkage (A) 52

CAUTION: Adjust LEFT shift linkage only

NOTE: Final check made by typing a row of M's in center of Platen strike-over with periods (.) which should fall in center of M. (MMMM)

_____ _____*11. Printing Track (A) 53

CAUTION: Make both ends close to equal, ensuring track is kept level. If right side set .025" make left side the same.

NOTE: Hold latching extension to the left with finger while checking clearance, as shown in diagram.

_____ _____ 12. Printing Hammer Stop Bracket 54

CAUTION: Check nut on bottom of printing hammer bail pivot stud for tightness.

_____ _____*13. Printing Arm (RQR 1 & 2) 54

NOTE: Hold printing arm slide in maximum downward position.

_____ _____ 14. Dashpot Vent Screw 46

NOTE: Rough in for PRELIMINARY without power.

_____ Preliminary Check

After receiving preliminary check, run machine at least 10 minutes, recheck all adjustments, then continue.

_____ _____ 15. Right Margin with ACR/LF Ring (Set on 74th) 65

CAUTION: DO NOT LOOSEN HEX head screw holding front ring.

NOTE: Strike 71st character, adjust for required clearance. 74th character should slighlly overscore 73rd character, and carriage should return.

_____ _____ 16. Margin Indicator Lamp 71

_____ Final Check

JOB SHEET 2-5-1J

DISASSEMBLY AND REASSEMBLY OF THE AUTOMATIC TYPER

INTRODUCTION

This job sheet will aid you in becoming proficient in disassmebling and reassembling the automatic typer, a requirement for preventive and operational maintenance.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-3, Section 573-115-702, ISS-7, Section 573-115-700.

JOB STEPS

Page

1. Remove paper, ribbon and Type Box.
2. Select LRS, type box carriage track maximum upward.

CAUTION: Ensure carriages are to the left PRIOR to setting up LTRS combination.

NOTE: LTRS combination selected by holding all transfer levers top to the rear and rotating main shaft until type box carriage max.

3. Move type box carriage to extreme right.
4. Remove retainer ring in type box carriage link.

NOTE: Hold finger on retainer while prying with tip of screwdriver.

5. Disengage type box carriage link from type box carriage.
6. Remove type box carriage.
7. Remove spacing shaft helical driven gear.
8. Remove 2 screws holding main bail drive bracket to the main rocket shaft.
9. Remove 4 screws on front plate assembly.
10. Remove front plate.

CAUTION: When reassembling ensure the following are in their proper connections.

a. #3 code bar projection
b. Code Bar Bell Cranks seated in proper code bars.
c. Projection on auto CR-LF bell crank aligned with 0 code bar.
d. Carriage Return Lever seated properly.
e. Main Bail Drive Bracket on top of Rocker Shaft

11. Remove code bar shift bar retaining plate (2 screws)
12. Remove #3, 4, and 5 code bar shift bars.
13. Remove selector clutch drum clamp screw and nut.
14. Selector clutch cam sleeve assembly.

CAUTION: The following parts can block removal/replacement. Ensure they are all held clear of their cams.

a. Selector Clutch Stop Arm/Latch Lever/Stop Arm Bail.
b. Push Lever Reset Bail.
c. Trip Shaft Operating Lever.
d. Selector Clutch Latch Lever.

NOTE: Remove marking lock lever spring. Push marking lock lever toward front of machine, insert straightened paper clip in hole forward of guide plate to hold selector levers and marking lock lever away from their cams. The push lever reset bail must be lifted upward and to the left, or inboard.

15. Remove selector clutch cam sleeve assembly.

CAUTION: If the cam sleeve assembly does not come out easily, recheck item 14 above.

NOTE: Grasp the clutch cam disc, rotate CCW and pull gently outward while holding clear all items in 14 above. DO NOT FORCE.

16. Remove Selector Clutch Drum from assembly.
17. Remove Selector Mechanism (Use instructions contained in NAVSHIPS 0967-173-6020, Volume 2, ISS-3, Section 573-115-702.) Page 7, remove 4 wires on selector magnet A1-A4.

NOTE: When reassembling ensure mounting plate (152400) is between bracket (170118)

18. Remove retainer plate on type box clutch.

CAUTION: When reassembling, ensure retainer plate slot is aligned with correctly.

19. Remove type box clutch drive link.
20. Remove 11 springs from trip levers and latch levers, code bar clutch cam follower arm and trip shaft operating lever across rear and bottom of type
21. Remove function clutch eccentric follower arm.
22. Remove right and left main shaft bearing retainers that hold main shaft bearings to the side frames.
23. Remove left retainer from its bearing.
24. Remove right main shaft bearing collar screw and slide collar off shaft.
25. Move main shaft to left to free code bar clutch eccentric follower arm from its pin and clear left/right main shaft bearings from side frames.

    NOTE: Rotating rocker shaft top to the rear and locking it in place with a screwdriver blade at the right side between rocker shaft and the base of the code bar shift bar retaining plate will aid removal of main shaft.

26. Remove main shaft.

    CAUTION: All trip levers and latch levers to the rear.
    DO NOT USE FORCE

27. Remove the following clutch assemblies from the Main Shaft:

    a. Code bar clutch assembly
    b. Function clutch assembly
    c. Spacing clutch assembly
        1. Disassemble the spacing clutch assembly
        2. Reassemble the spacing clutch assembly
        3. Adjust spacing clutch shoe lever section 573-115-700, page 28 All clutches (set at .075)

    NOTE: Refer to the exploded view contained in NAVSHIPS 0967-073-6030, Volume 3, ISS-2, Section 573-115-800, Page 26-27.

Reassembly Note: It should be noted that when assemblying clutches having cams and discs marked "O" for identification, the marked side of the parts should face away from the clutch side of the assembly. The function and CB clutches should have their driving links assembled so that the longer end of the hub faces away from the clutch side of the assembly.

STUNT BOX:

28. Remove rear tie bar from the typing unit side frames.
29. Remove retaining ring from cam shift drive arm.
30. Remove the screws (2) which secure the stunt box assembly.
31. Lift the stunt box assembly upward and pull toward rear gently. Ensure LF stripper is clear.

Reassembly Note: When replacing stunt box you will feel pressure when box has about 1/4 inch to go at this time. Strip off ALL selected function pawls. Ensure CR slide arm is free and stripper bail arm is in LF function pawl stripper.

32. Clean thoroughly, inspect for worn parts, replace as necessary.
33. Replace assemblies in reverse order, observing caution points. DO NOT FORCE ANY PART(S). When machine is completely assembled, continue by making the following adjustments.

JOB STEPS				PAGE
_____	_____	34.	SELECTOR CLUTCH DRUM	15
_____	_____	35.	SPACING GEAR PHASING (B)	30
_____	_____	36.	SPACING CLUTCH SHOE LEVER	28
_____	_____	37.	LINE FEED CLUTCH PHASING	31
_____	_____	38.	STRIPPER BLADE DRIVE CAM PHASING	62
_____			PRELIMINARY CHECK	

Run machine under power at least 10 minutes, recheck adjustments, place name on board for final.

NOTE 1: AFTER PRELIMINARY CHECK, REFINE ADJUSTMENTS, RUN MACHINE AND OBTAIN A MINIMUM OF 80 POINTS OF RANGE, USING THE LINE TD. IF RANGE DOES NOT MEET STANDARD, REFINE ITEMS ON JOB SHEET 1 AND THE CODE BAR CLUTCH TRIP LEVER ON JOB SHEET 2. Prior to placing name on board for final, re-check all adjustments on Job Sheet 3 and 4.

_____ Final Check

JOB SHEET 3-1-1J

KEYBOARD

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected adjustments in the keyboard, counter and signal generator mechanisms.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-4, Section 573-117-700

JOB STEPS

NOTE: Perform both preliminary and final. Final done under power after preliminary check.

_____ _____ 8. LOCK BALL-END PLAY (PRELIMINARY) 12
(FINAL) 14

_____ _____ 9. CODE BAR BAIL & NON-REPEAT LEVER CLR 11

CAUTION: Ensure non-repeat lever crank ROTATES freely AFTER TIGHTENING LOCK NUT.

_____ _____ 10. UNIVERSAL BAIL LATCH LEVER (PRELIMINARY) 13

NOTE: These machines NOT equipped for repeat space operation.

_____ _____ 11. UNIVERSAL BAIL EXT. 13

CAUTION: Ensure non-repeat lever is not inadvertantly held down.

_____ _____ 12. INTERMEDIATE GEAR BRACKET, REQ 2 27

CAUTION: There must be some backlash yet gears must mesh. Turn motor by hand to ensure meshing without binding.

NOTE: By holding the motor flywheel stationary and gently rotating Intermediate Driven Gear back and forth, feel for barely preceptible backlash.

_____ _____ 13. CLUTCH TRIP MAGNET, REQ A, B, & C 40

_____ _____ 14. CONTACT GAP 41

_____ _____ 15. CLUTCH TRIP DELAY 57

STOP: HAVE PRELIMINARY CHECK BEFORE APPLYING POWER. DO NOT DO ADJUSTMENTS 16, 17 and 18 UNTIL AFTER PRELIMINARY.

_____ PRELIMINARY CHECK

_____ _____ 16. CHARACTER COUNTER END-OF-LINE SWITCH (Req 1 & 2) 33

NOTE: Set for 66, 67, or 68th character to light lamp.

CAUTION: Use actual count & check under power after prelimina check.

_____ _____ 17. STOP LEVER 32

CAUTION: Lock screw must be loc[illegible] prior to rotating the eccentric.

_____ _____ 18. CHARACTER COUNTER SE[illegible] 34

Run machine under [illegible] 0 minutes. Check and refine all adjustments. [illegible]ce name on board for final.

_____ Final Check

JOB SHEET 4-1-1J

DISASSEMBLY AND REASSEMBLY OF THE PERFORATOR

INTRODUCTION

This Job Sheet will aid you in becoming proficient in disassembling and reassembling the perforator, a requirement for preventive and operational maintenance.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-1, Section 573-139-702, ISS-7, Section 573-117-700, pages 20-22. (Marked with an asterisk), Section 573-139-700

JOB STEPS

1. Remove three large screws holding perforator to base.
2. Remove small anchor screw holding the punch train assembly to the base.
3. Loosen perforator shaft coupling and slide to rear of shaft.
4. Lift perforator off base.

   CAUTION: Be careful not to break the backspace wires.

5. Remove backspace magnet wires.
6. Remove two screws holding ribbon mechanism.
7. Remove backspace mechanism guard.
8. Remove bearing retainer in rear of main shaft.
9. Remove C clamp holding drive link latch and remove latch and spring.
10. Loosen locking nut, and screw going through backspace eccentric, and main shaft.
11. Slide eccentric assembly off the hub.
12. Remove locking nut and screw, and remove the hub.

    Reassembly Note: It should be noted that when replacing the eccentric assembly back on the hub the notch on the eccentric arm must be up.

13. Remove function clutch latch lever spring.
14. Remove spring post.
15. Remove clutch release lever spring.

16. Remove reset lever, function clutch lever, function clutch stop lever, and clutch release lever.
17. Remove screw holding cam assembly to perforator main shaft.
18. Remove screw from function clutch drum.
19. Remove retaining clamp from front of main shaft.
20. Remove spacers and spring washer.
21. Remove main shaft by pushing toward the rear.

CAUTION: Place perforator on top of clean handi-wipe. Forty needle bearings will fall out, be absolutely sure that you have forty needle bearings when you reinstall main shaft.

Reassembly Note: To keep needle bearings in place when reinstalling main shaft, put a layer of grease around both bearing surfaces, and place each needle bearing in place one at a time. Rotate main shaft very gently, and insert from rear. The grease should keep the forty needle bearings in place till the main shaft is completely reinstalled with the cam assembly over the bearing surfaces.

22. Remove function clutch aseembly.
23. Remove rocker arm spring.
24. Remove two screws holding backspace magnet bracket, and remove bracket.

CAUTION: If you have a long and a short screw be sure you put the long screw on top and the short screw on the bottom. A long screw in the bottom will screw into the magnet coils an and you will have 115 volts AC on the base of the machine.

25. Remove punch slide latch springs.
26. Remove lock nut screws holding punch mechanism to frame.

NOTE: It should be noted that there are 2 hex screws, and 1 round head screw. Your round head screw is in the upper right hand side of the perforator. The other hex head is at the bottom of the perforator. DRIVE LINK MUST BE LIFTED UP TO FREE IT FROM STUD ON THE ROCKER ARM.

Reassembly Note: Ensure punch slide reset bail is in notch of punch slide reset bail trip lever.

27. Remove punch mechanism.
28. Remove typewheel.

CAUTION: DO NOT LOOSEN BUSHING INSIDE TYPEWHEEL.

Reassembly Note: When replacing typewheel, place the character "T" straight up, with the typewheel in figures position.

29. Loosen axial output rack guide roller and move to left when looking from rear.
30. Remove nut holding axial sector.

Reassembly Note: When replacing this nut you must use your 1/4 inch open end wrench to hold bottom of shaft with threads or whole shaft will turn and you will not be able to tighten nut properly.

31. Push typewheel shaft to rear disengaging axial sector.
32. Remove axial sector and typewheel shaft.

Reassembly Note: Refer to NAVSHIPS 0967-173-6020, Volume 2, ISS-1, Section 573-139-702, Page 3. For the reassembly of the axial sector, axial output rack, and the typewheel shaft BE SURE THAT THE PROPER TEETH OF THE AXIAL SECTOR ARE MESHING WITH CORRECT TEETH ON THE AXIAL OUTPUT RACK, AND THE TYPEWHEEL BEFORE YOU MOVE THE OUTPUT RACK GUIDE ROLLER BACK INTO PLACE, OR WHOLE PRINTING MECHANISM WILL BIND, AND YOU MAY BEND OR BREAK SOME PARTS.

33. Replace assemblies in reverse order, observing caution points. DO NOT FORCE ANY PART(s). When perforator is completely assembled, continue by making the following adjustments.

			PAGE
____	____	34. MOUNT PERFORATOR	
____	____	35. PERFORATOR ALIGNMENT (Req. 1 and 2)	20*
____	____	36. CODE BAR EXTENSION AND PUNCH SLIDE LATCH. Put in center prior to getting perforator alignment.	
____	____	37. RESET ARM (B)	9
		Disregard arrow going up and to the left from (3). Ensure screw is tight.	
____	____	38. FUNCTION CLUTCH TRIP LEVER (A)	9
____	____	39. MAIN TRIP LEVER (A)	10
____	____	Hold reset bail (right edge) up by hand.	
____	____	40. RELEASE DOWNSTOP BRACKET	51

PAGE

_____ _____ 41. AXIAL OUTPUT RACK GUIDE ROLLER 45

NOTE: When maladjusted, random printing occurs when repeat key is fully depressed.

42. Perforator Position - Requirement one only 12

_____ Preliminary Check

Run machine under power at least 10 minutes, recheck adjustments, place name on board for final check.

_____ Final Check

PERFORATOR

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the typing perforator.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-1, Section 573-139-700, Section 573-117-700, pages 21-24 (Marked with an asterisk).

JOB STEPS			PAGE
_____	_____	1. ROCKER BAIL	7
		NOTE: Instructions written from front view. Ensure adjustment is correct prior to proceeding.	
_____	_____	2. TOGGLE OPERATING ARM (B)	13
		NOTE: This adjustment must be correct prior to proceeding on. Any change to this adjustment and you must recheck adjustments 6, 7, & 8 on this Job Sheet and 1, 2, & 3 on Job Sheet 4-2-1J.	
_____	_____	3. CODE BAR BAIL (B)	21*
_____	_____	4. PERFORATOR CLUTCH RELEASE TRIP	23*
		NOTE: Clearance will be lost when adjustment completed.	
_____	_____	5. CODE BAR EXTENSION BLOCKING ASSEMBLY	24*

JOB STEPS PAGE

____ ____ 6. PUNCH SLIDE DOWNSTOP POSITION (A) 14

CAUTION: There MUST be clearance before putting machine under power. A slight drag will prevent punch slides from going to the left. No clearance can cause damage.

____ ____ 7. PUNCH PIN PENETRATION (B) 14

NOTE: Left edge of punch pins, looking at machine from the front, not left side of picture. Measure at lips of retractor bail guide plate. Inability to meet requirement will, in most cases, require readjustment of item 6 and 7.

CAUTION: Clearance must be checked without tape in punch block.

____ ____ 8. PUNCH SLIDE GUIDE POSITION (C) 14

NOTE: This adjustment must be made prior to preliminary.

____ ____ 9. LATCH LEVER CLEARANCE 17

NOTE: Position indent of eccentric shaft at 11 o'clock prior to preliminary.

Disregard note in middle of page. Inability to meet this requirement will, in most cases, require readjustment of item 6.

STOP: HAVE PRELIMINARY CHECK

_____ PRELIMINARY CHECK

AFTER RECEIVING PRELIMINARY CHECK, RUN MACHINE FOR 10 MINUTES. REFINE ALL ADJUSTMENTS. PLACE NAME ON BOARD FOR FINAL.

_____ Final Check

you d[illegible] maki[illegible] selected
[illegible] in the typing [illegible] of.

[illegible]er Set

[illegible] Vol, [illegible] Sal, [illegible]ion [illegible]-139-[illegible]

PERFORATOR

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the typing perforator.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-1, Section 573-139-700.

JOB STEPS			PAGE
_____	_____	1. FUNCTION BOX	35
		CAUTION: Read Note 1 center of page. Check position of bell crank spring bracket.	
		NOTE: Work items 2 and 3 together	
_____	_____	2. TRANSFER MOUNTING BRACKET	36
		CAUTION: DO NOT measure at LTRS/FIGS Bell Crank. Observe caution point following "To Adjust."	
		NOTE: To check yield requirement, measure bell crank that yields most. Check by selecting blanks and in the reset condition.	
_____	_____	3. PUSH BAR OPERATING BLADE (FINAL)	33
		NOTE: Req. 1, 2, and 3 apply. In this school, it is only necessary to depress key to trip clutch. Measure throughout entire cycle at closest point. Using screwdriver to adjust pry point from the rear or perforator will aid in this adjustment.	
_____	_____	4. ROCKER BAIL PILOT STUD (A)	34
_____	_____	5. LTRS - FIGS YIELD ARMS	37-38
		CAUTION: Ensure spring bracket post is tight.	
		NOTE: Advisable to check for shift as a preliminary [illegible] clearance.	

JOB STEPS				PAGE
_____	_____	6.	LIFTER ARM (A)	39
_____	_____	7.	LIFTER ARM ECCENTRIC SCREW (B)	39

NOTE: READ INSTRUCTIONS CAREFULLY. Diagram shows clearance under both blades, which is misleading. Measure at function blade which is closest to bell cranks. High part of eccentric to left (rear view) for best results.

_____	_____	8.	LOCK LEVER (A)	40

NOTE: Move toggle linkage through point shown by manually moving with finger. Instructions writtern from front view.

_____	_____	9.	OSCILLATING BAIL DRIVE LINK	43
_____	_____	10.	LOCK LEVER TRIP POST	41

NOTE: Lifter roller should not have more than a slight amount of movement after dropping onto dwell surface. Instructions written from front view.

_____	_____	11.	OSCILLATING BAIL PIVOT	43
_____	_____	12.	AXIAL CORRECTOR (YIELDING)	47

CAUTION: Must be fully corrected before or at the same instant printing occurs.

NOTE: Grasping typewheel between thumb and forefinger, gently push/pull typewheel, is one method of adjustment.

_____	_____	13.	ROTARY CORRECTING LEVER	48-49

CAUTION: MUST be fully corrected before or at the same instant printing occurs.

STOP: Have Preliminary Check

JOB STEPS PAGE

_____ PRELIMINARY CHECK

After receiving preliminary check, run machine for 10 minutes. Refine all adjustments. Place name on board for final.

_____ Final Check

PERFORATOR

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the typing perforator.

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6020, Vol. 2, ISS-1, Section 573-139-700

JOB STEPS

			PAGE
_____	_____	1. RAKE (Req. 2 only)	57
		CAUTION: Bell crank handle depressed until left edges of both plates are approximately in line with vertical plane of punch block. Does NOT have to be flush.	
_____	_____	2. FEED PAWL ADJUSTING PLATE (B)	57
_____	_____	3. RETURN LATCH (A)	58
_____	_____	4. FEED PAWL DISABLING (Check Only)	60
_____	_____	5. DRIVE ARM (A) (Backspace mech)	62
_____	_____	6. MAGNET POSITION (C)	66
_____	_____	7. RIBBON CARRIER	50
_____	_____	8. DRIVE ARM (Ribbon mech)	55
_____	_____	9. PRINTING TRIP LINK	52
_____	_____	10. TYPEWHEEL (A)	53

CAUTION: Read notes carefully.

NOTE: Right and left vertical bars of letter "M" will be of same darkness when correct.

JOB STEPS

____ ____ 11. PRINT HAMMER ...

CAUTION: Positioning print hammer ... right will cause it to strike feed ... both excessieely.

NOTE: Gauge adjustments ... when under power.

STOP: Have Preliminary ... after ... ving preliminary check, run machine ... 10 minutes. Refine ALL adjustments. Place name on board ... final.

_____ Preliminary Check

_____ Final Check

TRANSMITTER-DISTRIBUTOR

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected mechanical adjustments in the transmitter-distributor (TD).

EQUIPMENT

AN/UGC-6K Teletypewriter Set
Tool Kit

REFERENCE

NAVSHIPS 0967-173-6-20, Vol. 2, ISS-1, Section 573-127-730TC

JOB STEPS

PAGE

NOTE: Preliminary check will be a final for all items except 5, 8, and 15.

_____ _____ 1. CLUTCH TRIP LEVER (B) 6

NOTE: Rough in adjustment so clutch will latch up and can then be tripped to obtain clearance.

_____ _____ 2. TAPE LID 8

NOTE: Read ALL instructions carefully prior to beginning this adjustment. With top plate removed, tape lid can be slid off shaft. When tape lid closed and upward pressure applied, tape lid will have little or no movement.

_____ _____ 3. TAPE GUILD

STOP: Have instructor check above items for final, before proceeding.

_____ _____ 4. TAPE GUIDE PLATE (Req. 1, 2, and 3) 11

NOTE: Recommend top plate be mounted and secured while doing this adjustment. After obtaining requirements, remove top plate prior to preliminary check.

Item 5 should be done while accomplishing this step.

JOB STEPS PAGE

____ ____ 5. TOP PLATE (Req. 1, 2, and 3) 12

NOTE: Clearance required should be obtained in conjunction with item 4. This precludes difficulty prior to final. Do NOT secure mounting screws, top plate will be removed for preliminary and mounted for final.

____ ____ 6. TAPE OUT CONTACT ASSEMBLY 14

CAUTION: CHECK Req. 2 only. Notify instructor if adjustment is necessary.

____ ____ 7. TAPE OUT SENSING PIN 15

NOTE: Req. #1. No clearance should exist between sensing pin stop arm and tape out sensing pin extension.

When properly adjusted tape out sending pin will be .010 under flush or flush in the free wheeling and stop position.

____ ____ 8. TIGHT TAPE INTERMEDIATE ARM 19

NOTE: Checked by gauge on preliminary, MUST operate under power.

To check under power, put a piece of tape over tape out sensing pin, slide gauge under tight tape bail.

____ ____ 9. MAIN BAIL (D) 20

NOTE: Clutch engaged. Sensing pins in lowest position.

____ ____ 10. FEED WHEEL DETENT (B) 21

CAUTION: "Lightly" in the directions means "ever so lightly".

NOTE: "TO CHECK" directions may be confusing. "Sensing pins in their lowest position" is interpreted to mean "clutch disengaged, normal stop position."

____ ____ 11. FEED PAWL (A) 22

JOB STEPS			PAGE
____	____	12. MAIN BAIL TRIP LEVER (C)	20
____	____	13. TRANSFER BAIL STABILIZER (A)	25
		NOTE: Req. 1 and 2 apply. Select "Y" for this adjustment.	
____	____	14. CLUTCH MAGNET ASSEMBLY	7
		NOTE: Req. 3 only	
____	____	15. COVER PLATE (Req. 1, 2, and 3)	13
		STOP! HAVE PRELIMINARY CHECK	
		Preliminary will be final except for items 5, 8, and 15. Top and cover plates to be removed for preliminary. After receiving preliminary put under power, recheck items 5, 8, and 15, place name on board for final.	
_____		Preliminary Check	
_____		Final Check	

JOB SHEET 8-2-1J

AN/UGC-20

DISASSEMBLY/REASSEMBLY THE DISTRIBUTOR

INTRODUCTION

This job sheet will aid you in becoming proficient in disassembly and reassembly of the AN/UGC-20 distributor mechanism.

EQUIPMENT

AN/UGC-20A Teletypewriter
Tool Kit

REFERENCE

NAVSHIPS 0967-059-9010, Section 573-116-705, Section 573-116-703

JOB STEPS

1. Disconnect AC/DC plugs from power source.
2. Remove cover.
   a. Open dome and window door
   b. Disconnect copy lamp plug
   c. Disengage cover latches, lift cover carefully
3. Remove automatic typer.
4. Remove clutch magnet bracket secured by 2 screws left end.
5. Remove distributor block secured by 3 screws at the front of the block.
6. Remove nut from left end distributor shaft.
7. Remove drive gear. NOTE: DO NOT ATTEMPT TO REMOVE IDLER GEAR.
8. Remove screw and bearing retainer from left end of distributor shaft.
9. Remove 2 screws and bearing retainer from right end of distributor shaft.
10. Remove screw from Distributor Clutch.
11. Push distributor shaft to the right to remove clutch and cam sleeve.

    CAUTION: DO NOT DAMAGE FOLLOWER LEVER SPRINGS.

12. Pull cam sleeve GENTLY to front-left of the distributor to prepare for removal.
13. Place screwdriver in right end of distributor frame, to the rear of the follower levers.
14. Move and hold follower levers to the front while carefully sliding the cam sleeve off the distributor shaft, out of the machine.

JOB STEPS

STOP: HAVE PRELIMINARY CHECK.

_____ Upon completion of preliminary check, reassemble in reverse order up to and including item 4. Place name on board for final.

_____ Final Check

KEYBOARD TRANSMITTER AND DISTRIBUTOR ADJUSTMENT

INTRODUCTION

This job sheet will aid you in becoming proficient in making selected adjustments in the keyboard transmitter and distributor.

EQUIPMENT

AN/UGC-20A Teletypewriter
Tool Kit

REFERENCE

NAVSHIPS 0967-059-9010, Section 573-116-703

JOB STEPS			PAGE
_____	_____	1. KEYBOARD TRANSMITTER POSITIONING	8
		NOTE: CHECK ONLY. Repeat keylever should strike plunger on microswitch.	
_____	_____	2. RESET SOLENOID POSITION	7
_____	_____	3. RESET ARM	7
		NOTE: Holding right end of keyboard transmitter up/away from workbench will aid in making this adjustment.	
		CAUTION: Plunger must be held as far to the right as possible to avoid maladjustment.	
		Observe caution point following "To adjust."	
_____	_____	4. CLUTCH TRIP ARMATURE AIR GAP	9
		Read note following "To Adjust "	
_____	_____	5. CLUTCH TRIP LEVER	9
		NOTE: This adjustment to be made in conjunction with item 6.	
_____	_____	6. ARMATURE EXTENSION	9
_____	_____	7. CLUTCH STOP ARM	10
		Read note following "To adjust."	

JOB STEPS			PAGE
_____	_____	8. CLUTCH SHOE LEVER	10
	CHECK ONLY:	Observe note following "To adjust."	
_____	_____	9. CAM FOLLOWER GUIDE	10
	CAUTION:	Follower levers must ride fully on the cams when moved from side to side. Insure bracket is as far to rear as possible, and aligned parallel with frame.	
		See Note 2 in Technical Manual.	
_____	_____	10. CODE LEVEL CONTACT GAPS NOTE: CHECK ONLY	12
_____	_____	11. CLUTCH TIMING CONTACT GAP	13
	NOTE:	Disengage clutch. Back screw until some clearance visible, then turn back in until contact closed. Complete after preliminary.	
_____	_____	12. SOLENOID CONTACT GAP (SET at .020 to .030)	13
_____	_____	13. TYPING UNIT BACKLASH NOTE: CHECK ONLY	18
_____	_____	14. MOTOR PINION BACKLASH NOTE: CHECK ONLY. Ensure motor is all the way to the front.	18
_____	_____	15. DISTRIBUTOR GEAR BACKLASH NOTE: CHECK ONLY	20
_____	_____	16. REPLACE KEYBOARD TRANSMITTER	
	CAUTION:	Ensure reset solenoid wires are not in contact with the frame.	
	STOP:	HAVE PRELIMINARY CHECK	
_____		Preliminary Check	
		After receiving preliminary check, complete items 11 and 12. Recheck all adjustments and place on board for final.	
_____		Final Check	