

REPRODUCTION

• RIPPLE PRINT •

A. PURPOSE

1. TO PRINT EVERY PRINTABLE CHARACTER IN EVERY PRINT POSITION.
2. TO TEST THE UNPRINTABLE CHARACTERS AND BLANK IN EVERY PRINT POSITION.
3. IF PRINTING STARTS WITH HOME PULSE, THIS TEST WILL INDICATE THE SUB-SCAN AND CHARACTER THAT FAILED.

B. LOADING PROCEDURES

1. PLACE TEST DECK IN 1402 READ HOPPER AND DEPRESS LOAD KEY.
2. WHEN RUNNING FROM TAPE, ENTER A 1 IN 1261.

C. PROGRAM CONTROL

1. CHECKING PROCEDURE

TO INDICATE THE SUB-SCAN AND CHARACTER THAT FAILED, TIE THE HOME TRIGGER OUTPUT TO THE SWITCH CONDITION WHICH TURNS OFF PRINT-READY TRIGGER. NO-OP INSTRUCTION 454 TO ELIMINATE THE HEADING PRINT OUT.

2. SENSE SWITCHES

- B ON FOR SCOPING LOOP
OFF TO CONTINUE
- D ON TO REPEAT SECTION OF TEST
OFF TO CONTINUE

D. TEST PROCEDURE

1. THE 48 CHARACTER FIELD IS EXPANDED INTO A 192 CHARACTER FIELD IN MEMORY. A MOVE INSTRUCTION IS MODIFIED SO THAT EACH SUCCESSIVE LINE OF PRINT IS SHIFTED ONE POSITION TO THE LEFT (RIPPLED). AFTER EACH OF THE 48 CHARACTERS HAS BEEN PRINTED IN EACH PRINT POSITION, THE TEST CONTINUES.
2. THE 18 CHARACTER FIELD CONSISTING OF: 12 UNPRINTABLE SPECIAL CHARACTERS, 3 PRINTABLE SPECIAL CHARACTERS, AND 3 BLANKS IS RIPPLED THROUGH 18 LINES AS IN PART 1.
3. WHEN TEST IS USED TO INDICATE SCAN OR SUB-SCAN, WIRE THE MACHINE TO START PRINTING AT HOME PULSE AND RE-START PROGRAM IN LOCATION 455 TO REPEAT THE FIRST SECTION OF THE TEST.

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|---------------|--------|---------|------------|--|--|--|--|
| DATE | 2-2-61 | 6-29-63 | 17. 10. 63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | TA 1976 | | | | |

3. (CONTINUED)

REPRODUCTION

THE RIPPLE PRINT IS SET UP SO THAT ONE CHARACTER IS PRINTED DURING EACH SUB-SCAN. REFERING TO LINE 1 IN THE SAMPLE PRINT OUT THE 1 PRINTS IN POSITION 1 ON SCAN 1 SUB-SCAN 1, THE 2 PRINTS IN POSITION 2 ON SCAN 1 SUB-SCAN 2, THE 3 PRINTS IN POSITION 3 ON SCAN 1 SUB-SCAN 3, THE 4 PRINTS IN POSITION 4 ON SCAN 2 SUB-SCAN 1, ETC. UNTIL ALL 132 POSITIONS HAVE PRINTED DURING SCANS 1 THROUGH 44. THE SECOND LINE PRINTS DURING SCANS 2 THROUGH 45. THE THIRD LINE PRINTS DURING SCANS 3 THROUGH 46, ETC.

THE HEADING NUMBERS INDICATE SCANS FOR PRINTING CHARACTERS IN LINE1. EXAMPLE: PRINT POSITIONS 79,80 AND 81 WILL PRINT P,Q AND R ON SCAN 27 SUB-SCANS 1,2 AND 3 RESPECTIVELY.

A PRINT CHARACTER AND SCAN CHART IS INCLUDED TO IDENTIFY THE SCAN THAT EACH CHARACTER PRINTS FOR EACH OF THE 48 LINES WHEN PRINT START IS TIED TO THE HOME PULSE TRIGGER.

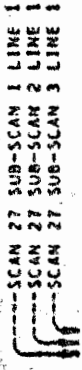
E. STOPS

THERE ARE NO PROGRAMMED STOPS IN THIS TEST

| | | | | | | | |
|---------------|--------|---------|------------|--|--|--|--|
| DATE | 2-2-61 | 6-29-63 | 17. 10. 63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | TA 1976 | | | | |

DIAGNOSTIC FUNCTION TEST
REPRODUCTION

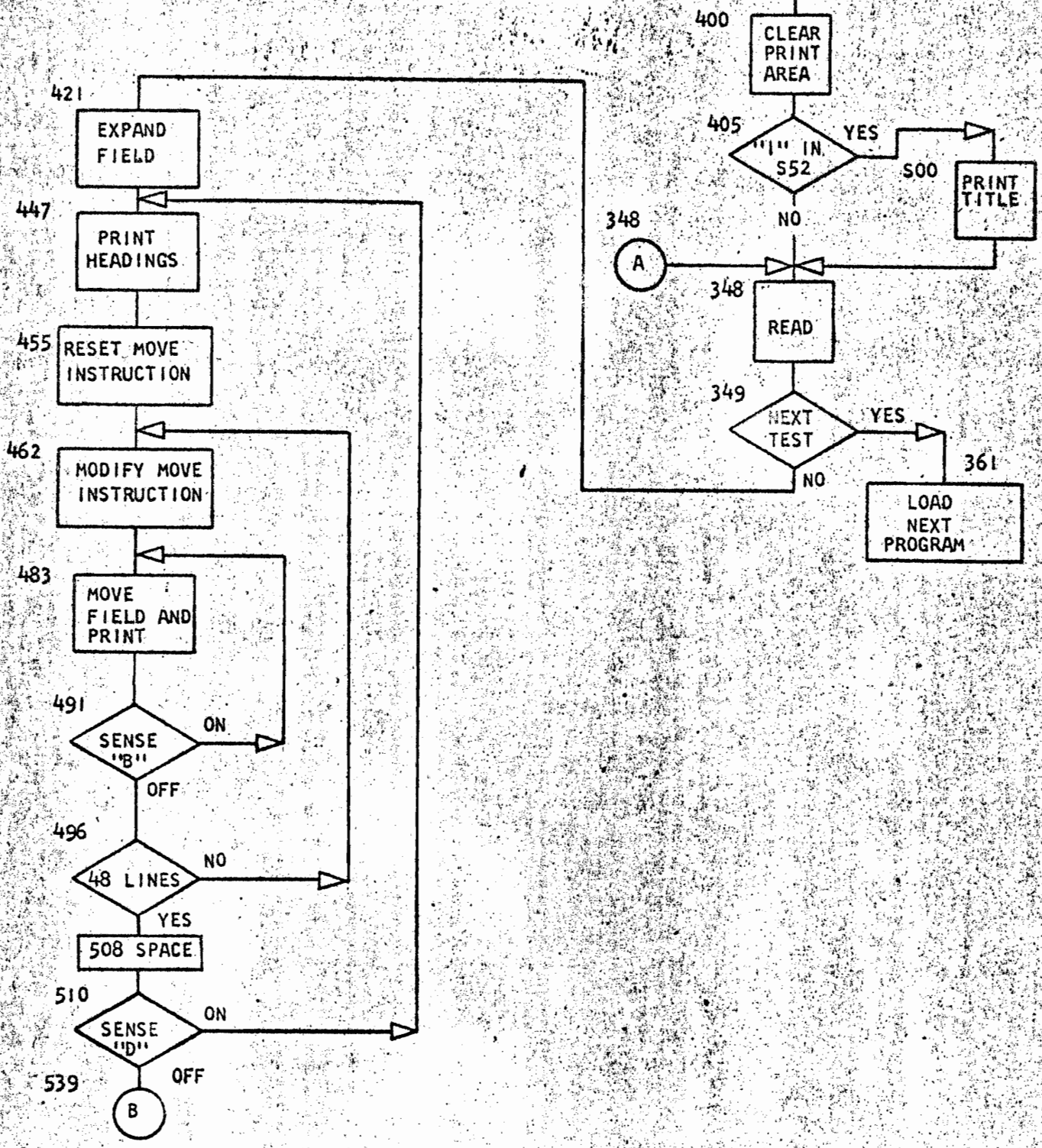
PRINT CHARACTER AND SCAN CHART WITH PRINT START TIED TO HOME PULSE.



---SCAN 1 SUB-SCAN 1 LINE 1
---SCAN 1 SUB-SCAN 2 LINE 1
---SCAN 1 SUB-SCAN 3 LINE 1
12345678908/STUVWXYZ, 8JKL MNPQR-8 ABCDEF GHI. 012345678908/STUVWXYZ, 8JKL MNPQR-8
2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044-1045-1046-1047-1048-1049-1050-1051-1052-1053-1054-1055-1056-1057-1058-1059-1060-1061-1062-1063-1064-1065-1066-1067-1068-1069-1070-1071-1072-1073-1074-1075-1076-1077-1078-1079-1080-1081-1082-1083-1084-1085-1086-1087-1088-1089-1090-1091-1092-1093-1094-1095-1096-1097-1098-1099-1100-1101-1102-1103-1104-1105-1106-1107-1108-1109-1110-1111-1112-1113-1114-1115-1116-1117-1118-1119-1120-1121-1122-1123-1124-1125-1126-1127-1128-1129-1130-1131-1132-1133-1134-1135-1136-1137-1138-1139-1140-1141-1142-1143-1144-1145-1146-1147-1148-1149-1150-1151-1152-1153-1154-1155-1156-1157-1158-1159-1160-1161-1162-1163-1164-1165-1166-1167-1168-1169-1170-1171-1172-1173-1174-1175-1176-1177-1178-1179-1180-1181-1182-1183-1184-1185-1186-1187-1188-1189-1190-1191-1192-1193-1194-1195-1196-1197-1198-1199-1200-1201-1202-1203-1204-1205-1206-1207-1208-1209-1210-1211-1212-1213-1214-1215-1216-1217-1218-1219-1220-1221-1222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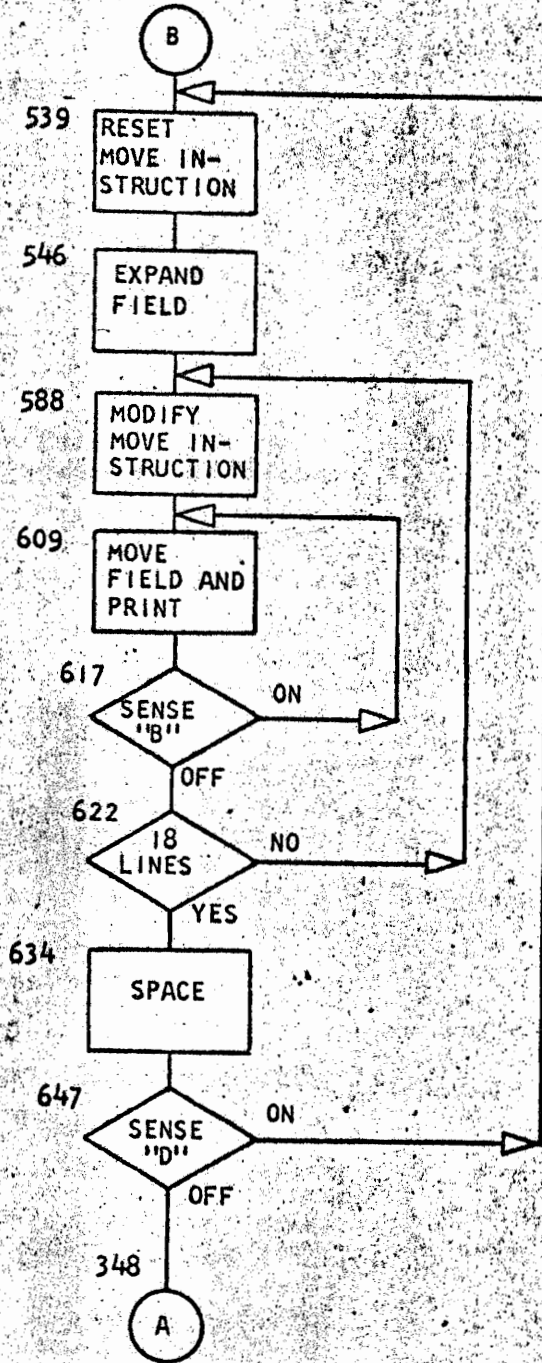
DIAGNOSTIC FUNCTION TEST REPRODUCTION

RIPPLE PRINT FLOW CHART



| | | | | | | | |
|---------------|--------|---------|----------|--|--|--|--|
| DATE | 2-2-61 | 6-29-63 | 17.10.63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | 741976 | | | | |

REPRODUCTION



| | | | | | | | |
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| DATE | 2-2-61 | 6-29-63 | 17. 10. 63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | TA 1976 | | | | |

REPRODUCTION

PROGRAM LISTING FOR USE WITH FLOW CHART

RIPLLE PRINT

10208

INSTRUCTION

| ADDRESS | OP | A | B | REMARKS |
|---------|-----|---|----------|---------------------------------------|
| 377 | 377 | B | 400 5611 | USE WHEN TESTS ARE RUN FROM TAPE |
| 385 | 385 | B | 588 | .. |
| 400 | 400 | / | 332 | START TEST |
| 404 | 404 | / | | .. |
| 405 | 405 | B | 500 5521 | BR TO TITLE PRINT ROUTINE IF 1 IN S52 |
| 413 | 413 | / | 080 | CLEAR READ AREA |
| 417 | 417 | B | 421 | BRANCH TO PROGRAM |
| 421 | 421 | / | 192 | EXPAND FIELD |
| 425 | 425 | / | | .. |
| 426 | 426 | L | 712 #48 | .. |
| 433 | 433 | M | #48 #96 | .. |
| 440 | 440 | M | #96 192 | .. |
| 447 | 447 | L | 973 332 | LOAD HEADING AND PRINT |
| 454 | 454 | 2 | | NO-OP TO ELIMINATE PRINT C FOR TA |
| 455 | 455 | M | 658 486 | RESET MOVE INSTRUCTION |
| 462 | 462 | M | 486 733 | MODIFY INSTRUCTION |
| 469 | 469 | A | 469 733 | .. |
| 476 | 476 | M | 733 486 | .. |
| 483 | 483 | M | 131 332 | *LOAD PRINT AREA |
| 490 | 490 | 2 | | PRINT |
| 491 | 491 | B | 483 B | B ON TO SCOPE SS |
| 496 | 496 | C | 733 661 | TEST FOR 48 LINES |
| 503 | 503 | B | 462 / | .. |
| 508 | 508 | F | J | SPACE |
| 510 | 510 | B | 447 D | D ON TO REPEAT SS |
| 515 | 515 | B | 539 | BRANCH TO CONTINUE |
| 539 | 539 | M | 658 612 | RESET MOVE INSTRUCTION |
| 546 | 546 | Y | 421 729 | EXPAND FIELD |
| 553 | 553 | L | 730 #18 | .. |
| 560 | 560 | M | #18 #36 | .. |
| 567 | 567 | M | #36 #72 | .. |
| 574 | 574 | M | #72 144 | .. |
| 581 | 581 | M | #36 180 | .. |
| 588 | 588 | M | 612 733 | MODIFY INSTRUCTION |
| 595 | 595 | A | 595 733 | .. |
| 602 | 602 | M | 733 612 | .. |
| 609 | 609 | M | 131 332 | *LOAD PRINT AREA |
| 616 | 616 | 2 | | PRINT |
| 617 | 617 | B | 609 B | B ON TO SCOPE SS |
| 622 | 622 | C | 733 664 | TEST FOR 18 LINES |
| 629 | 629 | B | 588 / | .. |
| 634 | 634 | F | J | SPACE |
| 636 | 636 | B | 647 | BRANCH TO CONTINUE |
| 647 | 647 | B | 539 D | D ON TO REPEAT SS |
| 652 | 652 | B | 348 | BRANCH TO CHAINING ROUTINE |

| | | | | | | | |
|---------------|--------|---------|----------|--|--|--|--|
| DATE | 2-2-61 | 6-29-63 | 17.10.63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | TA 1976 | | | | |

1401 DATA PROCESSING SYSTEM
DIAGNOSTIC FUNCTION TEST

REPRODUCTION

| | | | | | | | | | | | |
|-----|-----|-------|------------------|--|--|--|--|--|--|---------------|-----|
| 656 | 656 | / 31 | | | | | | | | CONSTANTS | |
| 659 | 659 | / 79 | | | | | | | | .. | |
| 662 | 662 | / 49 | | | | | | | | .. | |
| 665 | 665 | 1 234 | 567890#@/STUVWXY | | | | | | | .. | |
| 685 | 685 | Z +,% | JKLMNOPQR-S*ABCD | | | | | | | .. NO WM | |
| 705 | 705 | E FGH | I+.# | | | | | | | | |
| 713 | 713 | | + - | | | | | | | .. | |
| 731 | 731 | X XX | | | | | | | | .. | |
| 842 | 842 | 1 2 | 3 4 5 6 7 | | | | | | | .. | |
| 862 | 862 | 8 | 9 10 11 12 13 1 | | | | | | | .. NO WM | |
| 882 | 882 | 4 15 | 16 17 18 19 20 | | | | | | | | |
| 902 | 902 | 2 1 2 | 2 23 24 25 26 27 | | | | | | | | |
| 922 | 922 | 28 | 29 30 31 32 33 3 | | | | | | | | |
| 942 | 942 | 4 35 | 36 37 38 39 40 | | | | | | | | |
| 962 | 962 | 4 1 4 | 2 43 44 | | | | | | | | |
| 032 | 032 | | | | | | | | | CLEAR WM CARD | DNL |
| 032 | 032 | | | | | | | | | CLEAR WM CARD | DNL |
| 032 | 032 | | | | | | | | | CLEAR WM CARD | DNL |
| 032 | 032 | | | | | | | | | CLEAR WM CARD | DNL |

| | | | | | | | |
|---------------|--------|---------|----------|--|--|--|--|
| DATE | 2-2-61 | 6-29-63 | 17.10.63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | TA1976 | | | | |

REPRODUCTION

TABLE OF UNPRINTABLE CHARACTERS

| | | | | | |
|----------------------|--------|-----------------|--------|--------------|--------|
| LP-LEFT PARENTHESIS | 12 5 8 | SE-SEMICOLON | 11 6 8 | DE-DELTA | 11 7 8 |
| WS-WORD SEPARATOR | 0 5 8 | LT-LESS THAN | 12 6 8 | PZ-PLUS ZERO | 12 0 |
| TS-TAPE SEGMENT MARK | 0 7 8 | GT-GREATER THAN | 6 8 | TM-TAPE MARK | 7 8 |
| GM-GROUP MARK | 12 7 8 | MZ-MINUS ZERO | 11 0 | CO-COLON | 5 8 |
| RP-RIGHT PARENTHESIS | 11 5 8 | AP-APOSTROPHE | 0 6 8 | | |

| | | | |
|-------------------------------------------------------------------------|----------------------------------------|------------------------|----------|
| ,008015,022029,033033N | 1001 | RIPPLE PRINT | 1020B 0A |
| ,008015,022029,033033N | 1001 | SET WORDMARK CARD | 1020B 02 |
| L067367,340344,348349,3573611001,008012,00110011B361080AB421/340080 | | | 1020B 03 |
| L072416,385400,404405,41341710018400S611B588 | | /332/BS00S521/0801020B | 04 |
| L069453,421425,426433,4404471001B421//92/L712+48M+48+96M+96/92L973332 | | | 1020B 05 |
| L069490,455462,469476,48349010012M658486M486733A469733M733486M/313322 | | | 1020B 06 |
| L072530,496503,508510,5155151001B4838C733661B462/FJ8447DB539 | | | 1020B 07 |
| L068566M531531,539546,5535601001 | M658612Y421729L730*18M+18+36 | | 1020B 08 |
| L067601,574581,588595,6026021001M+36+72M+72/44M+36/80M612733A595733 | | | 1020B 09 |
| L066635,609616,617622,6296341001M733612M/313322B609BC7336648588/FJ | | | 1020B 10 |
| L072675,647652,656659,6626651001B647 | B539DB348/31/79/491234567890# | | 1020B 11 |
| L069712M676676,713713,7137131001M/STUVWXYZP, ZJKL MNOPQRMS*ABCDEFGHI&.M | | | 1020B 12 |
| | Z | Z | |
| L072752,731731,731731,7317311001CRWCP LSAGM GDTT XXX | | | 1020B 13 |
| | OPSQZ TEPTZ MESM | | |
| L072881,001001,001001,00100110011 | 2 3 4 5 6 7 8 9 10 11 12 13 11 | | 1020B 14 |
| L072921M882882,001001,00100110014 | 15 16 17 18 19 20 21 22 23 24 25 26 27 | | 1020B 15 |
| L072961M922922,001001,0010011001 | 28 29 30 31 32 33 34 35 36 37 38 39 40 | | 1020B 16 |
| L072+01M962962,001001,001001100141 | 42 43 44 | | 1020B 17 |
| L053S20,S01S05,S12S13,S17S2110012,049L0772772/2772421 | | | 1020B 18 |
| /333080N | | CLEAR WORDMARK CARD | 1020B 19 |
| ,019027,031,038042B031T98GB400L046352BW04BS88 | | RIPPLE PRINT | 1020B 20 |
| | M | | |

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|---------------|--------|---------|------------|--|--|--|--|
| DATE | 2-2-61 | 6-29-63 | 17. 10. 63 | | | | |
| ENG. CHG. NO. | 110378 | 117628 | TA 1976 | | | | |