

SAMA CONTROL RECORD
STEP-BY-STEP

Contents	Page
1. GENERAL	1
2. FORM P-5395 — DESCRIPTION.....	1
Front Side (Exhibit 1A).....	1
Back Side (Exhibit 1B).....	2
3. FORM P-5395 — USE.....	3
4. SETTING OBJECTIVES.....	3
5. SUPPLEMENTAL REGISTER READINGS	3

1. GENERAL

1.01 This appendix describes the SAMA Control Record, Form P-5395 for use in Step-by-Step (SXS) offices with Automatic Message Accounting (AMA) equipment.

1.02 It is reissued to:

- Renumber the Appendix to match the main section
- Change the Issue identifier to A due to renumbering of section.

Note: Marginal arrows used to designate changes are omitted.

1.03 Form P-5395 provides information not shown on the forms mentioned in the main section of the Controlled Maintenance Plan. It contains columns for recording register readings of service performance by equipment groups. The bottom three lines of the control record are arranged for entering partial and total objectives.

1.04 All plant registers should be read daily at approximately the same time of day. Use

Form E-4744, Register Readings, for recording the daily register readings. Compute the total registrations and enter them on Form P-5395. Do not record registrations on Plant records if you definitely know that the registrations are caused by testing the registers or the associated equipment. To obtain the number of registrations which are not recorded:

- (a) Read the registers involved before and after tests.
- (b) Subtract the difference between readings from the daily overall total.

1.05 The District Manager — Switching Operations may request additional copies of Form P-5395.

2. FORM P-5395 — DESCRIPTION

Front Side (Exhibit 1A)

2.01 *Column 1 — Stuck Sender Register (SSR):* The SSRs (two registers per sender group) record the number of senders that fail to complete their operations after sufficient digits are registered but before the sender timing interval expires. When this failure occurs, an audible and visual alarm may or may not react, depending on when the time-out occurs during the call. The total registrations of the SSRs are recorded in column 1.

2.02 *Column 2 — Second Trail Identifier Failure (IDST):* The IDST registers (one per recorder group) record the number of calls when a second identifier is connected and fails to complete its functions. The total registrations of the IDST register are recorded in column 2.

2.03 *Column 3 — Second Trail Transverter Trouble Record (TST):* The TST register (one per recorder group) records the number of service calls that use a second transverter and still encounter trouble. The total registrations of TST registers are recorded in column 3.

SECTION 226-020-510PT
APPENDIX 1

2.04 *Column 4 — Recorder and Recorder Connector Trouble Record (RTR):* The RTR registers record the number of service calls when a recorder or recorder connector encounters trouble and attempts to seize the trouble recorder. The total registrations of the RTR registers are recorded in column 4.

2.05 *Column 5:* Record the total time (subject to NBD outage measurement) to the nearest quarter hour of all equipment that was made busy during regular NBD.

2.06 *Column 6:* Record the total time (subject to NBD outage measurement) to the nearest quarter hour of all trunks that were made busy during regular NBD.

2.07 *Column 7 — Identifier Peg Count (IDPC):* The IDPC registers (one per identifier) record the number of times the identifier is seized. The total registrations of the IDPC registers are recorded in column 7.

2.08 *Column 8 — Transverter Peg Count (TVPC):* The PCI-Traffic registers (one per Transverter) record the number of times the transverter is seized. The total registrations of the PCI-registers are recorded in Column 8.

2.09 *Column 9 — Identifier Trouble Record (ITR):* The ITR registers (one per identifier) record the number of calls when the first identifier operates incorrectly and attempts to seize the trouble recorder. The total registrations of the plant ITR registers are recorded in column 9.

2.10 *Column 10 — First Trial Transverter Trouble Record (TTR):* The TTR registers (one per transverter) record the number of service calls when the first transverter used encounters trouble and attempts to seize the trouble recorder. The total registrations of the TTR registers are recorded in column 10.

2.11 *Column 11 — Bulk Bill Free (BBF):* The BBF registers (one per transverter) record the number of service calls that are routed through the equipment without charge. The total registrations of the BBF registers are recorded in column 11.

Back Side (Exhibit 1B)

2.12 *Column 12 — Sender Alarms Traced (ALMS Traced):* The number of stuck sender alarms that are traced is recorded under Sender Alarms Traced (ALMS TRACED), column 12.

2.13 *Column 13:* Record the percent of stuck senders traced in column 13. This percent is determined by dividing the figures in column 13 by the figures in column 1 (column 13 ÷ column 1).

2.14 *Columns 14 and 15 — Automatic Trunk Test Circuit Registers (ATT):* The repeat tests (RST) registers record the number of trunk tests made by the automatic trunk test circuit. The registrations of the completed tests (CT) and the repeat test registers are recorded in columns 14 and 15.

2.15 *Column 16 — Trouble Record Entries (TRO REC):* The TRE register records the number of attempts to seize the trouble recorder. The registrations of the TRE register are recorded in column 16.

2.16 *Columns 17 and 18 — Sender Identifier Transverter/Test Circuit Registers (SITV):* The registrations of the CT and RST registers record the number of tests made by the sender identifier transverter test circuit. The total registrations of the registers are entered in columns 17 and 18.

2.17 *Column 19 — Total Sender Monitor Tickets:* The total number of sender monitor tickets received from the Traffic Department is recorded in column 19.

2.18 *Column 20 — Central Office Trouble Found:* Central office (CO) troubles found from sender monitor tickets are recorded in column 20.

2.19 *Column 21 — Outside Plant Trouble Found:* Outside plant or station troubles found from sender monitor tickets are recorded in column 21.

2.20 *Column 22 — Alarms:* Enter in the appropriate columns the number of CO and OS plant troubles found which affected the customer's AMA billing.

3. FORM P-5395 — USE

3.01 Form P-5395, SAMA Control Record, provides a current picture of trouble data accumulated on a daily basis for a month.

3.02 Cumulative entries are made for each of the indicators under SERVICE and for number of Stuck Senders Traced under ADMINISTRATION. These entries facilitate partial or total month comparison with established objectives. If local objectives are set for indicators under PERFORMANCE, cumulative entries may be used.

3.03 If local objectives are not set for PERFORMANCE indicators, the actual totals are entered. For all other ADMINISTRATION indicators, the actual totals are entered. Cumulative totals do not apply for indicators that cannot be readily compared with objectives. However, scrutinizing daily figures will disclose any significant variations that warrant investigation.

3.04 Blank columns are provided under SPECIAL STUDIES to record data for indicators selected locally. These columns may be used for CO registers not already listed, or to collect trouble data for a particular problem area.

3.05 The data recorded on Form P-5395 is taken from the out-of-service logs, CO logs, "T" trouble tickets, and CO and Traffic registers. CO registers provide most of the data and should be read at the *same* time each day, so that the comparisons apply to equal time periods.

4. SETTING OBJECTIVES

4.01 Significant deviations of the level of service are easily detected by using the preset objectives. Therefore, it is necessary to establish objectives that are meaningful and attainable.

4.02 Objectives are established for each of the indicators listed under SERVICE and for Percent Stuck Senders Traced shown under ADMINISTRATION. The indicators under SERVICE include all the components of the SXS Network Switching Performance Measurement Plan.

4.03 The following example illustrates a method for setting an identifier failure objective, using the rate shown in the index table.

(a) The index table shows that 14.7 lost (identifier second trial failure) per 10,000 identifier peg count is equivalent to a 97 component index. We could say this is selected as the objective.

(b) Last month, the total peg count for all identifiers was 735,000. We assume that next month the peg count will be similar so that count can be used as the base figure.

(c) The objective failure rate, 14.7, multiplied by the identifier peg count, 73.5, equals 1080 IDST failures. These are the total identifier registrations which will produce a 97 component index for the month.

(d) To compute the partial month objectives (10 days, 20 days), the figure 1080 IDST is divided by 3. One-third, 360, is the 10 day objective; two-thirds, 720, is the 20-day objective; and the total, 1080, is the objective for the month.

4.04 As the cumulative IDST failures are posted, the figures for the tenth and twentieth days are compared with the objective. It is unnecessary to wait for the tenth or twentieth day before making comparisons. The fifth day or any other day may be chosen and a simple mental division made to determine the objective. For example, in 4.03 (d) the ten-day figure of 360 equates to 180 for five days. Thus, adverse service can be promptly recognized and corrected by taking remedial action.

5. SUPPLEMENTAL REGISTER READINGS

5.01 The decision to use readings is optional and is the responsibility of the Equipment Supervisor. The information contained in this program is for use in determining, by first trial failures, where maintenance effort should be applied. The standard Trouble Summary Form (E-5463) has been adapted for this information.

5.02 *Identifier Trouble Record:* Record on the first line of this page total identifier first trial failures. On the following lines record first trial failures by identifier. Comparisons can now be made; that is, total identifier failures can be compared to individual identifiers. One method, as shown in Exhibit 2, uses percentage.

**SECTION 226-020-510PT
APPENDIX 1**

For Example:

Identifiers #1 and #3 have higher failure rates than Identifier #2.

(a) Exhibit 2 illustrates a 3 identifier office where it is feasible to show Thousands, Hundreds, Tens, and Units failures on the same pages as identifier failures. In larger offices having more than 4 identifiers, this will not be possible and additional Trouble Summary Sheets will be necessary.

In this example patterns become readily apparent:

- Identifier #1 has 46% of the thousands identification failures.
- Identifier #2 has 58% of the hundreds identification failures.
- Identifiers #2 and #3 have a much higher tens failure rate than Identifier #1. 16% for #1 versus 38% and 46% for 2 and 3.
- Identifier #3 is causing 79% of the units identification failures.

(b) Each of the cited examples tend to show a pattern of equipment failures not apparent on a daily basis. If these patterns are investigated and maintenance action is taken, it will result in a significant reduction in "card drop" and an improvement in overall service.

5.03 *Stuck Sender Record:* Record on this page stuck senders by sender group. Exhibit 3 illustrates one method of comparison. The first line of Exhibit 3 is total stuck senders available from control record Form P-5395. The following lines record stuck senders by sender group. The comparisons are made between similar items.

In this example, percent of total failures is used. Patterns are again apparent:

Senders 1-9 and 21-29 have the highest failure rates. There may be other factors, such as more senders in one group than the others, trunks routing to tandems, etc, but none-the-less should be investigated.

5.04 *Transverter Trouble Record:* Record transverter first trial failures on this page. The first line of Exhibit 4 is the total transverter failures. The following lines record transverter first trial failures by transverter. The comparisons are being made between total transverter failures and individual transverters. Patterns are readily apparent:

Transverter 2 has 49% of the failures for the office. With this information a study of TV 2 failures should be made.

5.05 *Recorder Trouble Record:* Record on this page recorder failures from Control Record P-5395. This information is easily transcribed and can be patterned on a long term basis. Exhibit 5 indicates a pattern:

Recorder "0" has 46% of the failures for the office. There may be valid reasons for this but it warrants investigation.

5.06 *Bulk Bill Free:* Record on this page the BBF registrations (one per transverter). Comparisons are made between total failures and individual failures. The emphasis is still on patterns and long term trends.

BBF register #2 appears to track with Transverter #2 in failures. A possible connection here should be investigated.

5.07 *"T" Tickets:* Record the total number of "T" tickets by category on this page. It becomes apparent that most of the tickets are in 1 or 2 types of equipment. It would normally be the case that trunks produce more tickets than other types of equipment. In Exhibit 6, the frame is creating a large portion of the "T" Tickets. This could be significant and definitely should be investigated.

5.08 Each of the foregoing forms is intended to aid the first level supervisor with SAMA responsibilities. It will help determine where to concentrate maintenance efforts and to see the results of those efforts.

Office <u>SAMA</u>		TROUBLE SUMMARY (IDENTIFIER TROUBLE RECORD)										Period Covered <u>1978</u>			
EQUIPMENT	AVG PREV. YEAR	CUR 98	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
Ident. Trouble Rec	2846		3520	2858	2907	2791	2661	2822	4671	3262	2890	2514	1586	1670	34,152
Identifier #1	987	35%	1197	957	939	925	861	978	1603	1057	993	1142	600	586	11,838
Identifier #2	853	30%	1150	907	906	817	812	870	1376	843	902	655	462	537	10,237
Identifier #3	1006	35%	1173	994	1062	1049	988	974	1692	1362	995	717	524	547	12,077
#1	Th	580	46%	501	739	395	574	442	445	612	633	754	507	635	6,960
	H	153	26%	422	183	128	146	103	119	110	142	117	120	104	1,831
	T	41	16%	98	33	35	66	40	42	34	27	25	22	30	487
	U	9	8%	20	4	9	25	11	7	5	5	8	3	5	109
#2	Th	333	26%	355	489	222	279	273	207	286	304	524	294	320	3,992
	H	350	58%	505	328	211	272	224	238	152	283	458	323	409	4,196
	T	93	38%	141	101	59	97	63	67	53	58	140	74	97	1,117
	U	16	13%	19	23	9	32	11	19	11	5	27	5	17	195
#3	Th	351	28%	384	563	305	266	266	227	253	351	566	227	369	4,214
	H	96	16%	222	152	101	65	61	64	61	96	89	81	105	1,152
	T	114	46%	144	120	104	87	126	138	110	119	118	113	104	1,364
	U	94	79%	94	106	84	71	98	120	88	101	143	95	96	1,123

Identifier Trouble Record
Exhibit 2

TROUBLE SUMMARY
(RECORDER TROUBLE RECORD)

Office SAMA Period Covered 1978

EQUIPMENT	AVG PREV. YEAR	CUR 08	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
AMA Rec.			31	62	36	55	36	77	277	15	40	13	62	69	734
0	28	46%	19	20	12	28	19	32	80	5	18	4	46	53	336
1	20	33%	6	27	18	19	11	31	91	5	12	4	14	7	245
2	13	21%	6	14	6	4	6	14	78	5	10	3	2	5	153
EMG	3		0	1	0	4	0	0	28	0	0	2	0	4	39
BBF			65	58	42	33	36	56	90	85	107	26	53	40	691
0	17	30%	16	22	12	15	13	21	28	25	29	10	8	9	208
1	19	32%	30	20	11	10	7	16	29	25	39	8	15	14	224
2	22	38%	19	16	19	8	16	19	33	35	39	8	30	17	259

Recorder Trouble Record
Exhibit 5

TROUBLE SUMMARY
("T" TICKETS)

Office SAMA

Period Covered 1978

EQUIPMENT	AVG. PREV. YEAR	CUR OBJ	J	F	M	A	M	J	J	A	S	O	N	O	TOTAL
Sender	2.5		4	3	0	4	2	4	2	1	2	2	2	4	30
Identifier	1.8		2	3	2	1	0	4	1	1	1	1	1	5	22
Transverter	.0		0	0	0	0	0	0	0	0	0	0	0	0	0
Recorder	.3		0	1	0	0	0	0	1	0	1	0	0	1	4
Trunks	3.4		2	6	1	2	2	1	4	7	2	3	10	1	41
Frame	3.9		3	4	5	2	9	7	5	2	2	3	3	2	47
Trunk Finders	.5		0	1	0	3	1	0	0	0	0	1	0	0	6
Rotary Sw.	.3		0	0	1	1	1	0	1	0	0	0	0	0	4
Master Timer	.2		0	0	0	1	0	0	1	0	0	0	0	0	2
Miscellaneous	2.0		1	4	3	3	3	1	3	1	1	3	0	1	24
Code Conn.	.2		0	0	0	0	0	0	0	0	0	1	0	1	2
Ref. Out	4.4		1	8	11	4	6	5	1	2	4	1	6	4	53
"T" Tickets	20		13	30	23	21	24	22	19	14	13	15	22	19	235

"T" Tickets
Exhibit 6