Raytheon

Raytheon Aircraft Company
9709 E. Central
P.O. Box 85
Wichita, Kansas
67201-0085 USA

April 30, 2003

In Reply Please Refer
To: 982-03-04-L58/TH-1186

Please Address Reply
To: Paul E. Yoos (9829-B12)

Mr. Timothy Monville
National Transportation Safety Board
Southeast Regional Office
8405 NW 53rd Street, Suite B-103
Miami, Florida 33166

Re. 1) Beech Model 58 Baron, Serial Number TH-1186, Registration Number N158MT, accident near Hernando, Mississippi, on July 17, 2000, at 1206 CDT.
2) Your April 23, 2003, letter.
3) Copy of the original weight and balance and equipment list extracted from the Production Inspection Record.
4) MIL-W-5086/1 military specification sheet.
5) MS27125 military standard sheet.
6) Raytheon Aircraft Beech Baron Illustrated Parts Catalog, P/N 58-590000-19E8, Section 53-17-20 Firewall Assembly.
7) Busman Manufacturing Division information sheet for AGC-3 fuses.

Dear Mr. Monville:

On April 23, 2003, I received your letter requesting additional information. The following is provided:

Question 1: A copy of the PIR for the airplane to show what amperage alternators were installed when the airplane was manufactured.

RAC Response
The airplane had 100-amp alternators installed. Attached is the original weight and balance and equipment list for the airplane. Also note the following installations:

- B.F. Goodrich Type 25 wing and tail deice boots
- B.F. Goodrich electric propeller deice systems installed on Hartzell 3-bladed propellers
- An alcohol windshield anti-ice system

You provided RAC with an October 27, 1997, FAA Form 337, which showed that Airnet Systems, Inc., had installed (among others) the Beech Kit P/N 58-3009-1P Heavy Duty Stall Warning option and the Beech Kit P/N 58-4007-5S Electric Windshield Anti-Ice option. The electric windshield installation required a circuit breaker switch replacement on the W15 bus. The stall warning installation required the installation of a W11 bus. Refer also to my response to your Question 5.

Question 2: Confirm what type of electrical wire was used when the airplane was manufactured; include what type of insulation is used in that type of wire.

RAC Response
The airplane had MIL-W-5086/1 single wire installed (exclusive of engine compartment). The

engine compartment had MS27125 (MS18000 or MS18001 may be substituted) single wire installed. MIL-W-5086/1 military specification sheet and MS27125 military standard sheet are attached. These sheets identify the composition of the wire conductor, insulation, and jacket.

Question 3: Provide from IPC and structural repair manual illustrations for the "firewall" that exhibited high heat damage.

RAC Response
Raytheon Aircraft Beech Baron Illustrated Parts Catalog, P/N 58-590000-19E8, Section 53-17-20 Firewall Assembly is attached. Page 4 has been annotated to include the various water line (WL) locations and butt line (BL) positions of the heat damage on the firewall at fuselage station (FS) 39.0.

Question 4: Confirm the location on the firewall where the burn through occurred, i.e., what is the fuselage station, water line, and approximate butt line location (provide supporting documents).

RAC Response
Section 53-17-20 Firewall Assembly, page 4, item number 33 is the partially consumed cover, which is visible on photograph 285. (Photograph 285 had been provided in previous correspondence.)

Question 5: Confirm how P5A10 wire was routed when the airplane was manufactured.

RAC Response
The P5A10 wire was originally run from the end of the W15 bus where the windshield (alcohol) switch would have been attached, around the deice timer switch, and attached to the pitot heat switch. At the time of manufacture, no W11 bus was installed, because the optional right pitot heat was not installed. Refer also to my response to your Question 1.

Question 6: Confirm the length of the P5A10 wire when the airplane was manufactured.

RAC Response
The P5A10 wire would have been fabricated to fit by the installing technician, so that the fit was mechanically and electrically sound.

Question 7: Provide a document that indicates what are the correct load meter fuses by p/n, and what specifications are for the load meter fuses.

RAC Response
The F13, F14, F15, and F16 load meter fuses are AGC-3 fuses, which is a Busman Manufacturing Division designation. The government designation for the same fuse is FO2A250V3A. A Busman Manufacturing Division information sheet is attached, describing AGC-3 fuses.

Should you have any question, please call me at (316) 676-1329.

Very truly yours,

Paul E. Yoos

Paul E. Yoos
Senior Multi-Disciplined Engineer
Air Safety Investigation
Raytheon Aircraft Company

Beechcraft BARON B

AIRCRAFT BASIC EMPTY WEIGHT AND BALANCE

DATE 8-22-80 AIRCRAFT SERIAL NO. TH-1186

MODEL 58 REGISTRATION NO. D-IIWP

STRUT POSITION - NOSE MAIN

EXTENDED -11.6 96

COMPRESSED - 9.8 97 PREPARED BY: S. A. Davis

JACK POINT LOCATION

FORWARD 83.1

AFT 271.0

REACTION WHEEL - JACK POINTS	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT MAIN					
RIGHT MAIN					
SUB TOTAL					
NOSE OR TAIL					
TOTAL (AS WEIGHED)					

SPACE BELOW PROVIDED FOR ADDITIONS AND SUBTRACTIONS TO AS WEIGHED CONDITION

"The weight and balance data shown in this report are computed on the basis of Federal Aviation Agency approved procedures for establishing fleet weight averages."			
EMPTY WEIGHT	3645	78.1	284848
ENGINE OIL	45	43	1935
UNUSABLE FUEL	36	79	2844
BASIC EMPTY WEIGHT Computed	3726	77.7	289627

90-356836

Tim Monville
982-03-04-L58/TH-1186

Beechcraft

WEIGHT AND BALANCE LOADING FORM

MODEL 58 SERIAL NO. TH 1186 REG. NO. D-IIWP DATE 8-22-80

ITEM	WEIGHT	MOM/100		WEIGHT	MOM/100
BASIC EMPTY CONDITION	3726	2896			
FRONT SEAT OCCUPANTS	340	256			
3rd & 4th SEAT OCCUPANTS	194	215			
5th & 6th SEAT OCCUPANTS	-	-			
BAGGAGE	-	-			
BAGGAGE	-	-			
CARGO	-	-			
SUB TOTAL ZERO FUEL CONDITION	4260	3367			
FUEL LOADING (194 Gal.)	1164	974			
SUB TOTAL RAMP CONDITION	5424	4341			
*LESS FUEL FOR START, TAXI, AND TAKE-OFF	-24	-20			
SUB TOTAL TAKE-OFF CONDITION	5400	4321			
LESS FUEL TO DESTINATION (170 Gal.)	-1020	-862			
LANDING CONDITION	4380	3459			

*Fuel for start, taxi and take-off is normally 24 lbs. at an average mom/100 of 20

Beechcraft BARON (B)

EQUIPMENT LIST

MODEL 58 SERIAL NO. TH 1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane O = Not Installed in Airplane

		ITEM	WEIGHT	ARM
*	o	11. Two Hartzell Constant-Speed, Full-Feathering 2-Bladed Propellers (Per STC SA773CE) AFMS dated 3-25-76 (a) Hubs: BHC-J2YF-2CUF (1) Blades: FC8475-6 or FC8475B-6 Spinner: C2285-6(P)	73 ea	15
*	x	11. Two Hartzell Constant-Speed, Full Feathering 3-Bladed Propellers (Per STC SA773CE) AFMS dated 3-25-76 (b) Hubs: PHC-J3YF-2UF (1) Blades: FC7663-2R or FC7663B-2R Spinner: C3567-1(P)	91 ea	15
*	o	12. Two Hartzell Full-Feathering 2-Bladed Propellers (For use with Air Conditioning) per STC SA773CE AFMS dated 3-25-76 (a) Hubs: BHC-J2YF-2CUF (1) Blades: FC8475-6 or FC8475B-6 Spinner: C2285-5	73	15
*	o	12. Two Hartzell Full-Feathering 3-Bladed Propellers (For use with Air Conditioning) per STC SA773CE AFMS dated 3-25-76 (b) Hubs: PHC-J3YF-2UF (1) Blades: FC7663-2R or FC7663B-2R Spinner: C3567-4	91	15

Beechcraft BARON®

EQUIPMENT LIST

MODEL 58 SERIAL NO. TH-1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane 0 = Not Installed in Airplane

	ITEM	WEIGHT	ARM
x	2. (f) Woodward Propeller Governor D210439 or 210662 (Use B210710 with Propeller Synchronizer)	3 ea	26
x	(c) Beech Unfeathering Accumulator per Beech Drawing 96-960011	6 ea	68
	101. Fuel Pumps		
x	(q) Two Engine Driven, TCM 638154-16A3	2 ea	55
x	(p) Two Electric Booster Pumps, Dukes 4404-00-1	3 ea	88
	102. Two Oil Radiators		
x	(d) TCM 633288 or 635996	7 ea	53
	103. Two Induction Air Cleaners		
x	(e) Beech 96-389005-1	1 ea	63
	104. Two Pressure Pumps (f) Airborne Mechanisms		
o	212CW	2 ea	56
x	442CW-12	3 ea	56
	105. Two Starters		
x	(b) Prestolite MHJ 4003 (TCM 637847)	16 ea	55
o	114. 166-Gallon Capacity Fuel System (Exch. for Std.)	+31	76
x	117. 194-Gallon Capacity Fuel System (Exch. for Std.)	+50	82

Beechcraft BARON®

EQUIPMENT LIST

MODEL 58 SERIAL NO. TH-1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane O = Not Installed in Airplane

	ITEM	WEIGHT	ARM
o	201. Two Main Wheel - Brake Assemblies		
	(e) Cleveland - Wheel Assembly 40-98	10 ea	96
	- Brake Assembly 30-66	4 ea	97
x	(h) Cleveland - Wheel Assembly 40-128	12 ea	96
	- Brake Assembly 30-93B	5 ea	97
x	202. Two Main Wheel 6-ply or 8-ply Tires,		
	(a) 6.50-8 with Regular Tubes	13 ea	96
x	205. One Nose Wheel 5.00-5, Type III		
	(f) Wheel Assembly Cleveland 40-87	3	-10
x	206. One Nose Wheel 6-ply Rating Tire,		
	(a) 5.00-5 with Regular Tube	6	-10
x	210. Copilot Brakes	5	46
o	301. Alternators		
	(m) Two 50-Amp. Alternators TCM 641668(Prestolite ALT-9422) and	13 ea	28
	Two 50-Amp. Regulators (Beech 60-389017) Overvoltage Relay Integral Part of Regulator	1 ea	0
x	(p) Two 100-Amp. Alternators TCM 64205(and	19 ea	28
	Two Regulators (Beech 60-389017-3) Overvoltage Relay Integral Part of Regulator	1 ea	0

Beechcraft BARON®

EQUIPMENT LIST

MODEL 58 SERIAL NO. TH 1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane O = Not Installed in Airplane

	ITEM	WEIGHT	ARM
o	302. Battery		
	(d) One 24-Volt, 17-Amp. Hr. (Beech 118654) or	28	10
x	(e) Two 12-Volt, 25-Amp. Hr. (Beech 58-380056-1)	22 ea	10
o	303. Landing Lights		
	(d) Two GE 4596 (Wing Tip)	1 ea	81
x	(g) Two GE 4596 (Engine Cowling)	1 ea	23
x	401. Pilot's Operating Handbook and FAA Approved (ak) Airplane Flight Manual P/N 58-590000-21 Issued 10-76 (Latest Revision)	-	-
x	402. Heater Installation (i) Beech 58-550021 Series	28	-11
* o	403. Air Conditioning System (Refrigeration Type) (d) AFMS P/N 58-590000-23 dated 2-5-78 or later Required	95	73
o	404. T-Type Dual Control Column (f) Beech 58-524038-1	4	63
o	501. Propeller Anti-Icer 3-Gallon Fluid Tank, Pump and Lines Installed per Beech Drawing 96-960008 Series (Weight Includes 20 Lbs. Fluid @ +11)	29	15
	(g) Use with Propeller Item 11 (a) (1)		
o	(h) Use with Propeller Item 11 (b) (1)		
o	(i) Use with Propeller Item 12 (a) (1) or 12 (b) (1)		

Beechcraft BARON®
EQUIPMENT LIST

MODEL 58 SERIAL NO. TH-1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane O = Not Installed in Airplane

	ITEM	WEIGHT	ARM
	505. B. F. Goodrich Electric Propeller Deicing System		
o	(c) Per Beech Drawing 96-960021 (Use with Propeller Item 11 (a) (1))	13	29
x	(d) Per Beech Drawing 58-960010 (Use with Propeller Item 11 (b) (1))	14	27
o	(e) Per Beech Drawing 96-960021 (Use with Propeller (1) Item 12 (a) (1))	12	29
o	(e) Per Beech Drawing 58-960010 (Use with Propeller (2) Item 12 (b) (1))	13	28
x	507. Surface Deicer, B. F. Goodrich Type 25 Wing and Tail Deicer Boots and Automatic Cycling Controls (Pressure Pump Weight Change Not Included)		
	(b) Beech Drawing 96-970004 Series	27	132
	601. Stall Warning Indicator Installation		
x	(f) Safe-Flight 190-3 (Heated) or	Negl.	-
	(g) Safe-Flight 190-3 (Heated) (per Beech Drawing 96-970004)	Negl.	-
x	602. Heated Pitot Head Installation	1	-8

Beechcraft BARON®
EQUIPMENT LIST

MODEL 58 SERIAL NO. TH 1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane O = Not Installed in Airplane

		ITEM	WEIGHT	ARM
	o	603. Optional Seating Arrangements (m) Fifth Seat or	16	155
	o	(n) Fifth Seat and Sixth Seat or	32	155
	x	(p) Club Seating per 102-530100 3rd and 4th Aft Facing Seats	52	106
		5th and 6th Forward Facing Seats	32	155
	x	606. Oxygen Installation (v) High Pressure per Beech Drawing 58-560001 (66 Cu. Ft. - Forward Bottle)	43	46
*	o	610. Area Navigation Equipment Installed per Applicable Beech Drawings AFMS P/N 96-590010-19 Dated 10-76 or later	-	-
		612. Area Navigation Equipment Installed per Applicable Beech Drawings		
*	o	(a) Bendix NCP2040 - AFMS P/N 96-590011-21 dated 6-2-77 or later required	-	-
*	o	(b) Air Data AD611/D - AFMS P/N 58-590000-25 dated 6-21-77 or later required	-	-
*	o	(c) Collins ANS-351 - AFMS P/N 106-590000-15 dated 11-16-77 or later required	-	-
*	o	(d) King KNS-80 - AFMS P/N 58-590000-29 dated 1-79 or later required	-	-
*	o	(e) Narco RNav 161 - AFMS P/N 96-590010-27 dated 1-79 or later required	-	-
	x	Emergency Locator Transmitter	4	225

Beechcraft BARON®

EQUIPMENT LIST

MODEL 58 SERIAL NO. TH-1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane O = Not Installed in Airplane

	ITEM	WEIGHT	ARM
	SPECIAL EQUIPMENT		
o	Control Wheel Clock (Digital) (Exchange for Standard)	Negl.	-
x	Windshield Anti-Ice (Alcohol) (L.H.) (Incl. 3 Gal. Fluid)	25	14
x	Executive Table	9	135
o	Cabin Fire Extinguisher - Halon 1211 Type	5	105
o	Engine Hour Recorder	1	58
o	Flight Hour Recorder	1	58
x	Alcor Exhaust Temperature Gauge	2	58
x	Dual Tachometer w/Synchroscope (Exchange for Standard)	Negl.	-
x	Rotating Beacon - Top	Negl.	-
o	Rotating Beacon - Botton	3	105
o	Strobe Three-Light System	10	139
x	Steerable Nose Wheel Taxi Light	1	-11
x	Wing Ice Light	1	68
x	External Power Receptacle	3	77
x	Propeller Synchronizer System	2	51
x	Alternate Static Air	Negl.	-
	*FLIGHT MANUAL SUPPLEMENT REQUIRED		

Beechcraft BARON®
EQUIPMENT LIST

MODEL 58 SERIAL NO. TH-1186 REG. NO. D-IIWP DATE 8-22-80

STATUS OF EQUIPMENT: X = Installed in Airplane 0 = Not Installed in Airplane

	ITEM	WEIGHT	ARM
	Collins VHF-251E Comm/VIR-351 Nav.		
x	VHF-251E Transceiver	4	52
x	PWC-150 Power Supply	2	-13
x	VIR-351 Receiver	3	53
x	IND-350A Indicator	2	55
x	Beech B6-1 Comm Antenna and Coax	2	122
x	Beech B-38 Nav Antenna and Coax	4	247
x	Microphone and Headset	1	70
x	Speaker	1	88
x	Wiring, Plugs, etc.	2	50
	Collins ADF-650A ADF		
x	RCR-650A Receiver and Mount	3	54
x	IND-650A Indicator	1	55
x	Power Supply	1	-10
x	ANT 650A Loop/Snese Antenna and Coax	5	128
x	Wiring, Plugs, etc.	1	50

FEB 20 1984

3

MIL-W-5086/1B
23 November 1983
SUPERSEDING
MIL-W-5086/1A
2 December 1974
See also "Supersession Data" on Page 3

MILITARY SPECIFICATION SHEET

(B) WIRE, ELECTRICAL, POLYVINYL CHLORIDE INSULATED, NYLON JACKET, TIN-COATED COPPER CONDUCTOR, 600-VOLT, 105°C

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the wire described herein shall consist of this document and the latest issue of Specification MIL-W-5086.

(B) FROM DATE OF ISSUE OF THIS REVISION, WIRE OF THIS SPECIFICATION SHEET SHALL NOT BE USED IN AEROSPACE APPLICATIONS. SEE "NON-USE" NOTE ON PAGE 3.

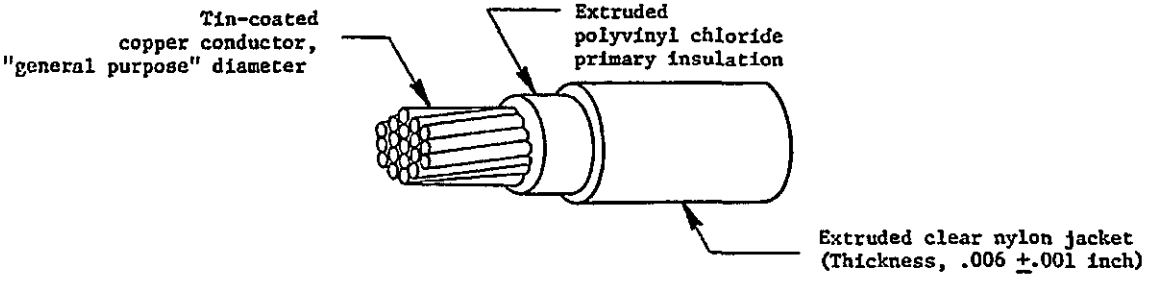


TABLE I. Construction details.

Part no. 1/	Wire size	Stranding (Number of strands X AWG gage of strands)	Diameter of stranded conductor (inches)		Finished wire		
			(min)	(max)	Resistance at 20°C (68°F) (ohms/1000 ft) (max)	Diameter (inches)	Weight (lbs/1000 ft) (max)
M5086/1-22-*	22	19 x 34	.029	.033	16.2	.068 ±.004	4.40
M5086/1-20-*	20	19 x 32	.037	.041	9.88	.078 ±.004	6.30
M5086/1-18-*	18	19 x 30	.046	.051	6.23	.088 ±.004	8.60
M5086/1-16-*	16	19 x 29	.052	.058	4.81	.098 ±.004	10.70
M5086/1-14-*	14	19 x 27	.065	.073	3.06	.117 ±.005	16.40
M5086/1-12-*	12	37 x 28	.084	.090	2.02	.137 ±.005	24.70
M5086/1-10-*	10	37 x 26	.106	.114	1.26	.159 ±.005	36.50

1/ Part no.: The asterisks in the part number column, Tables I through III, shall be replaced by color code designators in accordance with MIL-STD-681. Examples: Size 20, white - M5086/1-20-9; white with orange stripe - M5086/1-20-93.

(B) denotes changes

FSC 6145

(B)

TABLE II. Bend test mandrels and test loads.

Part no.	Mandrel diameter (inches) (±3%)			Test load (lbs) (±3%)	
	Life cycle (oven and bend tests) 1/	Cold bend test	Wrap test	Life cycle (oven and bend tests) 1/	Cold bend test
M5086/1-22-*	4.5	3.0	0.41	.75	2.0
M5086/1-20-*	4.5	3.0	.47	.75	2.0
M5086/1-18-*	4.5	3.0	.53	1.0	2.0
M5086/1-16-*	6.5	3.0	.59	1.0	3.0
M5086/1-14-*	6.5	6.0	.70	1.0	3.0
M5086/1-12-*	6.5	6.0	.82	3.0	3.0
M5086/1-10-*	10.0	6.0	.95	3.0	5.0

1/ Also for bend tests after immersion.

Wire ratings and additional requirements

Temperature rating: 105°C (221°F) max conductor temperature
Voltage rating: 600 volts (rms) at sea level
Blocking: 105° ±2°C (221° ±3.6°F)
Color: In accordance with MIL-STD-104, Class 1; white preferred
Color striping or banding durability: 250 cycles (500 strokes) (min), 500 grams weight
Flammability (Method 1):
- 30 sec (max) after-flame
- 1.50 inches (max) flame travel, either direction on wire
- No flaming of tissue paper

Humidity resistance: 100 megohms for 1000 ft, min insulation resistance after humidity exposure
Identification durability: 125 cycles (250 strokes) (min), 500 grams weight
Impulse dielectric test:
- Primary insulation (when test is used in lieu of spark test): 6.0 kilovolts (peak), 100% test
- Finished wire: 8.0 kilovolts (peak), 100% test

Insulation resistance: 500 megohms for 1000 ft (min)
Life cycle: Oven temperature, 120° ±2°C (248° ±3.6°F)
Low temperature (cold bend): -55° ±2°C (-67° ±3.6°F)
Shrinkage: 0.125 inch max at 150° ±2°C (302° ±3.6°F)
Smoke: 110°C (230°F)
Spark test of primary insulation: 3000 volts (rms), 60 Hz, 100% test
Surface resistance: 5 megohm-inches (min), initial and final readings
Thermal shock: Oven temperature, 105° ±2°C (221° ±3.6°F)
. Max change in measurement, 0.06 inch
Wet dielectric test: 2000 volts (rms)
Wrap test oven temperature: 95° ±2°C (203° ±3.6°F)

(B) Metric conversion note: Data in this specification sheet may be converted to metric as follows:

Linear dimensions	25.40 x inches = millimeters (mm)
Weight (general)	.4536 x lbs = kilograms (kg)
Wire weight	1.488 x (lbs/1000 ft) = kg/km
Conductor resistance	3.281 x (ohms/1000 ft) = ohms/km
Insulation resistance	.3048 x (megohms for 1000 ft) = megohms for 1 km
Surface resistance	Metric documents may differ from MIL-STD-228 in spacing of the electrodes for this determination and in the method of expressing the test results. Where the electrode spacing is 25.0 millimeters in the metric document, the MIL-W-5086 megohm-inches resistance (defined as total megohms resistance times inches wire diameter) may be converted as follows:

25.0 x (megohm-inches diameter) = megohm-mm diameter
78.5 x (megohm-inches diameter) = megohm-mm circumference
3.14 x (megohm-inches diameter) = megohm-mm circumference per mm of electrode spacing

SUPERSESSION DATA: The wire of this specification sheet replaces and supersedes Type I wire of MIL-W-5086A (superseded 19 March 1968) and MS25190 (canceled 29 May 1969). Supersession by part number is in accordance with Table III. Neither MIL-W-5086A nor MS25190 included a Type I wire in size 10.

TABLE III. Supersession by part number.

Size designation, MIL-W-5086A Type I	Part number, MS25190 Type I	Part number, MIL-W-5086/1
AN-22	MS25190-A-22	M5086/1-22-*
AN-20	MS25190-A-20	M5086/1-20-*
AN-18	MS25190-A-18	M5086/1-18-*
AN-16	MS25190-A-16	M5086/1-16-*
AN-14	MS25190-A-14	M5086/1-14-*
AN-12	MS25190-A-12	M5086/1-12-*

(B) NON-USE AND REPLACEMENT OF MIL-W-5086/1 WIRE IN AEROSPACE APPLICATIONS: The exclusion of MIL-W-5086/1 wire from aerospace applications (page 1 of this document) is in consonance with the provisions of MIL-STD-454 and several military aerospace directives concerning polyvinyl chloride materials.

Replacement wires for the MIL-W-5086/1 items for aerospace applications should be selected from the lists of approved wires in the latest issue of MIL-W-5088, Wiring, Aerospace Vehicle, with due regard to the weight, dimensional, and functional requirements of the specific project or application.

INTERNATIONAL STANDARDIZATION: Certain provisions of Table I of this specification sheet are the subject of international standardization agreement (STANAG 3317). When amendment, revision, or cancellation of this specification sheet is proposed which will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices, if required.

Custodians:
Navy - AS
Army - CR
Air Force - 85

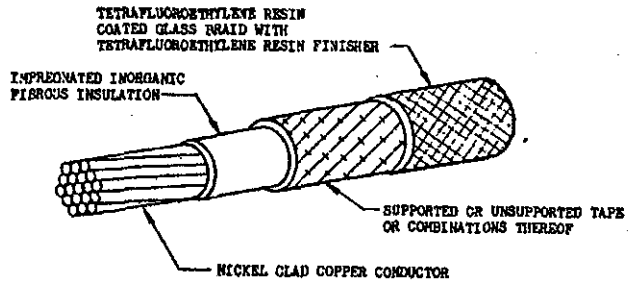
Review activities:
Navy - OS
Army - AR, ME, MI
Air Force - 99
DLA - IS
NSA

User activities:
Navy - EC, MC, SH
Army - AT, AV
Air Force - 11

Preparing activity:
Navy - AS
(Project No. 6145-0822-1)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1983—705—040/A263

FED. SUP CLASS
6145



PERFORMANCE DETAILS

WIRE SIZE	ABRASION TEST				FLAWS TEST	BEND TEST AND COLD BEND	
	RESISTANCE MINIMUM INCHES OF TAPE	TENSION LOAD LB	WEIGHT SUPPORT BRACKET	WEIGHT LB	MIN AC VOLTAGE 60 CYCLE RMS FINISHED WIRE	MANDREL DIAMETER IN INCHES	TEST LOAD (LB)
22	30	1	A	1	2500	6	2
20							
18	33						
16	44	2				8	3
14	20		B	3			
12	22					10	5
10	30					12	
8	36					14	10
6	42		C	4.25		16	
4	40					20	15
2	46					22	
1	52					24	20
0							25
00	58						30
000	64						
0000	70						

FINISHED WIRE CONSTRUCTION

DASH NO.	WIRE SIZE	RESISTANCE AT 20°C (68°F) OHMS/1000 FT MAX	NO. OF STRANDS	DIAMETER IN INCHES		WEIGHT LB/1000 FT MAX
-22	22	23.7	19	.108	±.008	10
-20	20	14.6		.117		12
-18	18	9.14		.127		15
-16	16	6.85		.137	±.010	19
-14	14	4.32		.160		25
-12	12	2.68		.175		35
-10	10	1.59	49	.220		55
-8	8	.936	133	.269	±.012	85
-6	6	.591		.330		127
-4	4	.375		.395		192
-2	2	.241	665	.472		291
-1	1	.196	817	.515	±.018	347
-0	0	.153	1045	.555		415
-00	00	.120	1330	.615		520
-000	000	.096	1672	.680	±.020	618
-0000	0000	.077	2109	.750		793

© CANCELED AFTER 29 MARCH 1972. USE MIL-W-25039/1.

FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.

P.A. USAF - 11 Other Cust Navy - AS	TITLE WIRE, ELECTRICAL - HIGH TEMPERATURE AND FIRE RESISTANT	MILITARY STANDARD MS27125
PROCUREMENT SPECIFICATION MIL-W-25038	SUPERSEDES:	SHEET 1 OF 1

APPROVED 5 Mar 62 — REVISED (A) 9 Apr 63 — (B) 19 May 65 — (C) 29 Mar 72

Review activities: USAF - 11
Navy - AS

This standard has been approved by the Air Sys. (Department of the Navy) and the Department of the USAF and is mandatory for use by the activity. All other military activities are required to employ this standard where suitable.

DD FORM 1426 SEP 67 672-1 (Limited coordination)

*U.S. GOVERNMENT PRINTING OFFICE: 1972-714-166/6929

Raytheon Aircraft

Beech Baron®

B55 (TC-1608 and after)
E55 (TE-938, TE-943 and after)
58 (TH-1 and after)

Illustrated Parts Catalog

Volume 2
Chapters 32 thru 80

NOTE

This manual was formerly called the Beechcraft Baron B55,E55 & 58 Illustrated Parts Catalog.

NOTICE

Refer to the applicable Wiring Diagram Manual for wiring diagrams and associated electrical components parts breakdown.

P/N 58-590000-19E
Reissued: April 11, 1986

P/N 58-590000-19E8
Revised: June 30, 2000

Published By
RAYTHEON AIRCRAFT COMPANY
P.O. Box 85
Wichita, Kansas 67201
U.S.A

NOTE

Where Beech Aircraft Corporation is referred to in this publication, it will be taken to read Raytheon Aircraft Company.

EXPORT STATEMENT

Exported under the authority of license exception: TSU.
"These commodities, technology or software were exported from the United States in accordance with Export Administration Regulations. Diversion contrary to U.S. law prohibited."

Raytheon Raytheon Aircraft Company

Member of GAMA
GAMA General Aviation Manufacturers Association

53-17-20
FIREWALL ASSEMBLY
TE-1001,TE-1027 AND AFTER,TH-578 AND AFTER

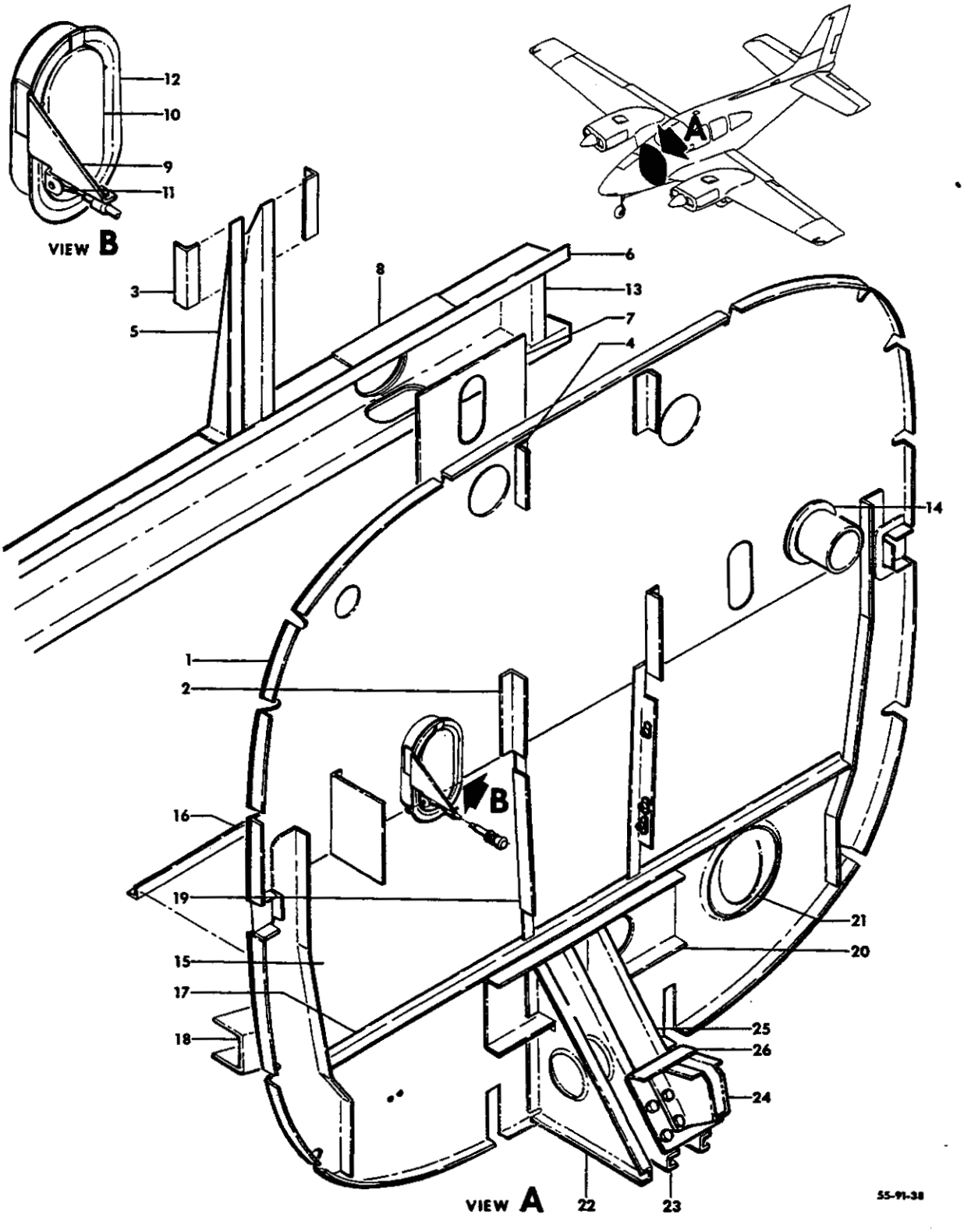


FIGURE 17-20. FIREWALL ASSEMBLY
/SHEET 1 OF 2 SHEETS/

SUB-SECT UNIT & ITEM NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
17-20	002-430050-1	FIREWALL ASSY,UPPER	1	1
	96-410032-625	FIREWALL ASSY,UPPER/SEE CHAP 53-17-10 FOR BKDN/	1	12
- 1	002-430050-9	. WEB,FIREWALL UPPER.	1	2
	002-430050-43	. WEB,FIREWALL UPPER.	1	3
- 2	002-430050-15	. ANGLE,CONSOLE ATTACHING LH.	1	1
	002-430050-16	. ANGLE,CONSOLE ATTACHING RH.	1	1
- 3	002-430050-19	. ANGLE,FWD UPPER FIREWALL LH & RH.	2	1
- 4	002-430050-25	. ANGLE,AFT UPPER FIREWALL LH & RH.	2	1
- 5	002-430050-11	. CHANNEL	1	1
- 6	002-430050-21	. CHANNEL	1	1
- 7	002-430050-23	. INSULATION.	1	1
- 8	002-430050-29	. DOUBLER	1	1
- 9	002-430050-27	. BRACKET,LH AIR VENT CONTROL	1	1
	002-430050-28	. BRACKET,RH AIR VENT CONTROL	1	1
- 10	002-430050-33	. DOOR,LH & RH AIR VENT	2	1
- 11	002-430050-35	. CLIP,AIR VENT DOOR.	2	1
- 12	002-430049-55	. FRAME,LH & RH AIR VENT.	2	1
- 13	002-430050-31	. PLUG,AIR VENT CHANNEL	2	1
- 14	95-550002-51	. COLLAR.	1	1
	002-410067-3	FIREWALL ASSY,LOWER	1	4
	002-410067-51	FIREWALL ASSY,LOWER	1	5
	002-410067-5	FIREWALL ASSY,LOWER	1	6
	002-410067-53	FIREWALL ASSY,LOWER	1	7
	002-410067-63	FIREWALL ASSY,LOWER	1	13
- 15	002-410067-47	. WEB,LOWER FIREWALL.	1	8
	002-410067-49	. WEB,LOWER FIREWALL.	1	9
- 16	002-410067-25	. ANGLE	1	8
- 17	002-410067-35	. ANGLE,FLOORBOARD SUPPORT.	1	10
- 18	002-410067-19	. CHANNEL,REINFORCEMENT	1	10
- 19	002-410067-39	. ANGLE,LH CONSOLE SUPPORT.	1	10
	002-410067-40	. ANGLE,RH CONSOLE SUPPORT.	1	10
- 20	002-410067-37	. CHANNEL	1	10
- 21	002-410067-13	. SEAL.	1	10
	002-410067-11	. RETAINER,SEAL	1	10
- 22	002-410067-29	. BRACKET	1	10
- 23	002-410067-31	. BRACKET	1	10
- 24	002-410067-43	. BRACKET	1	14
		/ATTACHING PARTS/		
	130909B14	. BOLT.	6	
	AN960-10	. WASHER.	6	
	MS21059-10	. NUTPLATE.	3	
	130909N33	. NUTPLATE.	3	
	NAS427K12	. GUARD PIN	2	14
- 25	002-410067-33	. BRACKET	1	11
- 26	002-410067-41	. BRACKET	1	11
		/ATTACHING PARTS/		
	130909B14	. BOLT.	3	
	AN960-10	. WASHER.	3	
	MS21059-10	. NUTPLATE.	3	

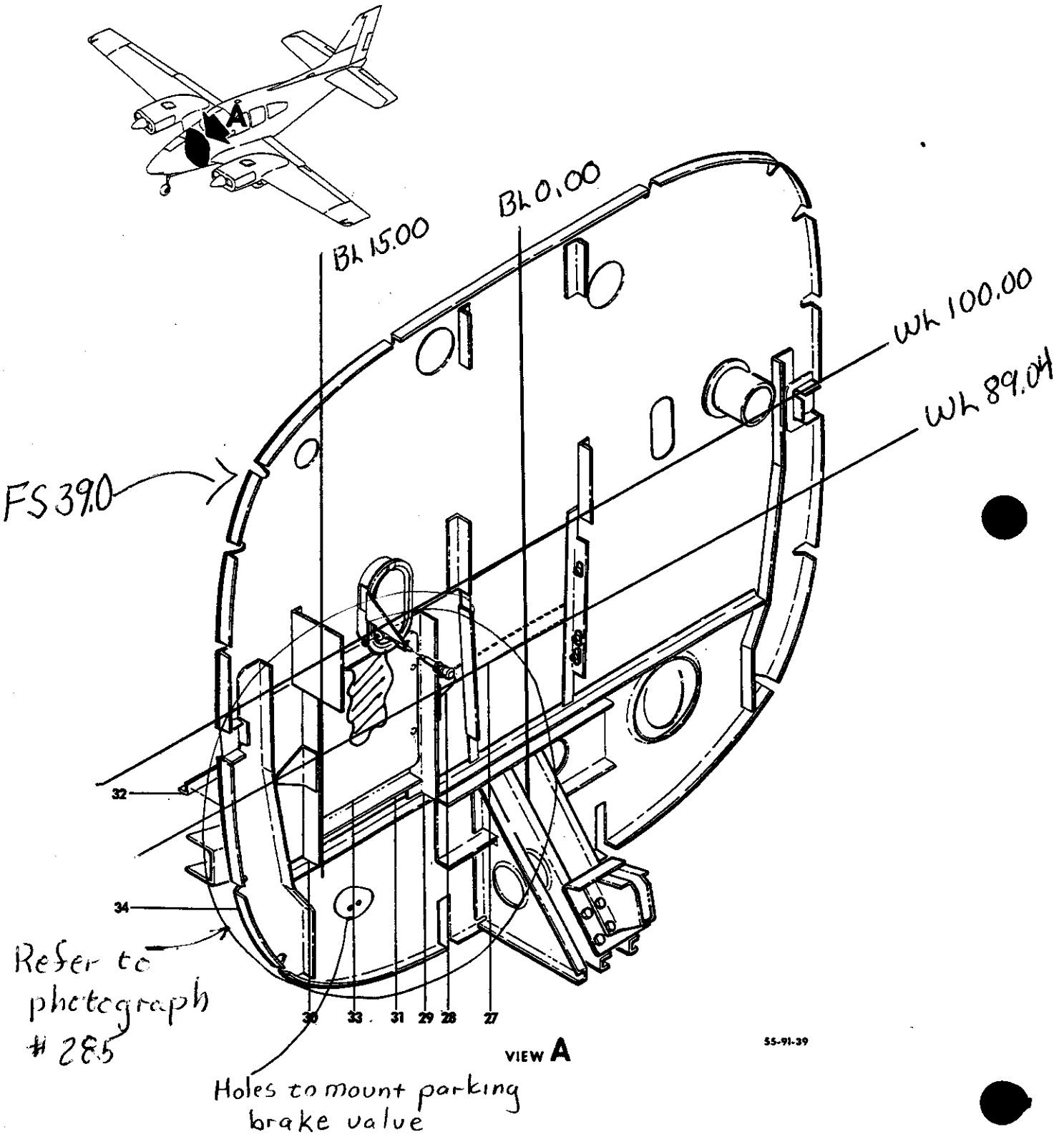
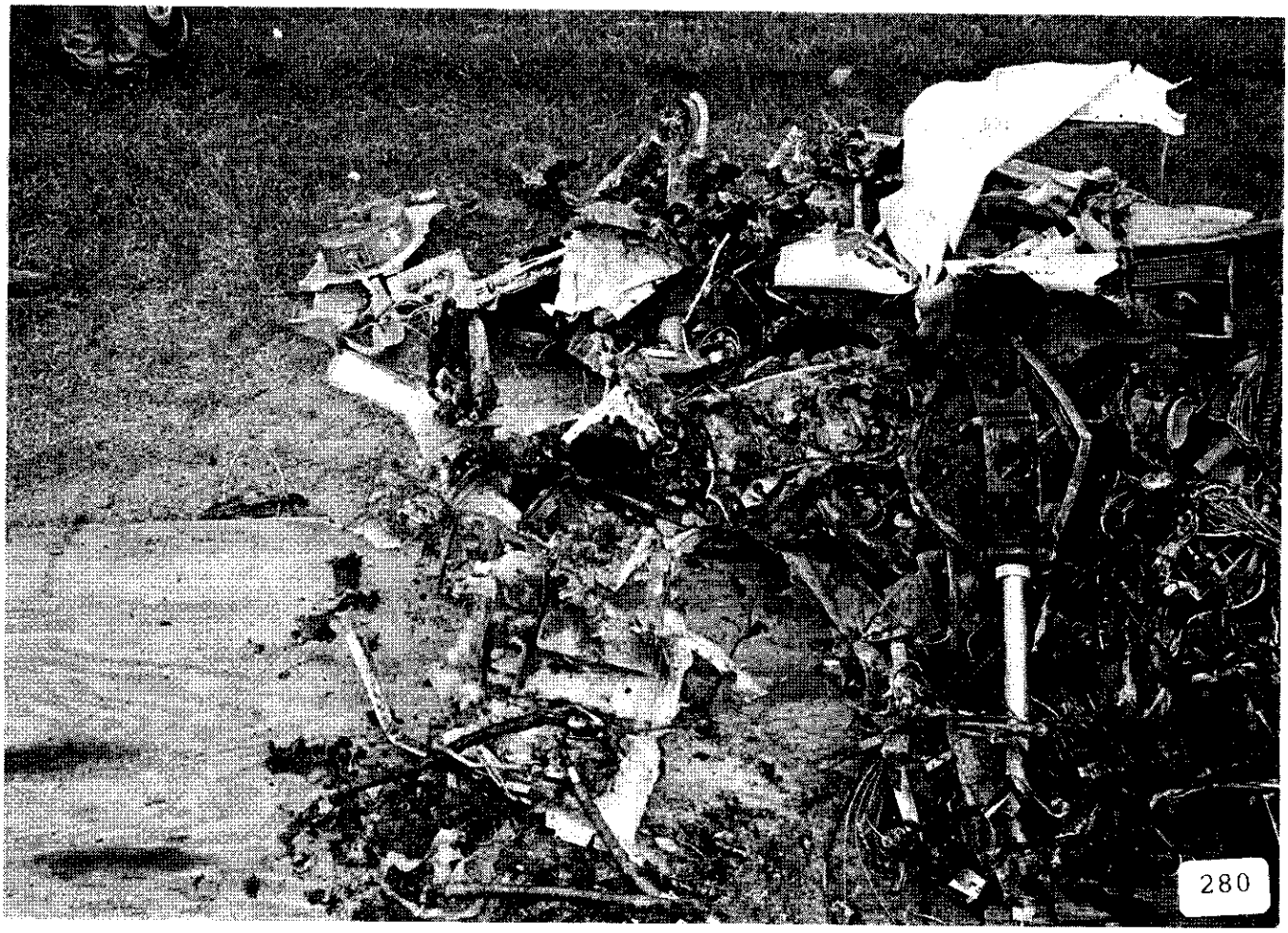
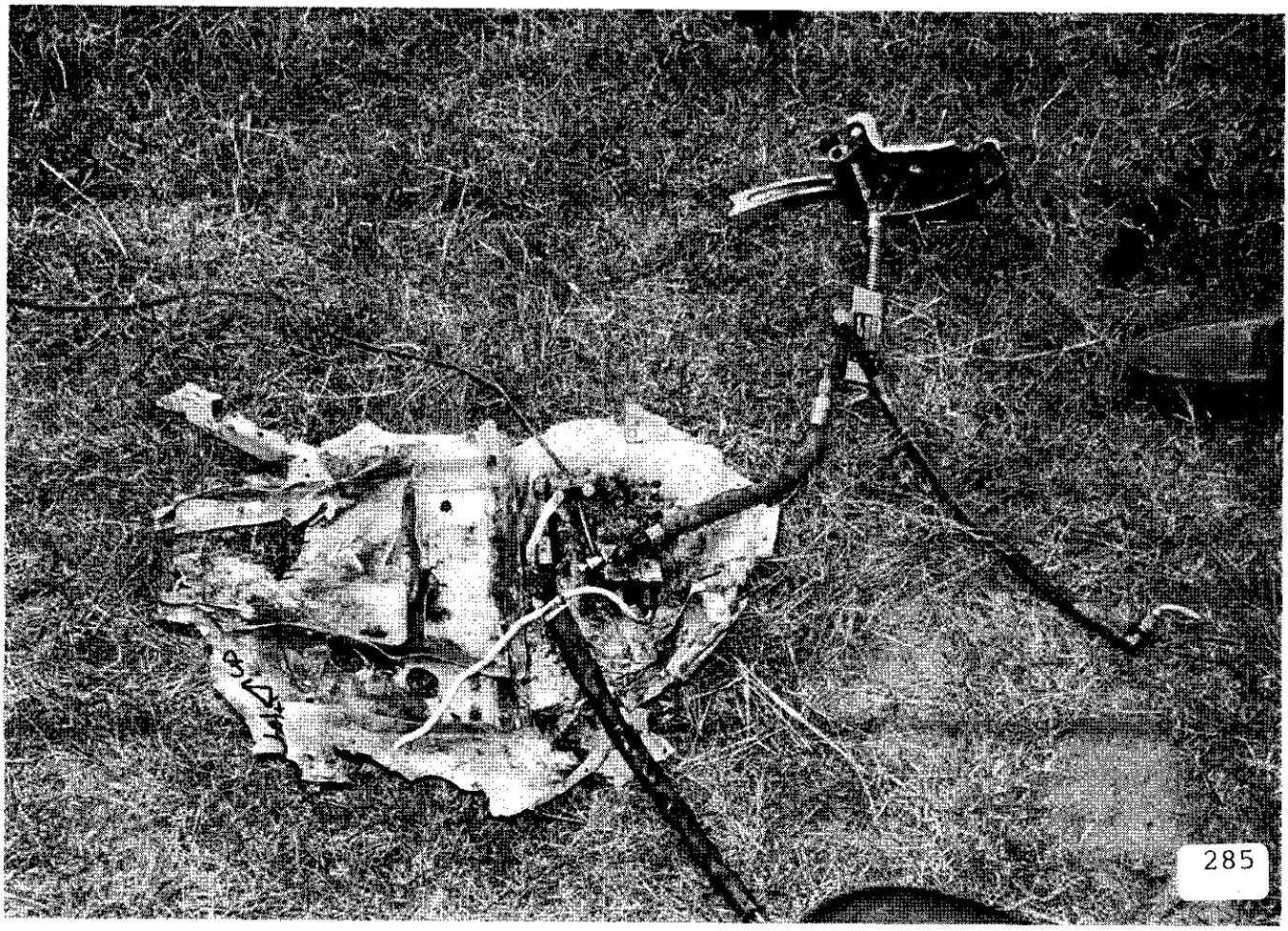


FIGURE 17-20. FIREWALL ASSEMBLY
/SHEET 2 OF 2 SHEETS/


280


285

SUB-SECT UNIT & ITEM NO.	PART NO.	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
17-20 - 27	106-410010-9	. ANGLE	1	9
- 28	106-410010-19	. CLIP	2	9
- 29	106-410010-17	. ANGLE	1	9
- 30	106-410010-13	. ANGLE	1	9
- 31	106-410010-21	. ANGLE	1	9
- 32	106-410010-11	. ANGLE	1	9
- 33	106-410010-23	. COVER	1	9
		/ATTACHING PARTS/		
	MS35207-269	. SCREW	4	
	MS21059-10	. NUTPLATE	4	
- 34	002-430046-17	BULKHEAD,LH LOWER	1	10
	002-430046-18	BULKHEAD,RH LOWER	1	10

CODES OF EFFECTIVITY

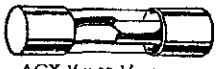
1	TE-1085 AND AFTER TH-769, TH-782 AND AFTER	2	TE-1078 THRU TE-1118 TE-1120 THRU TE-1124 TH-769, TH-782 THRU TH-872 TH-874 THRU TH-894
3	TE-1119, TE-1125 AND AFTER TH-873, TH-895 AND AFTER	4	TE-1001, TE-1027 THRU TE-1080
5	TE-1081 AND AFTER	6	TH-578 THRU TH-750
7	TH-751 THRU TH-1361,TH-1363 THRU TH-1373	8	TE-1001, TE-1027 THRU TE-1080 TH-578 THRU TH-750
9	TE-1081 AND AFTER TH-751 AND AFTER	10	TE-1001, TE-1027 AND AFTER TH-578 AND AFTER
11	TH-578 AND AFTER	12	TE-1001, TE-1027 THRU TE-1084 TH-578 THRU TH-768 TH-770 THRU TH-781
13	TH-1362, TH-1374 AND AFTER	14	TH-578 THRU TH-1361 TH-1363 THRU TH-1373

"END"

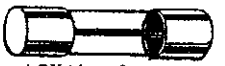
¼ x 1 inch FUSES

BUSS FAST ACTING FUSES for PROTECTION OF INSTRUMENTS, etc.

¼ x 1 inch. Glass tube Formerly called 8AG.



AGX 1/500 to 1/32 amp
MKB 1/16 and 1/8 amp



AGX 1/16 to 2 amp

Provide high speed action necessary to protect sensitive instruments or delicate apparatus.

AGX 1/500 to 1/32 ampere sizes and MKB 1/16 and 1/8 ampere sizes have bridge construction. This prevents physical damage to delicate element from rough handling or vibration.

If resistance lower than shown for AGX fuses is desired use MKB fuses in equivalent sizes.

1/16 to 2 ampere sizes have straight through element.

AGX fuses are listed by Underwriters' Laboratories, Inc.

Test specification — carry 100%, open at 200% within 5 seconds

Voltage	Symbol	Amperes
250 or less	**AGX**	1/500, 1/400, 1/100, 1/32, 1/16, 1/10, 1/8, 3/16, 3/10, 1/4, 3/8, 4/10, 1/2, 3/4, 1, 1 1/8 or 2
250 or less	**MKB**	1/16 or 1/8

MJB & MJW fuses now called AGX.

Carton quantity 5, shelf package 100 Shipping weight 0.76 lbs per 100

Resistance of Fast-Acting Fuses

See note on resistance of fuses on opposite page

Symbol & Ampere Rating	Cold Resistance Approx (ohms)	Hot Resistance Approx (ohms)	Symbol & Ampere Rating	Cold Resistance Approx (ohms)	Hot Resistance Approx (ohms)
AGX 1/500	1260	1920	AGX 3/8	15	5.6
AGX 1/200	200	300	AGX 1/2	92	3.3
AGX 1/100	102	186	AGX 3/4	.45	1.5
AGX 1/32	30	62	AGX 1	.31	1.2
AGX 1/16	30	91	AGX 1 1/2	11	.16
AGX 1/8	8	21	AGX 2	.07	.1
AGX 1/4	2.3	8.3	MKB 1/16	4	8.4
			MKB 1/8	1.2	3.1

Cold resistance obtained at 10% load
Hot resistance obtained at 100% load

BUSS GLASS TUBE FUSES, ¼ x 1 inch

Formerly called 8AG

Test specification — carry 110%, open at 135% within 1 hour

125 volt sizes listed by Underwriters' Laboratories, Inc.

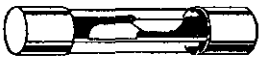
Voltage	Symbol	Amperes
125 or less	**AGX**	3, 4 or 5
32 or less	**AGX**	8, 10, 15, 20, 25 or 30

Carton quantity 5, shelf package 100 Shipping weight 0.76 lbs per 100

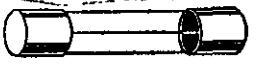
¼ x 1¼ inch FUSES

BUSS FAST ACTING FUSES for PROTECTION OF INSTRUMENTS, etc.

¼ x 1¼ inch. Glass tube Formerly called 3AG.



AGC 1/500 to 1/32 amp
MGB 1/16 and 1/8 amp



1/16 to 2 amp

Provide high speed action necessary to protect sensitive instruments or delicate apparatus.

AGC 1/500 to 1/32 ampere sizes and MGB 1/16 and 1/8 ampere sizes have bridge construction. This prevents physical damage to delicate element from rough handling or vibration.

1/16 to 2 ampere sizes have straight through element.

Listed by Underwriters' Laboratories, Inc.

Test specifications — carry 110%, open at 135% in 1 hour or less. 1/500 to 2 ampere sizes also will open at 200% load in 5 seconds or less

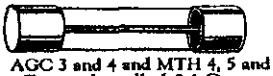
See Blowing Time Charts, page 22.

Voltage	Symbol	Amperes
250 or less	**AGC**	1/500, 1/200, 1/100, 1/32, 1/16, 1/8, 15/100, 175/1000, 3/16, 2/10, 1/4, 3/10, 3/8, 45/100, 1/2, 6/10, 3/4, 1, 1 1/4, 1 1/2, 1 6/10, 2
250 or less	**MGB**	1/16 or 1/8

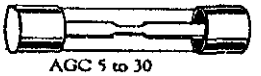
MBW & MBB fuses now called AGC.

Carton quantity 5, shelf package 100 Shipping weight 0.91 lbs per 100

BUSS GLASS TUBE FUSES, ¼ x 1¼ inch



AGC 3 and 4 and MTH 4, 5 and 6



AGC 5 to 30

Formerly called 3AG.

Test specification — carry 110%, open at 135% within 1 hour

See Blowing Time Charts, page 22.

Fuses rated for 250 and 125 volts listed by Underwriters' Laboratories, Inc.

Voltage	Symbol	Amperes
250 or less	**AGC**	2½, 3
250 or less	**MTH**	4, 5 or 6

For 250 volt fuses above 6 amperes — See ABC fuses

125 or less	**GLH**	8 or 10
32 or less	**AGC**	4, 5, 6, 7½, 8, 10, 15, 20, 25 or 30

Sizes larger than 30 ampere are not recommended as clips or fuseholders would not permit fuse to carry such high currents. If surges or starting currents make heavier fuse necessary, use MDL FUSETRON dual-element fuses

Carton quantity 5, shelf package 100 Shipping weight 0.91 lbs per 100

BUSS MELAMINE TUBE FUSES, ¼ x 1¼ inch

These are high interrupting capacity fuses for use on circuits capable of delivering currents as high as 25,000 amperes at 125 volts or 10,000 amperes at 250 volts.

Test specification — carry 110%, open at 135% in 1 hour or less.

See Blowing Time Charts, page 22.

Voltage	Symbol	Amperes
250 or less	**MBD**	1, 2, 3, 4, 5, 6, 8, 10 or 15
125 or less	**MBD**	20, 25 or 30

Carton quantity 5, shelf package 100 Shipping weight 0.93 lbs per 100

BUSS CERAMIC TUBE FUSES, ¼ x 1¼ inch

Formerly called 3AB

These are high interrupting capacity fuses for use on circuits capable of delivering currents as high as 25,000 amperes at 125 volts or 10,000 amperes at 250 volts.

Test specification — carry 110%, open at 135% within 1 hour

See Blowing Time Charts, page 22

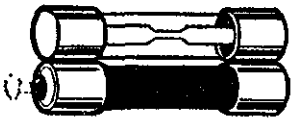
Listed by Underwriters' Laboratories, Inc., 15 amps and less.

Voltage	Symbol	Amperes
250 or less	**ABC**	¼, 1, 2, 3, 5, 6, 8, 10, 12, 15 or 20
125 or less	**ABC**	25 or 30

Carton quantity 5, shelf package 100 Shipping weight 1 lb per 100

BUSS INDICATING FUSES, ¼ x 1¼ inch

¾ to 5 amp



6 to 30 amp

Fibre tube, silverplated indicating pin extends from end of fuse when fuse is blown. If desired indicating pin can be used to actuate a signal by using fuses in a BUSS HKA Fuseholder or in a BUSS Signal Fuse Block.

GLD fuses in sizes larger than 5 ampere have a dual tube construction. They can be used in BUSS Signal fuse blocks but not in the HKA fuseholder.

125 volt sizes listed by Underwriters' Laboratories, Inc.

Test specification — carry 110%, open at 135% in 1 hour or less

See Blowing Time Charts, page 22.

Voltage	Symbol	Amperes
125 or less	**GLD**	¾, 1, 1½, 2, 3, 4 or 5
32 or less	**GLG**	6, 8, 10, 12, 15, 20, 25 or 30

IBM now called GLD.

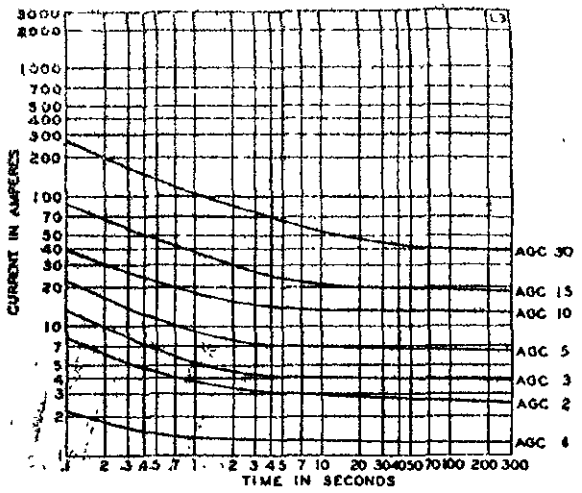
0 to 5 amp Carton quantity 5 Shipping weight 0.86 lbs. per 100
8 to 15 amp Carton quantity 5 Shipping weight 1.75 lbs. per 100.

GBA FUSES

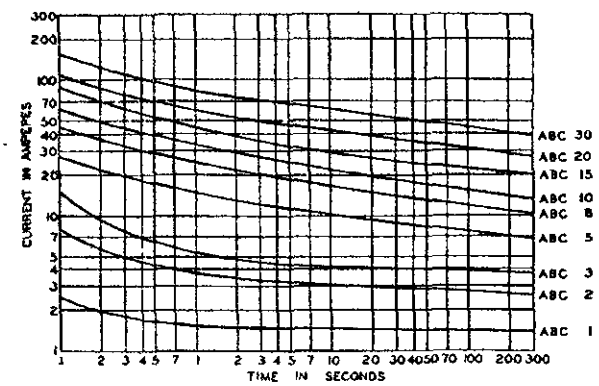
GBA fuses are the same as BUSS GLD fuses EXCEPT that the indicating pin is RED This results in a more vivid indication of an open fuse when the fuses are used in BUSS HLD fuseholders.

GBA fuses have same electrical and physical characteristics as BUSS GLD fuses and are made in the same ampere sizes up to 5 ampere. These sizes are listed by the Underwriters' Laboratories, Inc.

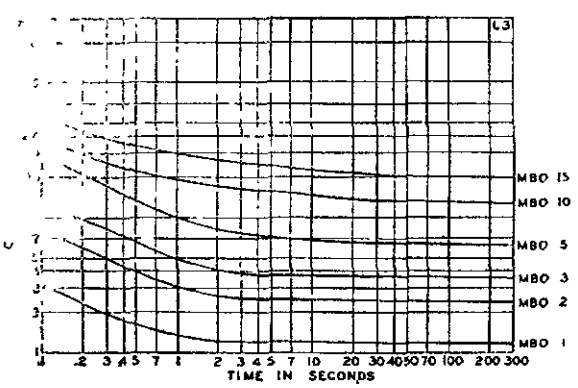
To specify give symbol **GBA** and amperes.



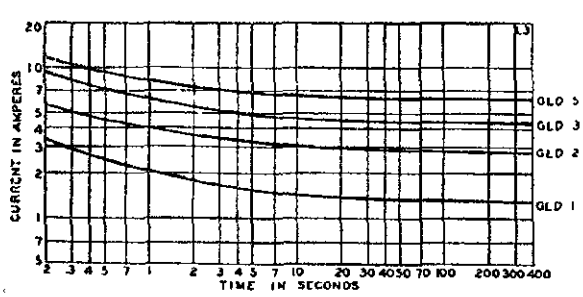
BUSS AGC Fuses
¼ x 1¼ inch. Glass tube



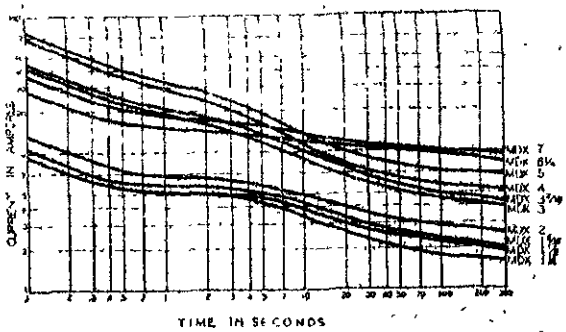
BUSS ABC Fuses
¼ x 1¼ inch. Ceramic tube



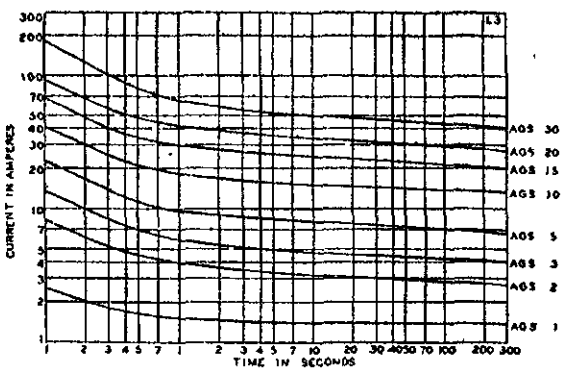
BUSS MBO Fuses
¼ x 1¼ inch. Melamine tube



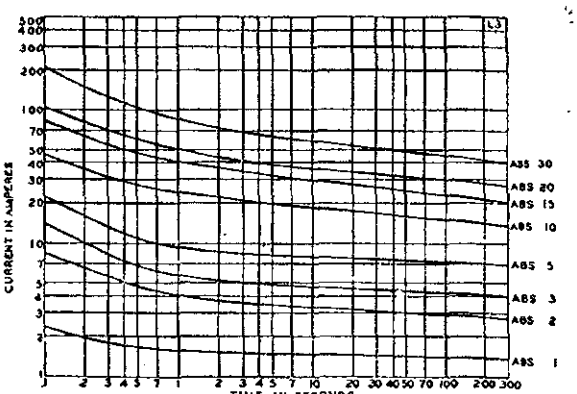
BUSS GLD Indicating Fuses
¼ x 1¼ inch. Fibre tube



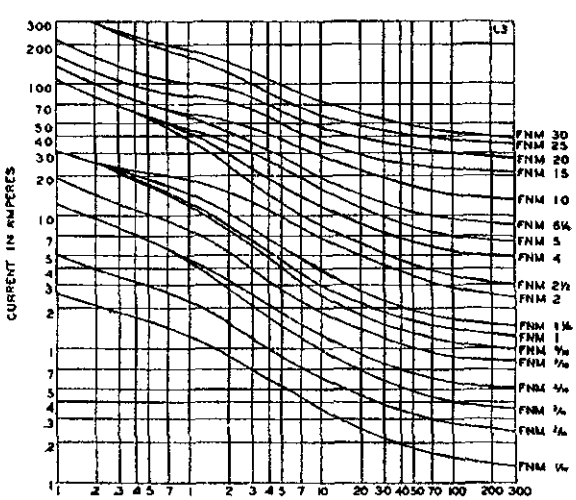
FUSETRON MDX dual-element Fuses
¼ x 1¼ inch. Glass tube



BUSS AGS Fuses
⅜₂ x 1¼ inch. Glass tube



BUSS ABS Fuses
⅜₂ x 1¼ inch. Ceramic tube



FUSETRON FNM dual-element Fuses
¹³⁄₃₂ x 1½ inches. Fibre tube