AIRCRAFT WHEEL & BRAKE DIVISION **FAA-PMA**
PARKER HANNIFIN CORPORATION
AVON, OHIO
PARTS LIST

199-168 HOT AIR MANIFOLD KIT

* HAWKER BEECHCRAFT AIRCRAFT MODELS F90, 99, 100, AND 200;

THOSE EQUIPPED WITH BRAKE DE-ICE AND CLEVELAND 199-110

WHEEL & BRAKE CONVERSION KIT

PART NUMBER	DRAWING REVISION	DESCRIPTION	QUANTITY
139-23700	Rev. F dated 06-02-2011	Manifold Assembly	2
103-31000	----------	Bolt – Upper (AN6-40A)	2
103-22900	----------	Bolt – Lower (MS21250-05-042)	2
095-10100	----------	Washer, 3/8 Flat (AN960-616L)	4
095-10500	----------	Washer, 5/16 Flat (AN960-516)	2
095-02800	----------	Washer, 5/16 C'Sink (MS20002C5)	2
094-10100	----------	Nut, 3/8 Locking (MS21042-6)	2
094-10400	----------	Nut, 5/16 Locking (MS21044-N5)	2

Publication Package (P/N PP199-16800)

199-168 P/L	----------	Kit Parts List (This document)
IM199-168	Rev. D dated 06-18-2010	Installation Manual with IPL for Hot Air Manifold Kit 199-168
FMS for 99 & 100	Dated 10-19-1988	Airplane Flight Manual Supplement for Brake Deice on Models 99, A99, A99A, B99, C99, 100, A100, & B100
FMS for F90	Dated 10-19-1988	Airplane Flight Manual Supplement for Brake Deice on Model F90
†FMS for 200	Dated 10-19-1988	Airplane Flight Manual Supplement for Brake Deice on Models 200, 200C, 200CT, 200T, A200, A200C, A200CT, B200, B200C, B200CT & B200T
SA646GL	Amend date 11-09-1988	Supplemental Type Certificate for Models 99 & 100
SA650GL	Amend date 11-09-1988	Supplemental Type Certificate for Model F90
SA890GL	Amend date 12-15-2010	Supplemental Type Certificate for Models 200
	----------	Warranty Registration Card

NOTES:

1. This kit will convert one aircraft.

†2. Airplane Flight Manual Supplement is not required for Models B200GT and B200CGT. For these models, information regarding operation of the Brake Deice System is contained in the Main Body of the Airplane Flight Manual, and not in a Flight Manual Supplement (as for other models)

* Eligible Aircraft same as 199-110 Kit

199-168
INT. 05-25-1988 (288-11)
Rev. A 11-09-1988 (293-34)
Rev. B 12-02-1988 (293-69)
Rev. C 04-01-1991 (303-5)
Rev. D 12-10-1996 (0317-23)
Rev. E 08-25-2008 (0381-34)
Rev. F 06-18-2010 (0389-80)
Rev. G 06-06-2011 (0393-25)

CLEVELAND WHEELS & BRAKES
IM199-168
INSTALLATION MANUAL
WITH ILLUSTRATED PARTS LIST
FOR HOT AIR MANIFOLD KIT 199-168

FOR
BEECH MODELS F90, 99, 100 & 200
EQUIPPED WITH BRAKE DE-ICE
AND CLEVELAND 199-110 WHEEL
AND BRAKE CONVERSION KIT

Cleveland
Wheels & Brakes

Parker
Aerospace

PARKER HANNIFIN CORPORATION - AIRCRAFT WHEEL & BRAKE
1160 Center Road - Avon, Ohio 44011 - Customer Service 1-800-Braking

STOP!

PLEASE TAKE A FEW MOMENTS TO COMPLETE AND RETURN THE ATTACHED REGISTRATION CARD. IT IS IMPORTANT THAT ALL INFORMATION IS LEGIBLY PRINTED. THIS DATA WILL ASSIST PARKER HANNIFIN, AIRCRAFT WHEEL & BRAKE IN THE EVENT THAT NOTIFICATION TO END USERS OF SPECIFIC AIRWORTHINESS DOCUMENTS IS NECESSARY.

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LIST OF REVISIONS

REVISION	DATE	PAGE	DESCRIPTION	APVD
Initial Release	05/25/88	---	Installation Instructions Cleveland Hot Air Manifold Kit 199-168	BB
A	11-09-88	2	Sec. 5.2 ADD: ", or Equivalent" Sec. 5.3 ADD: ", or Equivalent"	BB (293-34)
B	12-02-88	3	Sec. 5.10 ADD: , routing manifold inlet hose BELOW Hydraulic Line Tee. Add new Section 5.12: 5.12 perform gear retract to check heater inlet hose and hydraulic line clearance to gear door. If interference is evident, adjust hose spring clamp tension as needed to assure clearance. Sec. 5.13 was Sec. 5.12	BB (293-69)
C	12-10-96	All	All pages updated to new format	BB (0317-23)
		1	Section 1.2 (NOW): " ...40-289/30-146 ..... " (WAS) " . 40-172/30-146 ..... "	
		2	Section 5.3 (NOW): " 5.3 Seal under the upper support brackets, bolt heads, washers, and nuts with 2216 adhesive (part number of 3M, Saint Paul, MN 55144-1000 phone number 612-733-1110). This adhesive is not furnished with the 199-168 kit. " (WAS): " 5.3 Seal under the upper support brackets, bolt heads, washers, and nuts with EC2216 adhesive or equivalent. "	
		3	Section 5.11 (NOW): " ..... 40-289/30-146 ..... " (WAS) " ..... 40-172/30-146 .... "	
D	06-18-2010	6	Para. 8.1 Add Note regarding FMS for B200GT and B200CGT models	PH (0389-80)

1.0 INTRODUCTION

1.1 This manual is published for the guidance of personnel responsible for the installation of Cleveland Hot Air Manifold Kit 199-168.

1.2 This Kit contains all materials and instructions needed to replace both existing Brake deice manifolds (one per gear leg) with Cleveland manifolds. The Cleveland Manifold must be used exclusively in conjunction with Cleveland Wheels and Brakes 40-289/30-146 as provided in Conversion Kit 199-110.

2.0 APPLICABILITY

2.1 "KIT 199-168":	MAKE	MODELS
	Beech Aircraft with Standard Gear	F90, 99, 100 & 200

-NOTE-

For those aircraft equipped with Cleveland Wheel and Brake Conversion Kit 199-110 and Beech Brake deice system**.**

3.0 ORDER INFORMATION

3.1 To order spare parts, contact the nearest Parker Hannifin, Aircraft Wheel & Brake distributor in your area, or call Parker Hannifin, Aircraft Wheel & Brake Division, Customer Service at 1-800-BRAKING for assistance.

4.0 DESCRIPTION

4.1 The 199-168 is composed of a stainless steel welded manifold assembly and mounting hardware listed on page 4. The Hot Air Manifold contains no replaceable parts.

5.0 INSTALLATION

5.1 Prior to installation, aircraft must be jacked with main wheels & brakes and original Beech brake deice manifolds removed.

-NOTE-

Cleveland Conversion Kits 199-110 manufactured prior to November, 1988, required that original Beech Deice Manifold, inlet hose, on/off toggle switch and 5 ampere circuit breaker be removed with system placarded as inoperative, as per installation drawing 50-79 Revision D. For aircraft which have already been modified in this way, the brake deice system must be put back to an operational condition.

1. Remove Cleveland fitting cap (PIN 104-05600) and reconnect brake deice inlet hose at gear leg fitting.

2. Remove plastic plug (P/N 110-06800) from instrument panel and replace with brake deice on/off toggle switch.

3. Remove "System Inoperative" placard.

4. Re-install 5 ampere circuit breaker.

5. Any other parts of the system which may have been removed at owners discretion should be re-installed as needed.

6. Locate appropriate Flight Manual Supplement in section 7 of this manual, and attach to Aircraft Flight Manual.

5.2 Clean all adhesive from the upper piston and axle assembly holes with TT-M-261 Methyl Ethyl Ketone, or equivalent.

5.3 Seal under the upper support brackets, bolt heads, washers and nuts with 2216 adhesive (part number of 3M, Saint Paul, MN 55144-1000, phone number 612-733-1110). This adhesive is not furnished with the 199-168 kit.

5.4 Slide manifold assembly Item #1 onto axle and position to align holes.

5.5 Install lower bolt Item #2 and washer Item #3.

5.6 Install washer Item #4 and Nut Item #5.

5.7 Install upper bolt Item #6 and washer Item #7.

5.0 INSTALLATION (Cont'd.)

5.8 Install washer Item #7 and nut Item #8.

5.9 Torque nut Item #5 to 150 in-lbs. and nut Item #8 to 180 in-lbs.

5.10 Connect brake deice inlet hose to manifold inlet fitting, routing heater inlet hose BELOW hydraulic line tee.

5.11 Install Cleveland Wheels & Brakes 40-289/30-146 to each gear leg as per 199-110 kit installation instructions.

5.12 Perform gear retract to check heater inlet hose and hydraulic line clearance to gear door. If interference is evident, adjust hose spring clamp tension as needed to assure clearance.

5.13 Check that brake deice system is operational and functioning properly as per applicable Beech Aircraft Maintenance Manual and Cleveland Flight Manual Supplement.

-NOTE-

All maintenance and system operational checks are the same as those described for the original system per aircraft maintenance manual.

6.0 PRODUCT REGISTRATION

The product registration card is located at the front of this manual. The card is our way of tracking the conversion kits and your guarantee of receiving any future airworthiness information applicable to Hot Air Manifold Kit 199-168. Please fill out the registration card completely and return promptly. Postage is prepaid.

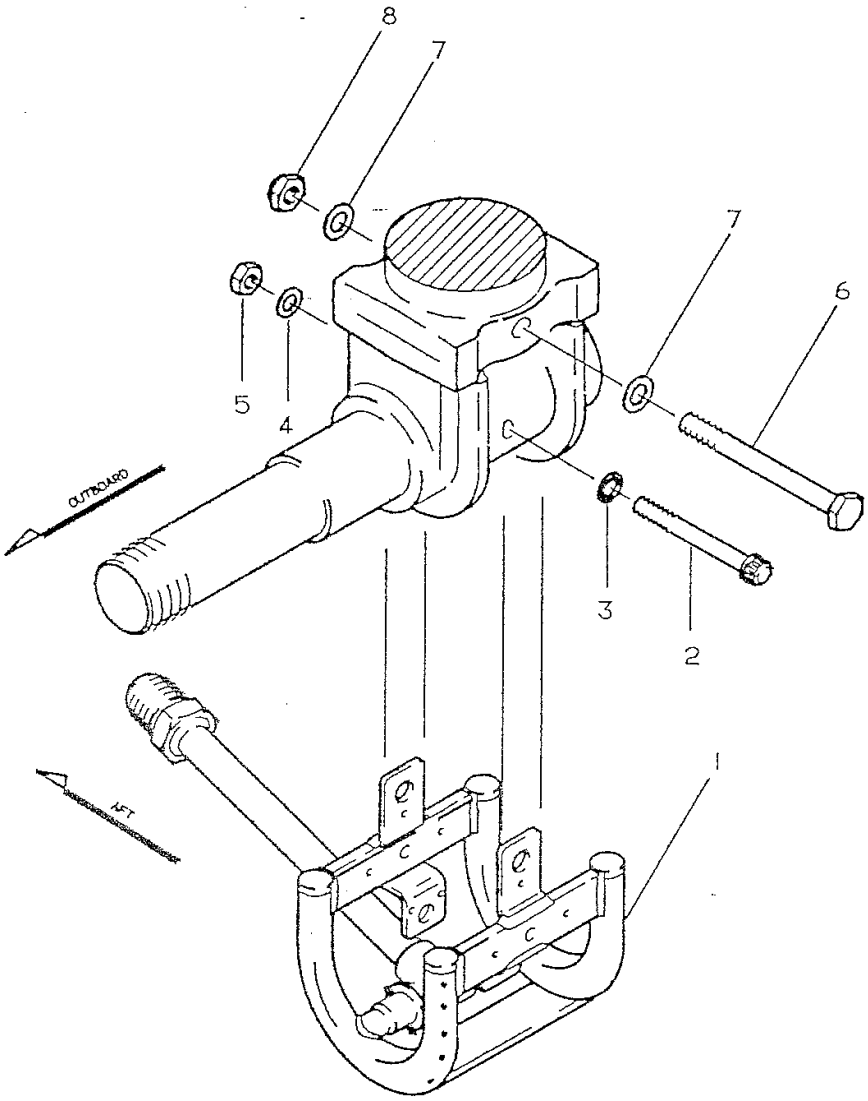
7.0 PARTS LIST

PARTS LIST

199-168 HOT AIR MANIFOLD KIT

* BEECH MODELS 99, 100 AND 200;
THOSE EQUIPPED WITH BRAKE DE-ICE
AND CLEVELAND 199-110 WHEEL AND
BRAKE CONVERSION KIT.

PART NO	CODE NO.	DESCRIPTION	QUANTITY
139-237	139-23700	Manifold Assembly	2
AN6-40A	103-31000	Bolt - Upper	2
MS21250-05-042	103-22900	Bolt - Lower	2
AN960-616L	095-10100	Washer (3/8 Flat)	4
AN960-516	095-10500	Washer (5/16 Flat)	2
MS20002-C5	095-02800	Washer (5/16 C'Sink)	2
AN364-624C	094-10100	Nut (3/8 Locking)	2
MS21044-N5	094-10400	Nut (5/16 Locking)	2
IM199-168		Installation Manual	1
SA646GL		STC's (99, 100)	1
SA650GL		STC’s (F90)	1
SA890GL		STC (200)	1
		Warranty Registration	1



RIGHT HAND GEAR SHOWN

Figure 1
199-168 Hot Air Manifold Kit

8.0 FLIGHT MANUAL SUPPLEMENTS

8.1 The following Flight Manual Supplements are provided for aircraft whose original brake deice system operation was covered by a Beech Airplane Flight Manual Supplement.

1. FAA approved airplane Flight Manual Supplement
   Beech Models: 99, 99A, A99A, B99, C99, 100, A100 and B100
   for the Brake Deice System.

2. FAA approved Airplane Flight Manual Supplement
   Beech Models: F90 (LA-202, LA-205 and after)
   for the Brake Deice System.

3. FAA approved Airplane Flight Manual Supplement
   Beech Super King Air Models: 200, 200T, 200C, 20OCT,
   B200, B200T, B200C, B20OCT
   for the Brake Deice System.

Note: Airplane Flight Manual Supplement is not required for Models B200GT and B200CGT. For these models, information regarding operation of the Brake Deice System is contained in the Main Body of the Airplane Flight Manual, and not in a Flight Manual Supplement (as for other models)

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

BEECH MODELS: 200, 200C, 200CT, 200T, A200, A200C, A200CT, B200, B200C, B200CT, B200T

FOR THE

BRAKE DEICE SYSTEM

AIRCRAFT P/N _____

S/N _____

The information in this document is FAA approved material, which together with the basic Airplane Flight Manual, is applicable and must be carried in the basic manual when the airplane brake deice system is modified by the installation of Cleveland Hot Air Manifold Kit 199-168 in accordance with STC SA890GL. The information in this document supersedes the basic manual only where covered in the items contained in this supplement. For limitations, procedures, and performance information not contained in this supplement, consult the manual proper.

FAA APPROVED: _____ DATE: OCT 19 1988

for W.F. Horn, Chief
Chicago Aircraft Certification
ACE-115C

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

LIST OF REVISIONS

REVISION	DATE	PAGE	DESCRIPTION	APVD

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

I. LIMITATIONS

1. Brake deice system is not to be operated above 15° C. ambient temperature.

2. Brake deice system is not to be operated longer than 10 minutes (one deice timer cycle) with the landing gear retracted. If operation does not automatically terminate approximately 10 minutes after gear retraction, system must be manually selected off.

3. Maintain 85% N_1 or higher during periods of simultaneous brake deice and wing boot operation. If inadequate pneumatic pressure is developed for proper wing boot inflation, select brake deice system off.

4. Both sources of instrument bleed air must be in operation. Select brake deice system off during single engine operation.

II. NORMAL PROCEDURES

AFTER STARTING

If brakes require deicing:

1. Bleed Air Valves - OPEN

2. Brake Deice - ON (check annunciator illuminated)

3. Condition Levers - HIGH IDLE

NOTE

Once brakes have been deiced, the condition levers may be returned to LOW IDLE.

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DATE: OCT 1 9 1988

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Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

II. NORMAL PROCEDURES (Cont'd.)

BEFORE LANDING

If it is possible that brakes may be restricted by ice accumulations from previous ground operation or inflight icing conditions.

1. Brake Deice - ON (check annunciator illuminated)

NOTE

If automatic timer has terminated brake deice operation after last retraction of the landing gear, the landing gear must be extended to obtain further operation of the system.

III. EMERGENCY PROCEDURES

ILLUMINATION OF BLEED AIR FAIL ANNUNCIATOR

If either BLEED AIR FAIL light illuminates in flight; shut off the INSTR & ENVIR bleed air valves on the affected engine. Select brake deice system off.

NOTE

BLEED AIR FAIL lights may momentarily illuminate during simultaneous wing boot and brake deice operation at low N_1 speeds. If lights immediately extinguish, they may be disregarded.

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PARKER AEROSPACE

III. EMERGENCY PROCEDURES (Cont'd.)

RUDDER BOOST OPERATION

The rudder boost system may not operate when the brake deice system is in use. Consequently, increased rudder-pedal forces should be anticipated in the event of single-engine operation. Availability of the rudder boost system will be restored to normal when the brake deice system is turned off.

IV. SYSTEM DESCRIPTION

High temperature engine compressor bleed air is directed onto the brake assemblies by a distributor manifold on each main landing gear. This high pressure air is supplied by the standard bleed air pneumatic system which also provides regulated pressure to the surface deice system and vacuum source. High temperature air from the pneumatic system is routed through a solenoid control valve in each main wheel well, through a flexible hose on the main gear strut and to the distribution manifold around the brake assembly.

A switch on the pilot's subpanel, placarded BRAKE DEICE, controls the brake deice system. When this switch is activated, both solenoid control valves are opened and an indicator light, BRAKE DEICE ON, on the lower annunciator panel is illuminated to advise the system is in operation.

The brake deice system may be operated as required on a continuous basis with the landing gear extended, provided the appropriate LIMITATIONS are observed. To avoid excessive wheel well temperatures with the landing gear retracted, a timer is incorporated to automatically terminate system operation approximately ten minutes after the landing gear is retracted. The system indicator light should be monitored and the control switch selected OFF when the light extinguishes or if brake deice operation has not automatically terminated within approximately ten minutes. The landing gear must be extended before the timer is reset and the system can be activated again.

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V. PERFORMANCE

Use of the brake deice system during certain ambient conditions may reduce available engine power. Consult the MINIMUM TAKE-OFF POWER chart in the FAA Performance Section of the Pilot's Operating Handbook to determine the minimum torque value permitted for takeoff. If this value cannot be obtained, without exceeding engine limitations, the brake deice system must be selected off until after the takeoff has been completed.

Use of the brake deice system in flight will result in an ITT rise of approximately 20° C. Observe ITT limitations when setting climb and cruise power.

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FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

BEECH MODELS: 99, A99, A99A, B99,
C99, 100, A100 & B100

FOR THE

BRAKE DEICE SYSTEM

AIRCRAFT P/N _____

S/N _____

The information in this document is FAA approved material, which together with the basic Airplane Flight Manual, is applicable and must be carried in the basic manual when the airplane brake deice system is modified by the installation of Cleveland Hot Air Manifold Kit 199-168 in accordance with STC SA646GL. The information in this document supersedes the basic manual only where covered in the items contained in this supplement. For limitations, procedures, and performance information not contained in this supplement, consult the manual proper.

FAA APPROVED: _____ DATE: OCT 19 1988

for W.F. Horn, Chief
Chicago Aircraft Certification
ACE-115C

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
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PARKER AEROSPACE

LIST OF REVISIONS

REVISION	DATE	PAGE	DESCRIPTION	APVD

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

I. LIMITATIONS

1. Brake deice system is not to be operated above 15° C. ambient temperature.

2. Brake deice system is not to be operated longer than 10 minutes (one deice timer cycle) with the landing gear retracted. If operation does not automatically terminate approximately 10 minutes after gear retraction, system must be manually selected off.

3. Maintain 85% N_1 or higher during periods of simultaneous brake deice and wing boot operation. If inadequate pneumatic pressure is developed for proper wing boot inflation, select brake deice system off.

4. Both sources of instrument bleed air must be in operation. Select brake deice system off during single engine operation.

II. NORMAL PROCEDURES

AFTER STARTING

If brakes require deicing:

1. Brake Deice - ON (check annunciator illuminated)

2. Power - 70% N_1 (Minimum)

NOTE

Once brakes have been deiced, the power may be returned to LOW IDLE.

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PARKER AEROSPACE

II. NORMAL PROCEDURES (Cont'd.)

BEFORE LANDING

If it is possible that brakes may be restricted by ice accumulations from previous ground operation or inflight icing conditions.

1. Brake Deice - ON (check annunciator illuminated)

NOTE

If automatic timer has terminated brake deice operation after last retraction of the landing gear, the landing gear must be extended to obtain further operation of the system.

III. EMERGENCY PROCEDURES

ILLUMINATION OF BRAKE DEICE OVERTEMP ANNUNCIATOR

If either BRAKE DEICE OVERTEMP light illuminates in flight;

1. Check that the brake deice system is turned off.

2. If the system has been turned off (manually or by timer circuit, and green light is off) extend landing gear. If continued flight is desired, gear must remain extended to assure cooling of the wheel well components.

NOTE

BRAKE DEICE OVERTEMP lights may momentarily illuminate during simultaneous wing boot and brake deice operation at low N_1 speeds. If lights immediately extinguish, they may be disregarded.

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Aircraft Wheel and Brake Division
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Avon, Ohio 44011 USA

PARKER AEROSPACE

IV. SYSTEM DESCRIPTION

High temperature engine compressor bleed air is directed onto the brake assemblies by a distributor manifold on each main landing gear. This heated air is supplied by the standard bleed air pneumatic system which also provides regulated pressure to the surface deice system and vacuum source. High temperature air from the pneumatic system is routed through a solenoid control valve in each main wheel well, through a flexible hose on the main gear strut and to the distribution manifold around the brake assembly.

A switch on the pilot's subpanel, placarded BRAKE DEICE, controls the brake deice system. When this switch is activated, both solenoid control valves are opened and an indicator light, BRAKE DEICE ON, on the annunciator panel is illuminated to advise that the system is in operation.

The brake deice system may be operated as required on a continuous basis with the landing gear extended provided the appropriate LIMITATIONS are observed. To avoid excessive wheel well temperatures with the landing gear retracted, a timer is incorporated to automatically terminate system operation approximately ten minutes after the landing gear is retracted. The system indicator light should be monitored and the control switch positioned to OFF when the light extinguishes or if brake deice operation has not automatically terminated within approximately ten minutes. The landing gear must be extended before the timer will reset and permit subsequent system activation.

The brake deice overtemp warning system is designed to illuminate a warning light in the cockpit prior to reaching excessive temperatures in the wheel well area. This is accomplished with a temperature sensitive tube which ruptures at approximately 200° F., causing the warning light to illuminate. Once illuminated, the warning light will not extinguish until the ruptured sensing element is replaced.

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V. PERFORMANCE

Use of the brake deice system during certain ambient conditions may reduce available engine power. Consult the MINIMUM TAKE-OFF POWER chart in the FAA Performance Section of the FAA Approved Airplane Flight Manual to determine the minimum torque value permitted for takeoff. If this value cannot be obtained without exceeding engine limitations, the brake deice system must be turned off until the takeoff has been completed.

Use of the brake deice system in flight will result in an ITT rise of approximately 20° C. Observe ITT limitations when setting climb and cruise power.

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DATE: OCT 19 1988

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Aircraft Wheel and Brake Division
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PARKER AEROSPACE

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

BEECH MODEL: F90

FOR THE

BRAKE DEICE SYSTEM

AIRCRAFT P/N _____

S/N _____

The information in this document is FAA approved material, which together with the basic Airplane Flight Manual, is applicable and must be carried in the basic manual when the airplane brake deice system is modified by the installation of Cleveland Hot Air Manifold Kit 199-168 in accordance with STC SA650GL. The information in this document supersedes the basic manual only where covered in the items contained in this supplement. For limitations, procedures, and performance information not contained in this supplement, consult the manual proper.

FAA APPROVED: _____ DATE: OCT 1 9 1988

for W.F. Horn, Chief
Chicago Aircraft Certification
ACE-115C

Parker Hannifin Corporation
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PARKER AEROSPACE

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REVISION	DATE	PAGE	DESCRIPTION	APVD

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

I. LIMITATIONS

1. Brake deice system is not to be operated above 15° C. ambient temperature.

2. Brake deice system is not to be operated longer than 10 minutes (one deice timer cycle) with the landing gear retracted. If operation does not automatically terminate approximately 10 minutes after gear retraction, system must be manually selected off.

3. Maintain 85% N_1 or higher during periods of simultaneous brake deice and wing boot operation. If inadequate pneumatic pressure is developed for proper wing boot inflation, select brake deice system off.

4. Both sources of instrument bleed air must be in operation. Select brake deice system off during single engine operation.

II. NORMAL PROCEDURES

AFTER STARTING

If brakes require deicing:

1. Bleed Air Valves - OPEN

2. Brake Deice - ON (check annunciator illuminated)

3. Condition Levers - HIGH IDLE

NOTE

Once brakes have been deiced, the condition levers may be returned to LOW IDLE.

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DATE: OCT 1 9 1988

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PARKER AEROSPACE

II. NORMAL PROCEDURES (Cont'd.)

BEFORE LANDING

If it is possible that brakes may be restricted by ice accumulations from previous ground operation or inflight icing conditions.

1. Brake Deice - ON (check annunciator illuminated)

NOTE

If automatic timer has terminated brake deice operation after last retraction of the landing gear, the landing gear must be extended to obtain further operation of the system.

III. EMERGENCY PROCEDURES

ILLUMINATION OF BRAKE DEICE OVERHEAT (BK DI OVHT) ANNUNCIATOR

If either Brake Deice Overheat annunciator illuminates in flight;

1. Ensure that the brake deice system is turned off.

2. Bleed Air Valve on affected side - PNEU & ENVIR OFF

NOTE

Brake Deice Overheat annunciators may momentarily illuminate during simultaneous wing boot and brake deice operation at low N_1 speeds. If lights immediately extinguish, they may be disregarded.

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DATE: OCT 1 9 1988

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Aircraft Wheel and Brake Division
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Avon, Ohio 44011 USA

PARKER AEROSPACE

III. EMERGENCY PROCEDURES (Cont'd.)

RUDDER BOOST OPERATION

The rudder boost system may not operate when the brake deice system is in use. Consequently, increased rudder-pedal forces should be anticipated in the event of single-engine operation. Availability of the rudder boost system will be restored to normal when the brake deice system is turned off.

IV. SYSTEM DESCRIPTION

High temperature engine compressor bleed air is directed onto the brake assemblies by a distributor manifold on each main landing gear. This heated air is supplied by the standard bleed air pneumatic system which also provides regulated pressure to the surface deice system and vacuum source. High temperature air from the pneumatic system is routed through a solenoid control valve in each main wheel well, through a flexible hose on the main gear strut and to the distribution manifold around the brake assembly.

A switch on the pilot's subpanel, placarded BRAKE DEICE, controls the brake deice system. When this switch is activated, both solenoid control valves are opened and an annunciator, BRAKE DEICE ON, is illuminated to advise that the system is in operation.

The brake deice system may be operated as required on a continuous basis with the landing gear extended, provided the appropriate LIMITATIONS are observed. To avoid excessive wheel well temperatures with the landing gear retracted, a timer is incorporated to automatically terminate system operation approximately ten minutes after the landing gear is retracted. The system indicator light should be monitored and the control switch positioned to OFF when the light extinguishes or if brake deice operation has not automatically terminated within approximately ten minutes. The landing gear must be extended before the timer will reset and permit subsequent system activation.

FAA APPROVED
DATE: OCT 1 9 1988

Parker Hannifin Corporation
Aircraft Wheel and Brake Division
P.O. Box 158
Avon, Ohio 44011 USA

PARKER AEROSPACE

IV. SYSTEM DESCRIPTION (Cont'd.)

The brake deice overtemp warning system is designed to illuminate a warning annunciator in the cockpit prior to reaching excessive temperatures in the wheel well area. This is accomplished with a temperature sensitive tube which ruptures at approximately 200° F., causing the warning annunciator to illuminate. Once illuminated, the warning light will not extinguish until the ruptured sensing element is replaced.

V. PERFORMANCE

Use of the brake deice system during certain ambient conditions may reduce available engine power. Consult the MINIMUM TAKE-OFF POWER chart in the PERFORMANCE Section of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual to determine the minimum torque value permitted for takeoff. If this value cannot be obtained, without exceeding engine limitations, the brake deice system must be selected off until after the takeoff has been completed.

FAA APPROVED
DATE: OCT 1 9 1988

Luftfahrt-Bundesamt
I312/15/95-2047

Braunschweig, 21.6.1995

Mitteilung über die Ergänzung der Musterzulassung **Nr. 0618/2047**
2047-1

STC-Inhaber: Aircraft Wheel and Brake Division
Parker Hannifin Corporation

Änderung: Einrüstung Parker Hannifin Main Wheel and Brake Conversion Kit 199-110

Muster/Baureihe: Beech 200, 200C, B200, B200C u. B200T

Geräte-Kennblatt Nr.: 2047, 2047-1

Die Musterzulassung des/der o.a. Musters/Baureihe wird durch folgende Angaben ergänzt:

Die Verwendung des Parker Hannifin Main Wheel and Brake Conversion Kit 199-110 in Beech 200, 200C, B200, B200C und B200T entsprechend dem FAA Supplemental Type Certificate **SA890GL** ist zugelassen.

So umgerüstete Flugzeuge sind zu betreiben nach:

1) Installation Manual Kit No. 199-110, FAA-anerkannt am 20.06.94
2) Installation Manual Kit No. 199-168, FAA-anerkannt am 02.12.88
3) Installation Drawing No. 50-79, FAA-anerkannt am 20.06.94

oder jede spätere FAA-anerkannte Fassung.

Unterlagen sind zu beziehen bei:

1) **Beechcraft Vertriebs- und Service GmbH**
Flughafenstr. 5
86169 Augsburg

oder

2) **Parker Hannifin Corporation**
Aircraft Wheel & Brake
1160 Center Road
P.O. Box 158
Avon, Ohio 44011
USA

Diese Mitteilung gilt in Verbindung mit dem Flugzeug-Kennblatt Nr. 2047, der jeweils gültigen Ausgabe.

Parker Hannifin Corporation
Aerospace/Aircraft Wheel & Brake
1160 Center Road
Avon, OH 44011

Date: _ _/_ _/20_ _

Subject: Letter of Authorization for Installation of STC'd Conversion Kits

To whom it may concern:

Parker Hannifin Corporation, Aircraft Wheel & Brake Division, hereby states that the following item(s):

KIT NUMBER: 199-_____

FAA APPROVAL: 1) STC # _____

NO OTHER APPROVALS NECESSARY

AUTHORIZATION TO INSTALL: With the sale of this STC KIT, OWNER of the Supplemental Type Certificate agrees to permit the buyer or buyer's agent or agency to use the certificate to alter the product under the terms and conditions of this STC.

A/C MAKE: _____

A/C MODEL_____

TAIL # _____

Regards,

Technical Support Team
Technical Hotline (800) 272-5464
Clevelandwbhelp@parker.com
Web-site: www.clevelandwheelandbrake.com
Manufacturer of Cleveland Wheels & Brakes

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SA646GL

This certificate, issued to Aircraft Wheel and Brake Division
Parker Hannifin Corporation
1160 Center Road
Avon, Ohio 44011

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 *of the* Federal Aviation *Regulations.* See Type Certificate Data Sheet A14CE for complete certification basis.

Original Product—Type Certificate Number A14CE
Make Beech
Model 99, 99A, A99A, B99, C99, 100, A100, B100

Description of Type Design Change

Installation of Cleveland Wheel and Brake Conversion Kit 199-110 in accordance with Cleveland Drawing 50-79, revision A, dated May 26, 1983, and Parts List 199-110, revision A, dated May 26, 1983, and Cleveland Hot Air Manifold Kit 199-168, revision A, dated November 9, 1988 or later FAA Approved revisions.

Limitations and Conditions The Brake De-Ice System Airplane Flight Manual Supplement FAA Approved on October 19, 1988, or later FAA approved revision, must be carried in the aircraft at all times. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any other of those previously approved modifications will introduce no adverse effect upon the airworthiness of that aircraft.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application April 22, 1982 *Date reissued*

Date of issuance September 3, 1982 *Date amended* August 2, 1984, November 9, 1988

By direction of the Administrator

W. F. Horn *(Signature)*
Manager, Chicago Aircraft Certification Office
ACE-115C, Central Region *(Title)*

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47

FAA Form 8110-2 (10-68)

United States of America

Department of Transportation—Federal Aviation Administration

Supplemental Type Certificate

Number SA650GL

This certificate, issued to Aircraft Wheel and Brake Division
Parker Hannifin Corporation
1160 Center Road
Avon, Ohio 44011

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 *of the* Federal Aviation *Regulations.* See Type Certificate Data Sheet A31CE for complete certification basis.

Original Product—Type Certificate Number A31CE
Make Beech
Model F90

Description of Type Design Change

Installation of Cleveland Brake Conversion Kit 199-110 in accordance with Cleveland Drawing 50-79, no revision, dated October 13, 1981 and Parts List 199-110, dated May 4, 1982; and Cleveland Hot Air Manifold Kit 199-168, Rev. A, dated November 9, 1988 or later FAA Approved revisions.

Limitations and Conditions The Brake De-Ice System Airplane Flight Manual Supplement FAA Approved on October 19, 1988, or later approved revision, must be carried in the aircraft at all times. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any other of those previously approved modifications will introduce no adverse effect upon the airworthiness of that aircraft.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application April 22, 1982 *Date reissued*

Date of issuance September 17, 1982 *Date amended* November 9, 1988

By direction of the Administrator

W. F. Horn *(Signature)*
Manager, Chicago Aircraft Certification Office
ACE-115C, Central Region
(Title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

FAA Form 8110-2 (10-68)

United States of America

Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

Number SA890GL

This certificate issued to

Parker Hannifin Corporation
Aircraft Wheel & Brake Division
1160 Center Road
Avon, OH 44011

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 *of the* Federal Aviation *Regulations.*
See Type Certificate Data Sheet No. A24CE for complete certification basis.

Original Product—Type Certificate Number: A24CE

Make: Hawker Beechcraft Corporation

Model: 200, 200C, 200CT, 200T, A200, A200C
A200CT, B200, B200C, B200CT, B200T
B200GT, B200CGT

Description of Type Design Change:
Install Parker Hannifin Corporation, Aircraft Wheel & Brake Division Conversion Kit 199-110, revision AB, dated June 18, 2010, and if applicable, install Parker Hannifin Corporation, Aircraft Wheel & Brake Division Hot Air Manifold Kit 199-168, revision F, dated June 18, 2010, in accordance with Installation Drawing 50-79, revision N, dated June 18, 2010, or later FAA approved revisions.

Limitations and Conditions:

1) This installation is restricted to those aircraft with standard landing gear (18x5.5 Main Wheel & Brakes).
2) The installer must determine whether this design change is compatible with previously approved modifications.
3) If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.
4) For B200GT and B200CGT models, information regarding operation of the Brake De-Ice System is contained in the Main Body of the Airplane Flight Manual. For all other models the Brake De-Ice System Airplane Flight Manual Supplement, approved on October 19, 1988, or later FAA Approved revision must be carried in the aircraft at all times.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: February 13, 1985

Date of issuance: April 16, 1985

Date reissued:

Date amended: December 15, 2010

By direction of the Administrator

(*Signature*)
Steven L. Lardinois
Manager, Systems and Flight Test Branch
Chicago Aircraft Certification Office

(*Title*)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.