

FAA-PMA

AIRCRAFT WHEEL & BRAKE DIVISION

PARKER HANNIFIN CORPORATION

AVON, OHIO

PARTS LIST

199-46 Conversion Kit for Cessna Aircraft

Model 120, 140, 175, 170, 170A, 170B, 172,
180, 182, Skyhawk & Skylane

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
40-97A	Wheel Assembly	2
30-63A	L. H. Brake Assembly	1
30-63A	R. H. Brake Assembly	1
145-22	Bushing	8
145-10	Bushing	4
20-134	W & B Assembly	1
50-24	Installation Instructions	1
50-25	Installation Instructions	1
50-26	Installation Instructions	1
SA13GL	Supplemental Type Cert.	1
PRM13A	Non Asbestos Lining Conditioning Procedure.	1

This kit will convert on aircraft to the
Cleveland Wheel & Brake Assemblies.

199-46
8-25-72
12-23-87 REV A (287-22) 45

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. D. Dowdian</i>		
EFFECTIVE DATE 8-29-72	SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS AND BRAKES FOR CESSNA AIRCRAFT MODELS 120 AND 140, SERIAL NUMBERS 8004 THROUGH 13399	

I. Purpose:

This procedure will outline the steps for converting early Cessna Models 120 and 140, Serial Numbers 8004 through 13399*.

II. Removal:

1. Block brake pedals in retracted position to prevent movement during conversion.
2. Remove old wheel assembly from axle.
3. Remove hydraulic line from brake cylinder.
4. Remove nuts, washers, and bolts which secure brake assembly to the mounting flange and remove brake assembly.
5. When applicable, modify the brake disc cover plate, mounting plate assembly and hubcap per instructions on Page 3.

III. Installation of Cleveland Wheel and Brake Assemblies per Drawing 20-134:

1. Modify torque plate assembly per Figure 1 and install on axle. Retighten the four axle attachment bolts per torque specifications in Cessna Service Manual.
2. Remove two through bolts (103-11600) and washers (095-10200) to remove back plate assembly (074-01000) from brake cylinder.
3. Place new wheel assembly (40-97A) on axle and start axle nut on threads. While rotating the wheel, hand tighten the axle nut to properly seat the wheel bearings. When the bearings are seated, hand tighten the nut until it stops, back off the nut to the nearest hole and install cotter pin.

* Restricted from usage on aircraft using optional Goodyear Crosswind Landing Gear. Reference Cessna Installation Drawing 0441150.

50-24

SHEET 1 OF 3

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. DeBordeau</i>		
EFFECTIVE DATE 8-29-72	SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS AND BRAKES FOR CESSNA AIRCRAFT MODELS 120 AND 140, SERIAL NUMBERS 8004 THROUGH 13399	

4. Place new brake assembly (30-63A) in torque plate assembly and install two (2) washers (095-10200) and two (2) thru bolts (103-11600) to secure back plate assembly 074-01000. Torque bolts to 90 in./lbs.
5. When necessary, cut existing rigid hydraulic line and flare open end. Attach flexible high pressure hose between flared end and brake assembly. It may be necessary to add an additional support for the hose in order to prevent excessive line vibration.
6. Bleed both brake assemblies.
7. Check reservoir for correct fluid level, and check to see that both brake pedals are solid.

REMOVE THE (2) 145-10 BUSHINGS IN TORQUE PLATE WHEN RECEIVED, AND INSTALL (4) 145-22 BUSHINGS, 1/4" I.D.

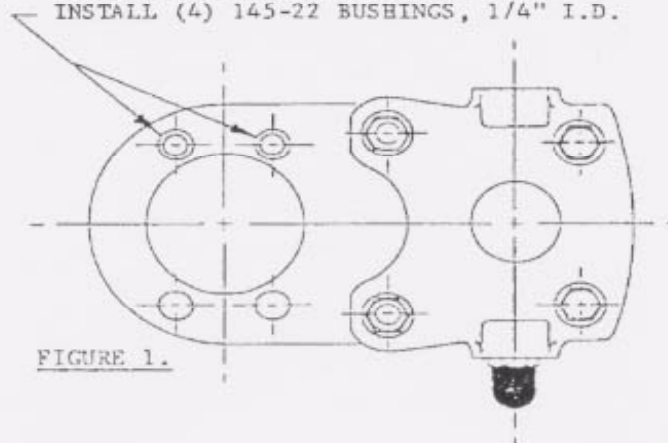
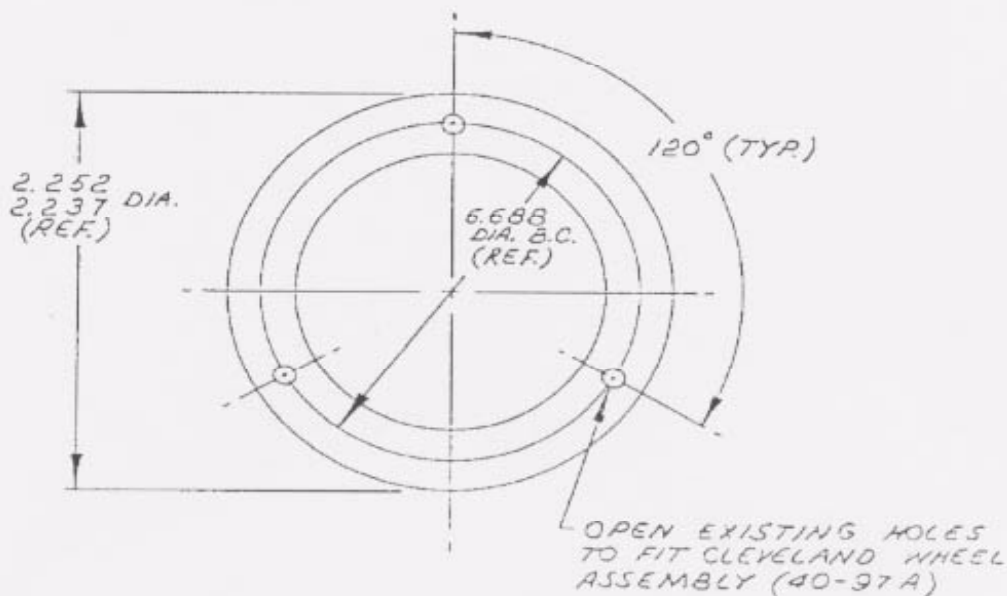


FIGURE 1.

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. Delandean</i>		SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS AND BRAKES FOR CESSNA AIRCRAFT MODELS 120 AND 140, SERIAL NUMBERS 8004 THROUGH 13399
EFFECTIVE DATE - 8-29-72		

WHEN APPLICABLE THE FOLLOWING MODIFICATIONS MUST BE MADE:

1. Modify brake cutout contour on existing mounting plate assembly to fit over Cleveland (30-63A) brake assembly, or purchase new mounting plate assembly. Attain correct part number from Cessna Parts Catalog.
2. Modify existing brake disc cover plate to allow Cleveland brake assembly (30-63A) to float freely when installed or purchase new disc cover plate. Attain correct part number from Cessna Parts Catalog.
3. Rework existing hubcap (dust shield) to dimensions shown.



PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. DeBordian</i>		
EFFECTIVE DATE 8-29-72	SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS & BRAKES TO CLEVELAND WHEELS & BRAKES FOR CESSNA AIRCRAFT MODELS 120, 140, 140A, SERIAL NUMBER 13400 & UP ALSO MODELS 170 AND 170A	

I. Purpose:

This procedure will outline the steps for converting early Cessna Model Aircraft as noted above.*

II. Removal:

1. Block brake pedals in retracted position to prevent movement during conversion.
2. Remove old wheel assembly from axle.
3. Remove hydraulic line from brake cylinder.
4. Remove nuts, washers, and bolts which secure brake assembly to the mounting flange and remove brake assembly.
5. When applicable, modify the brake disc cover plate, mounting plate assembly and hubcap per instructions on Page 4.

III. Installation of Cleveland Wheel and Brake Assemblies per Drawing 20-134:

1. Modify torque plate assembly per Figure 1 and install on axle. Retighten the four axle attachment bolts per torque specifications in Cessna Service Manual.
2. Remove two through bolts (103-11600) and washers (095-10200) to remove back plate assembly (074-01000) from brake cylinder.
3. Place new wheel assembly (40-97A) on axle and start axle nut on threads. While rotating the wheel, hand tighten the axle nut to properly seat the wheel bearings. When the bearings are seated, hand tighten the nut until it stops, back off the nut to the nearest hole and install cotter pin.

* Restricted from usage on aircraft using optional Goodyear Crosswind Landing Gear. Reference Cessna Installation Drawing 0441150.

50-25

SHEET 1 OF 4

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. Delandean</i>		SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS & BRAKES TO CLEVELAND WHEELS & BRAKES FOR CESSNA AIRCRAFT MODELS 120, 140, 140A, SERIAL NUMBER 13400 & UP ALSO MODELS 170 AND 170A (SEE NOTE BELOW)
EFFECTIVE DATE 8-29-72		

4. Place new brake assembly (30-63A) in torque plate assembly and install (2) washers (095-10200) and two (2) thru bolts (103-11600) to secure back plate assembly 074-01000. Torque bolts to 90 in./lbs.
5. When necessary, cut existing rigid hydraulic line and flare open end. Attach flexible high pressure hose between flared end and brake assembly. It may be necessary to add an additional support for the hose in order to prevent excessive line vibration.
6. Bleed both brake assemblies.
7. Check reservoir for correct fluid level, and check to see that both brake pedals are solid.

NOTE: Before modifying a model 170A, visually inspect the four bolts that attach the axle to the main landing gear spring. If these bolts are the same diameter, follow the procedure outlined below. If these bolts are not the same diameter, refer to Sheet 3 of 4, FIGURE 2.

RETAIN THE (2) 145-10 BUSHINGS IN THE TORQUE PLATE WHEN RECEIVED (REF. 20-134)

INSTALL (2) 145-10 BUSHINGS, $\frac{5}{16}$ I.D.

FIGURE 1.

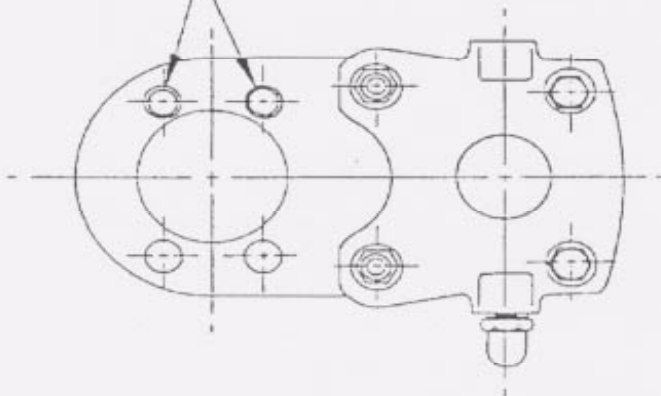
50-25

SHEET 2 OF 4

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. Delordian</i>		
EFFECTIVE DATE 8-29-72	SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS & BRAKES FOR CESSNA AIRCRAFT MODELS 120, 140, 140A, SERIAL NUMBER 13400 & UP ALSO MODELS 170 AND 170A	

FIGURE 2.

USE BRAKE ASSEMBLY AS RECEIVED
 (NO MODIFICATION NECESSARY)
 (REF. DWG. NO. 20-134)



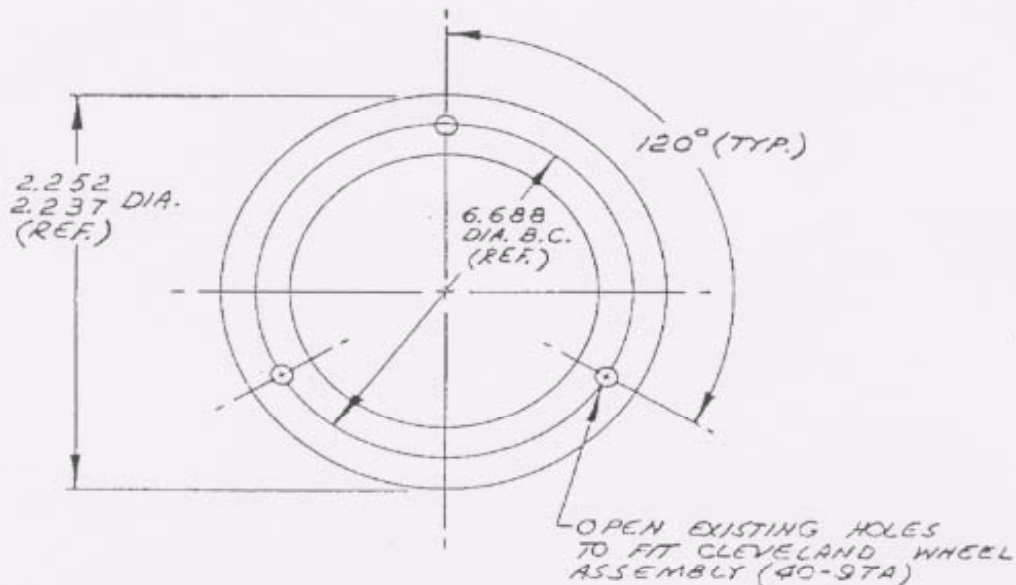
50-25

SHEET 3 OF 4

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. Delord</i>		SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS & BRAKES FOR CESSNA AIRCRAFT MODELS 120, 140, 140A, SERIAL NUMBER 13400 & UP ALSO MODELS 170 AND 170A
EFFECTIVE DATE 8-29-72		

WHEN APPLICABLE THE FOLLOWING MODIFICATIONS MUST BE MADE:

1. Modify brake cutout contour on existing mounting plate assembly to fit over Cleveland (30-63A) brake assembly, or purchase new mounting plate assembly. Attain correct part number from Cessna Parts Catalog.
2. Modify existing brake disc cover plate to allow Cleveland brake assembly (30-63A) to float freely when installed or purchase new disc cover plate. Attain correct part number from Cessna Parts Catalog.
3. Rework existing hubcap (dust shield) to dimensions shown.



50-25

SHEET 4 OF 4

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes	REVISION
APPROVED BY <i>C. Delordian</i>		(A) 10-13-72 (B) 02-02-73
EFFECTIVE DATE 8-29-72	INSTALLATION INSTRUCTIONS SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS AND BRAKES FOR CESSNA AIR- CRAFT MODELS 170B, 172, 172A THRU 172E, 175, 175A, 175B, 175C, P172D, 180, 180A THRU 180F, 182, 182A, THRU 182G	

I. Purpose:

This procedure will outline the steps for converting early Cessna Model Aircraft as noted above.*

II. Removal:

1. Block brake pedals in retracted position to prevent movement during conversion.
2. Remove old wheel assembly from axle.
3. Remove hydraulic line from brake cylinder.
4. Remove nuts, washers, and bolts which secure brake assembly to the mounting flange and remove brake assembly.
5. When applicable, modify the brake disc cover plate, mounting plate assembly and hubcap per instructions on Page 3.

III. Installation of Cleveland Wheel and Brake Assemblies per Drawing 20-134:

1. Modify torque plate assembly per Figure 1 and install on axle. Retighten the four axle attachment bolts per torque specifications in Cessna Service Manual.
2. Remove two through bolts (103-11600) and washers (095-10200) to remove back plate assembly (074-01000) from brake cylinder.
3. Place new wheel assembly (40-97A) on axle and start axle nut on threads. While rotating the wheel, hand tighten the axle nut to properly seat the wheel bearings. When the bearings are seated, hand tighten the nut until it stops, back off the nut to the nearest hole and install cotter pin.

* Restricted from usage on aircraft using optional Goodyear Crosswind Landing Gear. Reference Cessna Installation Drawing 0441150.

50-26

SHEET 1 OF 3

PREPARED BY JW 3-9-73	Cleveland Wheels & Brakes	REVISION
APPROVED BY <i>C. Delordian</i>	INSTALLATION INSTRUCTIONS	(A) 10-13-72 (B) 02-02-73
EFFECTIVE DATE 8-29-72	SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS AND BRAKES FOR CESSNA AIR- CRAFT MODELS 170B, 172, 172A THRU 172E, 175, 175A, 175B, 175C, P172D, 180, 180A THRU 180F, 182, 182A, THRU 182G	

4. Place new brake assembly (30-63A) in torque plate assembly and install two (2) washers (095-10200) and two (2) thru bolts (103-11600) to secure back plate assembly 074-01000. Torque bolts to 90 in./lbs.
5. When necessary, cut existing rigid hydraulic line and flare open end. Attach flexible high pressure hose ~~between flared end and brake~~ assembly. It may be necessary to add an additional support for the hose in order to prevent excessive line vibration.
6. Bleed both brake assemblies.
7. Check reservoir for correct fluid level, and check to see that both brake pedals are solid.

USE BRAKE ASSEMBLY AS RECEIVED
(NO MODIFICATION NECESSARY)
(REF. 20-134)

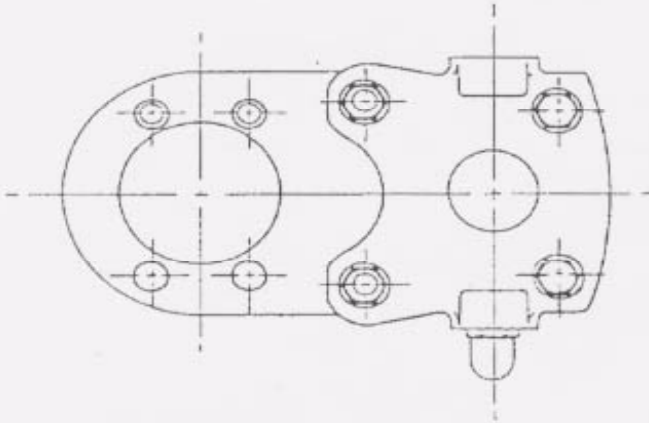


FIGURE 1.

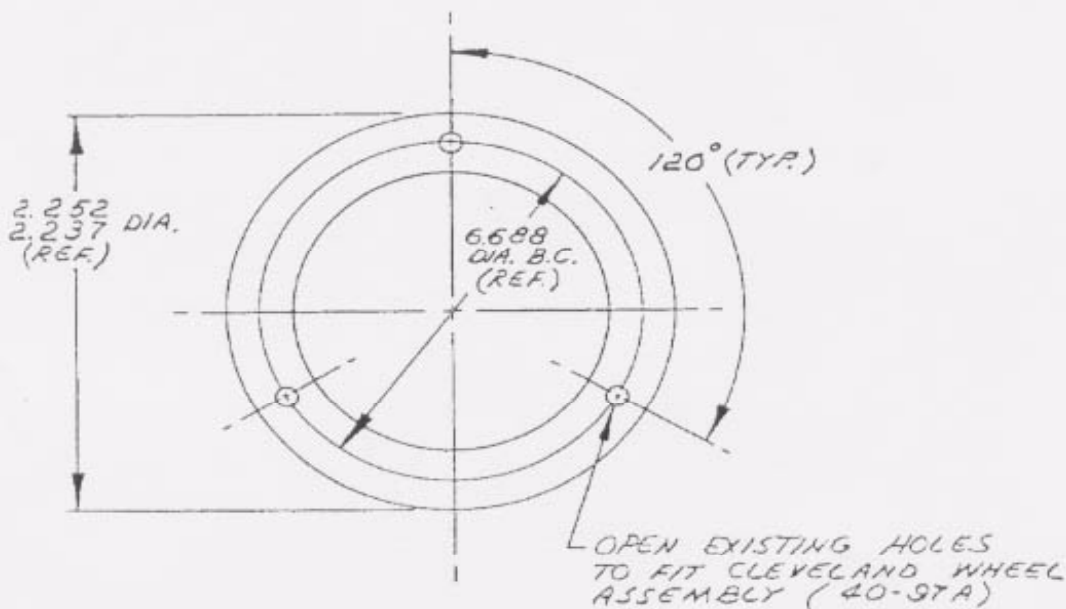
50-26

SHEET 2 OF 3

PREPARED BY 3-9-73	Cleveland Wheels & Brakes INSTALLATION INSTRUCTIONS	REVISION (A) 10-13-72 (B) 02-02-73
APPROVED BY <i>C. Delandean</i>		
EFFECTIVE DATE 8-29-72	SUBJECT CONVERTING FROM GOODYEAR 6.00-6 WHEELS AND BRAKES TO CLEVELAND WHEELS AND BRAKES FOR CESSNA AIR- CRAFT MODELS 170B, 172, 172A THRU 172E, 175, 175A, 175B, 175C, P172D, 180, 180A THRU 180F, 182, 182A, THRU 182G	

WHEN APPLICABLE THE FOLLOWING MODIFICATIONS MUST BE MADE:

1. Modify brake cutout contour on existing mounting plate assembly to fit over Cleveland (30-63A) brake assembly, or purchase new mounting plate assembly. Attain correct part number from Cessna Parts Catalog.
2. Modify existing brake disc cover plate to allow Cleveland brake assembly (30-63A) to float freely when installed or purchase new disc cover plate. Attain correct part number from Cessna Parts Catalog.
3. Rework existing hubcap (dust shield) to dimensions shown.



50-26

SHEET 3 OF 3

United States of America
Department of Transportation — Federal Aviation Administration
Supplemental Type Certificate

Number SA13GL

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 3 of the Civil Air Regulations as defined on individual model specification/type certification data sheet.

<i>Original Product — Type Certificate Number</i>	A-768, A-799, 3A12, 3A13, 3A17, 5A2, 5A6
<i>Make</i>	Cessna
<i>Model</i>	120, 140 (S/N 8004 thru 13399), 120, 140, 140A, (S/N 13400 and up), 170, 170A, 170B, 172, 172A thru 172E, 175, 175A, 175B, 175C, P172D, 180, 180A thru 180F, 182, 182A thru 182G
<i>Description of Type Design Change</i>	

Install Cleveland Wheel #40-97A, Brake #30-63A in accordance with Cleveland Drawings 20-134, Revision A, dated October 12, 1972, and mounting instructions 50-24, Revision C, dated February 2, 1973, 50-25 Revision C, dated February 2, 1973, 50-26 Revision C, dated February 1973, as appropriate.

Limitations and Conditions

This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect on the airworthiness of that aircraft. This approval is not extended to aircraft with Goodyear cross-wind (castering) landing gear.

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 October 13, 1972

Date issued July 23, 1974, October 28, 1980

Date of issuance February 20, 1973

Date amended July 24, 1973, April 1, 1981



By direction of the Administrator
W. F. Horn, Jr.

W. F. Horn, Jr. (Signature)
Chief, Engineering and Manufacturing Branch,
Great Lakes Region AGL-210
(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

40-97A WHEEL ASSY
600-6 TYPE III

THIS DRAWING SHOWS THE ENGINE ASSEMBLY, DO-234 AND THE POWER PLANT ASSEMBLY, 75-5714, AS SHOWN IN FIGURE 1. THE POWER PLANT ASSEMBLY IS A 50-234, 50-235, 50-236, 50-237, 50-238, 50-239, 50-240, 50-241, 50-242, 50-243, 50-244, 50-245, 50-246, 50-247, 50-248, 50-249, 50-250, 50-251, 50-252, 50-253, 50-254, 50-255, 50-256, 50-257, 50-258, 50-259, 50-260, 50-261, 50-262, 50-263, 50-264, 50-265, 50-266, 50-267, 50-268, 50-269, 50-270, 50-271, 50-272, 50-273, 50-274, 50-275, 50-276, 50-277, 50-278, 50-279, 50-280, 50-281, 50-282, 50-283, 50-284, 50-285, 50-286, 50-287, 50-288, 50-289, 50-290, 50-291, 50-292, 50-293, 50-294, 50-295, 50-296, 50-297, 50-298, 50-299, 50-300, 50-301, 50-302, 50-303, 50-304, 50-305, 50-306, 50-307, 50-308, 50-309, 50-310, 50-311, 50-312, 50-313, 50-314, 50-315, 50-316, 50-317, 50-318, 50-319, 50-320, 50-321, 50-322, 50-323, 50-324, 50-325, 50-326, 50-327, 50-328, 50-329, 50-330, 50-331, 50-332, 50-333, 50-334, 50-335, 50-336, 50-337, 50-338, 50-339, 50-340, 50-341, 50-342, 50-343, 50-344, 50-345, 50-346, 50-347, 50-348, 50-349, 50-350, 50-351, 50-352, 50-353, 50-354, 50-355, 50-356, 50-357, 50-358, 50-359, 50-360, 50-361, 50-362, 50-363, 50-364, 50-365, 50-366, 50-367, 50-368, 50-369, 50-370, 50-371, 50-372, 50-373, 50-374, 50-375, 50-376, 50-377, 50-378, 50-379, 50-380, 50-381, 50-382, 50-383, 50-384, 50-385, 50-386, 50-387, 50-388, 50-389, 50-390, 50-391, 50-392, 50-393, 50-394, 50-395, 50-396, 50-397, 50-398, 50-399, 50-400, 50-401, 50-402, 50-403, 50-404, 50-405, 50-406, 50-407, 50-408, 50-409, 50-410, 50-411, 50-412, 50-413, 50-414, 50-415, 50-416, 50-417, 50-418, 50-419, 50-420, 50-421, 50-422, 50-423, 50-424, 50-425, 50-426, 50-427, 50-428, 50-429, 50-430, 50-431, 50-432, 50-433, 50-434, 50-435, 50-436, 50-437, 50-438, 50-439, 50-440, 50-441, 50-442, 50-443, 50-444, 50-445, 50-446, 50-447, 50-448, 50-449, 50-450, 50-451, 50-452, 50-453, 50-454, 50-455, 50-456, 50-457, 50-458, 50-459, 50-460, 50-461, 50-462, 50-463, 50-464, 50-465, 50-466, 50-467, 50-468, 50-469, 50-470, 50-471, 50-472, 50-473, 50-474, 50-475, 50-476, 50-477, 50-478, 50-479, 50-480, 50-481, 50-482, 50-483, 50-484, 50-485, 50-486, 50-487, 50-488, 50-489, 50-490, 50-491, 50-492, 50-493, 50-494, 50-495, 50-496, 50-497, 50-498, 50-499, 50-500, 50-501, 50-502, 50-503, 50-504, 50-505, 50-506, 50-507, 50-508, 50-509, 50-510, 50-511, 50-512, 50-513, 50-514, 50-515, 50-516, 50-517, 50-518, 50-519, 50-520, 50-521, 50-522, 50-523, 50-524, 50-525, 50-526, 50-527, 50-528, 50-529, 50-530, 50-531, 50-532, 50-533, 50-534, 50-535, 50-536, 50-537, 50-538, 50-539, 50-540, 50-541, 50-542, 50-543, 50-544, 50-545, 50-546, 50-547, 50-548, 50-549, 50-550, 50-551, 50-552, 50-553, 50-554, 50-555, 50-556, 50-557, 50-558, 50-559, 50-560, 50-561, 50-562, 50-563, 50-564, 50-565, 50-566, 50-567, 50-568, 50-569, 50-570, 50-571, 50-572, 50-573, 50-574, 50-575, 50-576, 50-577, 50-578, 50-579, 50-580, 50-581, 50-582, 50-583, 50-584, 50-585, 50-586, 50-587, 50-588, 50-589, 50-590, 50-591, 50-592, 50-593, 50-594, 50-595, 50-596, 50-597, 50-598, 50-599, 50-600, 50-601, 50-602, 50-603, 50-604, 50-605, 50-606, 50-607, 50-608, 50-609, 50-610, 50-611, 50-612, 50-613, 50-614, 50-615, 50-616, 50-617, 50-618, 50-619, 50-620, 50-621, 50-622, 50-623, 50-624, 50-625, 50-626, 50-627, 50-628, 50-629, 50-630, 50-631, 50-632, 50-633, 50-634, 50-635, 50-636, 50-637, 50-638, 50-639, 50-640, 50-641, 50-642, 50-643, 50-644, 50-645, 50-646, 50-647, 50-648, 50-649, 50-650, 50-651, 50-652, 50-653, 50-654, 50-655, 50-656, 50-657, 50-658, 50-659, 50-660, 50-661, 50-662, 50-663, 50-664, 50-665, 50-666, 50-667, 50-668, 50-669, 50-670, 50-671, 50-672, 50-673, 50-674, 50-675, 50-676, 50-677, 50-678, 50-679, 50-680, 50-681, 50-682, 50-683, 50-684, 50-685, 50-686, 50-687, 50-688, 50-689, 50-690, 50-691, 50-692, 50-693, 50-694, 50-695, 50-696, 50-697, 50-698, 50-699, 50-700, 50-701, 50-702, 50-703, 50-704, 50-705, 50-706, 50-707, 50-708, 50-709, 50-710, 50-711, 50-712, 50-713, 50-714, 50-715, 50-716, 50-717, 50-718, 50-719, 50-720, 50-721, 50-722, 50-723, 50-724, 50-725, 50-726, 50-727, 50-728, 50-729, 50-730, 50-731, 50-732, 50-733, 50-734, 50-735, 50-736, 50-737, 50-738, 5



REFERENCE ONLY - DO NOT USE FOR PRODUCTION

1975-80 BUSHING (REF.)
45 SHIPRED



EXPOSED TO WITHSTAND STATIC PRESSURE AND TO PROTECT TO FIBRE/STC.

WINE	---	378	285
DISC	---	2109	185
BRASS CYL	---	150	285
TO ROLLER	---	25	185
TO P92	---	725	185

20-134

[illegible]

020-13400