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Oral history interview with Edward D. Johnson
[full name of interviewee]

about Transportation - relocation logistics,
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Space Craft transport, travel arrangements

Edward S.
Title: 1962 - Transportation
[interviewee's current and/or former title and affiliation]

1968 Program Control Div, ASPO

Interview conducted by Robert B. Merrifield, Staff
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Historian at MSC
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CONTENTS:

Biographical - [date/place of birth; family background] _____

Education - _____

Career Path - 1961 - STG, Langley

Sept 1961 Post-Carla
Topics - relocation draft plans; Houston Site visit;
personnel visits to Houston; East Coast Flying
Service; reduced freight rates; use of
truck/rail shipments; security for classified materials;
Confusion of multiple locations; local
transportation; motor pool by "Space Service";
problems operating 2 centers (Date 1961 - June 1962)
Gemini spacecraft shipment (from St Louis to Fla)
1963 Apollo transportation study (from Calif to Fla);
fight fit C-133; ~~and~~ Pregnant Guppy Contract; Taper Guppy;
Crucial work of ^{arranging} processing flight controllers to travel (Passports, tickets, etc)
Travel office foul-ups.

Interview with Edward D. Johnson
6/5/68

118
I joined the Center in August 1961, while we were still the Space Task Group and quartered at Langley Air Force Base. The first major impact on our Transportation Office was the preparation to relocate the STG to a new Center which at that time was still to be determined. We didn't get the announcement until September that we would actually come to Houston. We drafted up relocation plans to go to anyone of a number of points, we had a plan to Tampa, Fla., if we were to go there; we had a plan to come to Houston if it was selected, and also we drafted a plan in case we ~~were~~ assigned to the Benicia Arsenal in California. We made plans to move all our people who would move and ship all the STG capital equipment and supplies which we were authorized to move. We had to prepare documents which would outline the moving allowances that the people would be authorized, and exactly what they could expect in a way of being moved to wherever the Center was finally relocated. In addition to shipping their household goods and making the family arrangements, we also had to provide them with information on personal moves-- what they were entitled to and what they could do. We had a constant stream of visitors to the Transportation Office. Fortunately STG still was relatively small at the time, I guess we had around 750 people. Our office was located just outside the cafeteria door in STG Headquarters, 151 and it was convenient for people to come in to find out what they could expect in such a move--could they take three cars; one man had a boat repair yard and he wanted to know if he could ship his dry dock apparatus

down to Houston; another man had a herd of cattle and wanted to know how he could move these cattle to Texas or wherever we were going. Of course we had to stay strictly by the book. We did issue implementing instructions to our people.

130 After the word was put out that we were being relocated to Houston, Texas, Clear Lake, on about a Tuesday as I recall, the following weekend was when Hurricane Carla struck the Texas Coast. We made our first trip to Houston about the 12th or 15th of September. There were about 5 or 6 of us in that first visiting group sent to make a ground survey. There was Bill Parker, Marty Byrnes, Gene Horton, H. T. Christman, myself, and I believe Raol Lopez in the group. Our initial concern was exactly what facilities were we going to find down here to support our specific offices. My major concern was local transportation. I had to know what buildings we were going to be in and how scattered they would be. Also I took a general look at the permanent site. Of course, coming on the 163 heels of Carla, the place looked pretty bad. It was covered with debris and trash washed up by the storm. But quite apart from that, the highway pattern looked real bad. What is now NASA Road #1 was a two lane asphalt black top farm-to-market road. The Freeway wasn't as improved as it is now and couldn't stand the traffic. But our reception down here was excellent. 148-1

150 One of our major responsibilities was to make the move as painless as possible, and thereby encourage as many people as we could to come to Texas. Many of the people who were new hires, after August 1961, came with the understanding that we were definitely going to relocate the Center and they were no problem. But some of the old timers with the STG had different ideas as far as coming to Houston. Many wanted to stay in the

155
Tidewater area. So to overcome this, we did something which I believe was a novelty in the Government (at least outside of the military). We secured permission from the Administrator to authorize one visit to Houston by the personnel of the Center employed at Langley. This authorization would be based upon space available, and they could bring their spouse. They would be allowed to remain in Houston three or four days, depending on the aircraft turn around time. All of this was, of course, without expense to the Government. They would have this trip to look over the Houston area, and it was hoped it would enable them to better appreciate the advantages of coming to Texas.

154
We negotiated a contract with the East Coast Flying Service, and arranged with that firm to make two round trips a week between Houston and Langley Field in a Martin 404 type aircraft. It accommodated around 40 passengers. There was an intermediate stop each way at Huntsville, Ala. The Personnel Office arranged a priority system. Everyone interested in going to Houston submitted a request indicating a desire to come to Houston. The priority system was arranged in accordance with the relocation schedule of the various offices.

154
I think our first trip was almost a disaster. The weather at the time in the Gulf Coast area was very severe. The aircraft didn't even make it to Houston. The first flight took off from Langley about 5 p.m. and only made Beaumont, Texas, the next day as that was as far as the plane could get. It couldn't get to Houston because of severe turbulence in this area. Late the next day we arranged for a bus to pick up the passengers and bring them on to Houston.

154
155
In any event the people of that first group spent their three days in Houston looking around, and they came back well pleased with the operation. They accepted the weather problems as one of the unavoidable hazards, and this helped convince many other people that they should go down and look around. In the final analysis, every person who was offered a chance to come to Houston and did accept, were accommodated.

154
Later we made a little study of this operation to see what it cost. Not counting the gain in goodwill or improved morale, we saved the Government something around \$250,000 in airline tickets, air freight charges, and other miscellaneous costs. We had a free ride for all of our people who wanted a pre-move visit to Houston, and still saved money for the Center.

154
152
We maintained the shuttle flights until relocation was completed about June 1962. The contract with East Coast Flying Service was then terminated. Relocation of the Center's capital equipment was a separate problem. We negotiated these arrangements with the help of Bob Lindsey, Transportation Officer in NASA Headquarters at that time. We negotiated what is known as section 2210 in the ICC Regulations, which permitted us to enjoy reduced rates on shipping all of our material. We held a meeting with the carriers and we agreed to certain ground rules. We waived the right to file small damage claims--nicks, chips, and dents. In return, the carriers agreed to waive the requirement that called for us to package everything in accordance

with freight classification standards. This would have been a burdensome task and would have cost us hundreds of thousands of dollars. Therefore we pretty much established our own packaging criteria. We packaged everything carefully, but we didn't put each individual item in a packing case. For all practical purposes we shipped the Center in bulk from Langley to Houston. We were also innovaters in that we were among the first in the Tidewater Area to use piggy-back service out of the Hampton Area. The railroads would normally not have been able to participate in the move as Langley did not have a rail siding. So we loaded trailers at Langley, pulled them to the rail siding in Hampton, put them on the flat cars, and shipped them down to Houston. As I recall, altogether we shipped about 35 rail cars of piggy back service to Houston.

152 We used truck service, and again enjoyed special rates. We loaded the trucks, sealed them, locked them, and then they were brought straight through to Houston where we unloaded them at different receiving points. We had a few trucks and shipped them by rail, at least those we wanted to bring. We only had a very small motor pool, perhaps 15 or 18 vehicles. The Security Office delivered most of our station wagons by providing escort to the trucks containing the classified safes. In moving the classified material, we arranged to put nothing in that trailer but locked safes or other calssified material. This was kept under the surveillance of the Security Office. After loading was completed, the trucks were sealed by security personnel and then the Security Office provided escort. They drove one of our station wagons from Virginia to Houston, staying with this truck all the way. This assured us that we had complete protection over moving all of our classified material at all times.

As a result we made the move without a discrepancy of any kind insofar as the classified material was concerned.

152
The general freight, office supplies, desks, and all the furniture and the various lab equipment was moved with very little problems. There were a few missing items, of course, and sometimes things got a little mixed and weren't delivered promptly, and it took us a few days to sort out some of these problems. Our biggest problem was many people would label things with just their last name, such as Johnson, since we had several Johnsons, we had to tear open such boxes to see what was inside. Initially MSC offices were located in the Farnsworth Chambers Bldg, The Houston Petroleum Center, the Lane Wells Bldg, and the Rich Bldg. Preceding this, was the first quarters we had in Houston, which consisted of the space of two former stores in Gulfgate Shopping Center; one adjacent to the Post Office and the other adjacent to Joske's.

130
The problem for me involved keeping everyone coordinated since we were split up among several buildings. As the Center began to hire more people this increased the problem as an increased number of buildings were needed to house them, and we had to provide some means of transporting them between these various facilities. We didn't have any inhouse transportation initially. To provide taxi service, we negotiated local contracts with a local taxi company, Banks Transportation Company, and through leased cars and drivers, I believe 8 cars and drivers initially, and about 12 cars and drivers eventually. The objective was to provide a responsive taxi service to get people between all these buildings which at one point were in 14 separate locations. We had many people who preferred to drive their own

cars, but the Center adopted the position that it would not reimburse people for local travelling in the Houston area. As the Center grew it was very evident that the cab service would not provide a responsive enough service for us. Also, the cost would soon become unrealistically high for whatever benefit it gave us. Therefore we negotiated the latter part of 1962 or early 1963 with an outfit called "Space Services" of Atlanta, Ga., to provide us with a complete motor pool service. They provided drivers, cars, a radio dispatcher, and cars without drivers which we could assign directly to operating elements. They also provided us with trucks and maintained them. They did an excellent job at a reasonable fee. After about two years under this contract, the General Services Administration, around July 1964 assumed responsibility for all motor vehicle services in support of the Manned Spacecraft Center.

157
One of the biggest problems which I faced as Transportation Officer was that we were operating two Centers from October 1961 to June 1962. We had to provide a full range of transportation support for our people still at Langley as well as those in Houston. At the same time, no additional personnel staffing was authorized, so my people and I became nomads, traveling between Houston and Langley. We would ride our charter aircraft on these trips. We had to be sure all of the people who were still in Langley were adequately supported, as the Mercury Program was in an advanced operational phase at this time. To compound our problems, the Gemini program was beginning, and we had responsibility to insure that the spacecraft was properly supported. The operation of two offices was a considerable drain on our manpower and ran us ragged. With the close-out of all the operations at Langley we were able to move everyone into Houston.

200
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There was some dissatisfaction, unfortunately. I lost several people who had been with us for a long time. My chief assistant at the time, Charlie Griffith, elected to remain in Virginia and subsequently took a position with LRC. The chief of my travel office was married, and required by family ties to remain in Virginia. Our office workers also all stayed in Virginia. We had to rebuild the office, except for the few people who accompanied us on the move. Once we got to Houston we had to hire replacements for those we lost. I soon discovered that finding qualified passenger travel clerks and traffic specialists was ^a difficult task, they just weren't available. We became so desperate that we would take a person who had the basic prerequisites, and we would train them ourselves to bring them up to what our requirements were. At this time, we had the space center to support, we had to support the final missions of the Mercury Program, we had to support the Gemini effort of McDonnell in St Louis. In addition, the Apollo program was just getting started and we had to begin supporting Grumman and North American. It really kept us busy.

213

When we shipped the first Gemini spacecraft out of McDonnell, I spent a day in St Louis in advance of the actual shipping of the spacecraft. We had ordered a C-133 aircraft from the Military Airlift Command to support the operation for us. The spacecraft was checked out on time, and we loaded it on the aircraft. There were a large number of people in attendance, probably as many people as could be spared at McDonnell who looked on. When we got it aboard the aircraft the loadmaster on the aircraft asked how much the spacecraft weighed. It turned out that no one had ever weighed the spacecraft when it was ready for shipment on transporters and with all

its accessorial gear. There and then we learned a lesson--before you shipped one of these complete units, it had to be weighed.

713 Getting all of the proper documentation together was another problem. You had to be certain all the documentation went with the spacecraft, and it became a real problem trying to get it all together.

713 We went through with Gemini with no more problems. We did make about mid-way one major management change/in the Gemini Program, that had an important effect on our Transportation Office. The decision was that the Gemini spacecraft would be shipped to the Cape in a checked out configuration to reduce the time at Cape Kennedy. In order to do this we again had to turn to a charter air service. We went first to the commercial airlines, in particular Eastern airlines, as it had a franchise over the St Louis to Cape Kennedy route. Eastern was not much interested in our problems-- it would provide the best service it could commercially, which would mean we would be subject to normal schedule and service constraints. These limitations were intolerable as far as we were concerned. So we contracted the work, and the successful bidder again was East Coast Flying Service. It provided airlift service between St Louis and Fla., with an intermediate stop at Huntsville, Ala. The availability of this air service permitted us to move our technicians back and forth as necessary and at the same time with assurance that we were going to get the best possible safest handling of all of our critical flight equipment for Gemini support. Here again the success which was achieved by Gemini was in some way a result of the fact that we were able to keep these people and maximum safety and security in handling all of the equipment.

213
269
The Apollo Program, of course, constituted new categories of problems. The Apollo Command and Service Modules and launch escape system would not fit into any currently available aircraft. This meant we had to find an alternate mode of shipping these items. I prepared a study on Apollo transportation problems in 1963, in which I recommended that we should explore every method of shipping Apollo via airlift. Only if we could not succeed should we plan an alternate method, such as by highway or by ship from California to Fla. Headquarters agreed with my findings and gave us a go-ahead and we began to look at the biggest aircraft at the time. This was the Douglas C-133 which was used by Military Airlift Command. We had Douglas, as the builder, conduct an engineering study of this aircraft to determine if we could enlarge the cargo capacity of this aircraft. It had a 12-foot opening - 12' wide and 12' high at the rear loading door. We needed a larger opening because the SM is bigger than this. Douglas Aircraft Company studied the problem and decided it would be possible to cut away some of the ribs in the aircraft and make some changes in installation facilities on the plan so that we could get enough room to load the service modules. If we were able to load a SM we would then be able to load a CM. It is a real close fit--there is only about an inch to spare. Grumman Aircraft, as the contractor for the LM studied the situation and decided that by considerable shifting and twisting of the stages and by maneuvering them as they were put in, we could get it into C-133 with about three-quarters of an inch to spare. That didn't allow any margin of error. We were not pleased with this situation, but it did appear to be our only chance at the time. Then, unexpectedly, Jack Conray appeared with the first Pregnant Guppy. It was not NASA's policy to encourage development of such an aircraft

with the guarantee of a contract, but when Jack showed up at the Houston airport with this plane, we immediately realized it could be the answer to our needs. Wally Graves of Apollo Test Operations and I went out and looked at it and discussed the operation with Jack Conray, and discussed what he could handle, how much weight he could lift, and how things would be loaded. MSFC at this time, of course, was the lead Center in worrying about this because of their launch vehicle, SIV-B stages. MSFC was primarily interested in this aircraft but didn't have enough airlift requirements to support it, and needed our participation in order to make it a practical operation. After we looked at the aircraft, and had a test hop in it around Houston, we felt that this was likely the answer to our transportation problems. After many meetings between MSC and Marshall and NASA Headquarters, we recommended to Marshall that if this aircraft could be certificated for service by the FAA under special exemption or experimental licenses or something, we would use it for shipping Apollo CSM, and the LM. Since the Guppy is 19'6" in diameter it was more than adequate to accommodate Apollo modules in transportation. Many people said the Guppy would not fly, that it was a big whale and inherently unsafe. But Marshall Spaceflight Center had several of their aircraft design engineers study the aircraft carefully, and they concluded that the aircraft was perfectly safe and when operated within reasonable limits would do the job required. So in partnership with Marshall we funded the program. As a result, we have the safest and fastest delivery system for getting Apollo C&SM and LM around the country. We had to contribute not only the aircraft but as well to all the ground support equipment. We had to buy cargo lift trailers, special transfer trailers and dollies. Soon after we began using the Guppy, we had a minor catastrophe one day at EAFB. In 1963 we were

213
loading some equipment aboard the Guppy to go to California, and without warning a sudden wind gust hit the field. We had the aft section of the Guppy tied down to a tow tractor and secured to the ground, but this wind gust was just enough to elevate this section and flipped it. The tow tractor flipped on its side as if it was a toy and the Guppy's tail section rolled over one time. Everyone was shocked, as it had ruined the aircraft. We immediately began to organize our resources. Tech Services came to our aid. EAFB Air Force personnel lent us a couple of cranes. Using nylon bands around the fuselage and inflatable cushions such as are used in aircraft rescue work under the Guppy, and in about a half day, we had the Guppy uprighted again and the tail section righted and put back in place. In just a matter of a few days, the Guppy was back in the air flying, and had no further problems. The aircraft was much sturdier than many people thought. Since then far more stringent measures were applied on how it should be tied down. It was probably good that it occurred at that time, because since then everyone became far more aware of the vulnerability of this aircraft, as a result we have had no problems since then.

269
307
The Super Guppy aircraft came into being as a follow-on of the small Guppy. At first we had quite a running battle with people in various offices in Headquarters. They just couldn't see why NASA should get involved in the second aircraft, and felt one aircraft was going to be entirely adequate for all of our needs. Several occasions they refused to lend any support to our securing our second aircraft, but finally I guess after about 9 months of wrangling and table pounding at Headquarters, they were convinced that we should have a backup aircraft. This is primarily how it was sold. We had to

213
267
271
have at least a backup of some kind to help us through the program. With this they authorized that we contract thru Marshall for the second aircraft. The Super Guppy has a 25' diameter opening and has a much improved type turbine engine. Today both aircraft are flying support for Apollo. We also have our own C-133 aircraft. We can use it to fly modules if necessary, I guess. We got this aircraft in Jan 1963 and we have been using it for drop tests to verify the earth landing recovery systems for the Apollo CM. It is on temporary loan and after $5\frac{1}{2}$ years we are still running programs. So it is one of these things that you think you are going to get into for a short while and phase out but find it seems to linger on. We have used it in addition to provide worldwide support. We have flown missions to South America, Ft Churchill, Canada plus many cross country trips in the US in support of not only Apollo, but other programs as well. This aircraft has been operated by Douglas Aircraft Company on a contract with the Center. They have been doing an outstanding job for us in meeting all requirements of this aircraft.

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I mentioned earlier that staffing up the office was one of our major problems when we first relocated in Houston. Securing qualified people was one of our major problems and with a loss of several of my supervisory people at Langley, it made it doubly difficult in their jobs to handle such important assignments as processing flight controllers' travel arrangements. In order to man our stations around the world in support of our orbital flights, it was necessary to get plane reservations for the route, hotel reservations, passports, etc. Just getting passports was a problem. We used many people from the DOD. In trying to conform with the agreements between the US and the other governments we ran into many unusual rules. Since NASA was a civilian agency devoted to the peaceful exploration

175
of space, we didn't dare have anyone have his passport photo show him in uniform. Since many of the military personnel who were going overseas on our behalf, they would go to their local base and process an application for a passport. Naturally they were photographed in uniform. Then when the passport would be cleared through the Department of State it would have to be taken to the embassy of the foreign country concerned for a visa, and there we ran into problems. We had considerable resistance from many of the countries simply because they were afraid that we were sending military people in, and they didn't want this. We had to have these individuals get a new passport photos made in civilian attire. We would then reprocess the passports with many things to do and with staffing being as tight as it was, everything soon got to be a real rush affair. We would wind up with the passport coming in on one plane just as its user was getting on another aircraft. People were picking their passports up at air terminals at Dover Air Force Base, Charleston, and at commercial air fields. It was awful. Air service at the time was a problem. Jet aircraft were operating but not as extensively as today, and they weren't in use on all routes, and planning air service to get these people to various destinations was tricky. To be certain that they could meet launch schedules, it was necessary to have flight controllers leave several days to several weeks in advance of the launch date, in the event the aircraft was delayed or something else interfered, our people would still be able to get to their post in time, and we wouldn't have to delay a shot because we had an unmanned station. Therefore we had to really watch all these travel

arrangements. In case of a launch delay it was necessary to decide what people to bring home and which to leave on site. Our deputy director, Walt Williams, decided in each case, and we had to prepare cost estimates for him showing him exactly how much it would cost to bring people back where they could be productive at the Center as opposed to leaving them out. We worked up an efficiency table based on a known delay and the vocation of the people so we could graph it out. If the delay was three days, people at certain stations would come in, and others would stay out. If it were a seven day delay, but later slipped into a two week delay then on any further delay everybody would come back.

175
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In the movement of flight controllers we encountered many problems in general travel arrangements. Freight is inanimate--it doesn't holler back. But passengers do, if they don't get the best of treatment they become unhappy and complain. I remember one time Dr. Berry's secretary called travel and said he had to go to Rochester. The girl in the travel office assumed she meant Rochester, New York. Of course, Dr. Berry wanted to go to Rochester, Minn. However, he was ticketed to New York City and then to Rochester, so the girl routed him to New York City and Rochester, New York, but unfortunately she put him into the wrong Rochester. He had quite a surprise when he arrived in Rochester, N. Y. We, of course, had to immediately get him reservations on another flight to his correct destination. He accepted it graciously, thank goodness. We learned something there, and that was the girls had to be very attentive as to where a man was going, and not to take anything for granted as there are multiplicity of cities with the same name. Finally, after many problems in the travel office, we put a man in charge of the travel office, and things straightened out considerably after that. We tried all sorts of other methods to achieve

peace and harmony in travel office, but most of them to no avail.