good afternoon everybody and welcome to the Johnson Space Center here in Houston.

Texas we're going to be giving you a look today at two spacewalks that are coming up for the crew of expedition 32.

the first one is going to be on August 20th the second one is going to be on August 30th here to give us more details about all of that is the lead flight director for expedition 32 Dina Cantella as well as the spacewalk officer Keith Johnson we'll start off with Dina well good afternoon thank you.
for joining us thanks for going

extremely well on Space Station and our crews and great spirits looking forward
to our pair of spacewalks coming up the increments about halfway over and the first part of the increment was crammed

full of visiting vehicles following the Soyuz arrival we had the 47 progress

that undocked and we were performing a coors navigational system redock test

and for that redock test the first attempt was aborted and sure you've heard that the Coors system did not activate properly and so while the well
our Russian colleagues worked on what we were going to do for a redock attempt we did go ahead and rendezvous and capture HTV our Japanese cargo vehicle and the ground and the crew did an excellent job with that and then they birth it on the same day and the following day 47 progress did come in with a successful docking the cores in awe that new system was warmed up inside the progress just a few degrees but enough to allow its activation and so that's how we were able to successfully adopt 47 progress 47 progress undock went extremely well
and 47 progress or 48 progress launch

44
00:01:44,560 --> 00:01:49,150
and docking occurred on the same day

45
00:01:45,969 --> 00:01:51,189
which was a new test of a four orbit

46
00:01:49,150 --> 00:01:54,940
rendezvous capability and that went

47
00:01:51,189 --> 00:01:56,319
exactly as according to plan since since

48
00:01:54,939 --> 00:01:58,780
then we've been doing a lot of research

49
00:01:56,319 --> 00:02:01,209
and also a lot of robotic operations

50
00:01:58,780 --> 00:02:03,040
associated with the exposed palette to

51
00:02:01,209 --> 00:02:06,099
move some research on that was

52
00:02:03,040 --> 00:02:08,140
externally brought up n HTV over to the

53
00:02:06,099 --> 00:02:11,318
space station over to the Japanese and

54
00:02:08,139 --> 00:02:13,079
the Japanese module exposed facility and

55
00:02:11,318 --> 00:02:15,479
also to

56
00:02:13,080 --> 00:02:17,070
out out on the truss and so those

57
00:02:15,479 --> 00:02:19,530
operations went very smoothly and we
only had we really only had a couple of hiccups the only hiccup that has affected our operations has been the camera that failed on the SS RMS Canada arm too it's a boom camera and after some discussions we decided that we're going to change that out on this upcoming you se va and Keith Johnson will talk about all those details coming up so but then to talk a little bit about you know our crew and operations I wanted to point out that we are despite all the visiting vehicles at this point anticipating that we're going to meet
our research objectives for this part of the of the year and that's incredibly big step because we have had a lot of systems type of work that we've had to do associate with the vehicles but we're very proud that we've been able to crew with a lot of opportunity to get ahead the crews been doing a great job and I think as an example we had a lot of ground control there was associated the robotic ops and this enabled the crew to focus on research and that sort of thing on board while the grounded a lot of the robotic operations so congratulations to
our Japanese Canadian and Houston robotics folks for that for helping us with that and so first time talk about the crew a little bit and then I’m going to go into the Russian segment VA so I could have the first graphic all right so on the left is akihiko hoshide a and we call him aki and to his right is yuri malenchenko and next to him is sunny those three arrived in mid-july and next to Sony’s he Joe acaba who is currently leading the u.s. portion of sedation followed by the ISS commander gennady
padalka and then sergei revin and four

of those six are going to be performing

spacewalks in the next couple of weeks

Gennady and Yuri will perform the

Russian spacewalk on August twentieth

and sunny aki will perform the u.s.

classic graphic please the Russian segment EBA

will be in Orlan spacesuits out of the

piers module with egress happening

monday at nine-forty am used to local

time gennady will be ev1 with a red

stripe and he'll have the helmet camera

he's previously conducted eight
spacewalks six on ISS and two on the Mir space station Yuri will be ev2 with a blue stripe on his suit and he's performed for EVs in the past one on sts-1 06 as well as another is scba and two on the Mir space station so in terms of their tasks for the EBA there's three main tasks and three get ahead tasks the crew will relocate estrela crane to move it off the docking compartment peers and over to the forward end of the zara module and the piers module will be replaced with the russian multi-purpose Logistics Module new Waka when it comes
up in 2013 so that crane needs to move

it'll also release a passive spherical satellite pronounced sphera are also called T vector that will allow our Russian colleagues to evaluate ground station tracking and modeling for orbital debris like we will install 5 micrometeoroid orbital debris shields on the small diameter of the spa's de module and then as guetta heads we've got three of those time permitting there's two external experiments and also there's an installation of some support struts for the EV a ladder to
make it more stable the expected EBA

duration is six hours and 25 minutes and

Joe and Sergei will be in the poisk

module near their Soyuz for the EV a

while sending aki will have access to

the u.s. segment and their soyuz next to

next you'll see a video of the Russian

segment EBA this is the aft in the

station with the Russian modules

surrounding the piers air lock the hatch

opens and you'll see Yuri and then

Gennady egressing onto the EV a ladder

now looking from above you'll seek an

audio testing the Strela two foot

157
00:06:18,029 --> 00:06:22,439
restraint and yuri on the tip of the

00:06:21,000 --> 00:06:24,810
Strela boom writing it up to the other

00:06:22,439 --> 00:06:28,319
Strela on the zenith part of ISS on

00:06:24,810 --> 00:06:30,180
poisk the Strela that's in motion is the

00:06:28,319 --> 00:06:32,490
one that will move over to zaria so

00:06:30,180 --> 00:06:36,350
gadani then retracts it as you see here

00:06:32,490 --> 00:06:36,350
and he positions it for the big move

00:06:39,160 --> 00:06:44,150
zooming in on Gennady you can see him

00:06:41,329 --> 00:06:47,259
here he's positioning a an attached foot

00:06:44,149 --> 00:06:50,149
restraint for the relocation and stowage

00:06:47,259 --> 00:06:51,800
at the top of the screen you'll see Yuri

00:06:50,149 --> 00:06:54,919
adjusting his foot restraint so he can

00:06:51,800 --> 00:06:57,860
position the Strela on poisk for its

00:06:54,920 --> 00:07:00,439
extension down to Gennady so here's the

00:06:57,860 --> 00:07:02,150
positioning and now he's extending that
upper strela down to gennady work site
for the Strela to attachment the
flashing area points out whether to
stroll is attached next you'll see you
re making his way down the upper Strela
boom to assist kannadi and releasing
Strela to from its mounting location on
piers and they work together to get it
into a good position for the relocation
here they're rotating Strela too so
that's in line with Strela one and that
will make it a more compact package on
the end of the boom for the maneuver so
after everything's squared away Yuri
translates up to the base of the upper Strela so that he can manipulate the Strela mechanisms and begin the big relocation.

so Gennady gets a really fantastic view as Yuri pitches Strela up and he also positioned Strela to by spinning it around and then he turns the entire Strela to face Sarya and now you can see the move over to the forward end of Zarya followed by an extension of the boom here he's just using hand cranks to operate the Strela so Yuri then translates forward on ISS down the
stroller to meet up with Gennady and

help with the removal of strela tube and

its installation and so after some

manipulation they work together to

install it onto an adapter on zaria here

he gets a short ride for the pitch down

to stow Strela out of the way and here

you see him making his way aft on ISS

translating on stroller and back to

poisk so we can drive stall again now

that the work is done on sorry or

Gennady hops on the end for his ride

back and once again he'll get an amazing

view estrela is going to maneuver him

back down to piers and the Strela will

mainak remain extended between poisk and

peers at the end of the EBA so here's

the attachment area and at this point

Gennady also has the opportunity to grab

the first external experiment's cacaw

you see it flashing s cocozza materials

experiment that allows for exposing

multiple materials to space and it

closes up like a small briefcase and

it's brought inside so here you see it

your you're going to make their way back

to the EV a ladder on piers to deploy

the spherical satellite and here you see
it flashing the satellites about 21 inches in diameter and it has a mass of about 20 pounds it's completely passive

in the right hand photo you see two items there's a mockup of the sphere and also a tool to the right that holds the sphere

while the crew egress is the airlock and gets into position before deploy the crew releases a strap on the tool so that just the fingers are gripping it and then they give the tool a push to launch it it's deployed in the aft mater direction and it's expected to stay on
orbit for about three months before

reentry next you see Gennady and Yuri

retrieving the debris shields from the airlock and two bundles here you can see

the installation sites on this graphic

and there's a total of five shields and they're bundled in a package of three

and a package of two the bundles get separated and the shields attached to

the handrails on the small diameter compartment of the of Zvezda so in this video can see the three port side shield

installation sites these shields are similar in design as what we've
previously installed on past DBAs so

next you can see the second external

experiment that the crew may bring

inside if they have time this is called

bio risk and it has experiments inside

that have been exposed to space this is

a photo of the piers module on the right

with a close-up view showing the bio

risk containers here you see a get ahead

to install two struts on the EV a ladder

which should help for stability and this

equipment will later move to the new air

lock on new Waka after that Gennady and

Yuri will ingress the piers and we'll
call it an EV a solely I'm thinking I

00:11:39,870 --> 00:11:44,940
wanted to add here is that for the lead

00:11:42,720 --> 00:11:46,980
ISS flight director for the Russian

00:11:44,940 --> 00:11:49,290
segment EV a that will be Jerry Jason

00:11:46,980 --> 00:11:52,080
and for the u.s. CBA that will be

00:11:49,289 --> 00:11:53,490
advanced ice and so with that I'll pass

00:11:52,080 --> 00:11:58,440
it over to Keith Johnson he'll describe

00:11:53,490 --> 00:12:01,769
you se va 18 Thank You Dina well let's

00:11:58,440 --> 00:12:04,020
see this is the first USA in over a year

00:12:01,769 --> 00:12:08,250
at the last dva that was performed on

00:12:04,019 --> 00:12:10,949
space station by the US team was by Mike

00:12:08,250 --> 00:12:15,750
Fossum and Ron Garan during the sts-135

00:12:10,950 --> 00:12:17,700
mission back in July a first slide we

00:12:15,750 --> 00:12:19,639
have pictures of our EV crew members

00:12:17,700 --> 00:12:23,278
we've already mentioned
Sonny Williams is EV one on the CBA

she'll have the red stripes on her suit

this is will be her 50 VA she's done for

so far during expedition 14 and 15

totaling about 29 hours and 17 minutes

of spacewalk time so she'll be adding to

that rev.2 for the upcoming EBA is Aki

hoshide ax we call amake and this is his

first spacewalk he will be the third

Japanese astronaut to do a spacewalk

following two cowboy and sweetie noguchi

so let's see Joe acaba is the IV or the

arm operator for the EBA aki will be on

the arm for the majority of the EBA and
then we have a ground-based IV crew

member which is Jack Fisher and he's not
done an EBA VA before but he's helping

out with the development of the VA I've

got a slide that shows our list of tasks

the first thing we're doing on the e VA

and the main reason for going EBA is the

main bus switching unit number one

removal and replacement this particular

box has failed in such a way that it's

passing power but it can no longer be

switched and in order to do future

operations we need to take that box out

and put one in that allows us to do that
another task that we're doing on the e
VA is cable routing to primary and redundant power cables to the Russian multi-purpose laboratory module that Deena referred to we started on the US segment and run it over to the interface between the russian and US segment and then the Russians will later on run their half of that cabling and just recently we had a failure of one of the cameras on the SS RMS the the boom B camera this morning we had meetings with management and we decided that this is the next highest priority so that camera
will be removed and replaced as Argueta

00:14:23,159 --> 00:14:28,139
heads and time permitting the next task

00:14:26,759 --> 00:14:30,029
we have is a protective cover

00:14:28,139 --> 00:14:32,759
installation on the pressurized mating

00:14:30,029 --> 00:14:33,189
adapter to which is it the forward end

00:14:32,759 --> 00:14:35,590
of stage

00:14:33,190 --> 00:14:38,380
and we are covering it up so that we

00:14:35,590 --> 00:14:42,460
protect against a micrometeoroid debris

00:14:38,379 --> 00:14:44,769
and keep it safe until we fly up a new

00:14:42,460 --> 00:14:46,180
docking system that's coming up and then

00:14:44,769 --> 00:14:49,149
we'll take that cover off and install

00:14:46,179 --> 00:14:50,919
that in the future we do have other

00:14:49,149 --> 00:14:53,379
camera problems that we're looking at

00:14:50,919 --> 00:14:56,769
one of them is on the the mobile based

00:14:53,379 --> 00:14:58,450
system the mast camera and we in order
to bring that home we will be removing that camera bringing it inside also there is a camera problem on the Kibo exposed facility and we will be taking as a get ahead removing and replacing that if time permits and finally the zaria power data grapple fixture the PDGF has a potential for another wire that is may cause problems and we may send the crew over to to pull that debris out so I've got a graphic that shows some footage of the the EV a as we have it going so if you'll bring up then the next ok so the EV ad press starts at
00:15:40,480 --> 00:15:45,129
about 6 45 central time and with the

00:15:43,450 --> 00:15:48,460
crew coming out the hatch at about 7 15

00:15:45,129 --> 00:15:49,990
Sonny Williams is EV one she'll be

00:15:48,460 --> 00:15:55,060
the first one out of the hatch followed

00:15:49,990 --> 00:16:01,569
by aki aki we'll be handing out bags and

00:15:55,059 --> 00:15:59,079
tools Sonny's first task is to hook up

00:15:57,549 --> 00:16:01,569
what we call a fish stringer which is a

00:15:59,080 --> 00:16:04,960
tether with many hooks on it and shall

00:16:01,570 --> 00:16:07,030
attach bags and tools to that too in

00:16:04,960 --> 00:16:09,040
preparation for the EV a kind of a

00:16:07,029 --> 00:16:12,339
staging ground after she's done with

00:16:09,039 --> 00:16:17,469
that she'll rotate around to face the

00:16:12,340 --> 00:16:20,200
external stowage platform which is where

00:16:17,470 --> 00:16:23,620
we have the spare main bus switching
unit in preparation for stowing the

failed unit we install what's called a

multi-use tether end effector ball stack

multi-use end effector it's kind of a

grapple on one end grapple on the other

I'll refer to that as the mutt ball

stack from here on out and you see that

blinking right now after she's done with

that she'll remove straps on multi-layer

insulation that's protecting the main

bus switching you

it as it's attached to a flight

releasable attachment mechanism she

undoes velcro straps peels that back

00:16:59,439
gets it out of the way to expose the

main bus switching unit she'll put a
torque multiplier on the two bolts that
hold this on to the fram and when she
breaks the torque on those shall install
what we call a scoop which is a handling
aid that allows aki to pull this out
when he removes it later on in the EV a
once that's done Sonny will turn around
she'll grab a bundle of cable which is
the MLM power cable and she'll
translate up to the lab node one
interface and hook up one end of that
cable to another cable and start routing
that aft and you can see that
highlighted in the video she will temporarily stow it attached to one of the handrails in the lower left.

meanwhile aki will be doing a translation adaptation it'll take a bag with tools in it he'll translate up to the s0 truss phase two of the s0 truss.

you'll see a handrail flashing in the graphic he'll attach his tools in the bag to that handrail and then he'll go over and he'll brake torque on the failed main bus switching unit that you see over there to the left after those the torque is broken on both of those.
he'll install scoops which will provide him with a handling aid to therefore install an articulating portable foot restraint on the arm and then from there he will ingress the arm and we'll wait for commanding of that box and we are going to do a power down power down ups test on this box to see if it comes back to life just to get kind of a science experiment on it once that's done they'll power it down he'll drive the bolts and from there he'll back away with the MBS you and he'll start on what we call joint automated or operator
commanded automated sequence or joke as

which is a pre-programmed arm

translation to heading back

in the meantime sunny is going to take

the other cable and go towards the

interface between the Russian and the US

segment and attach the second cable for

the MLM to a handrail and from there she

starts unwinding it and making her way

nadir on space station around the PMA

she'll feed it underneath and then she

has to go and move the u.s. crane out of

the way it currently is in the way of

her translation path so she'll get up
and she'll do some manual maneuvering to get that out of the way then she heads back around and continues routing along node one forward to the s0 truss and you'll see that blink on the graphic here she feeds it into the interior of the s0 truss at that point roughly aki will have made his way down to the external stowage platform to he'll take the failed MBS you that he just removed and he'll temporarily stow it on the mud end effector that I pointed out before from there he'll maneuver into the spare main bus switching unit he'll drive the two bolts lift it out he'll ground call
the arm back away from the structure and

then the arm will continue motion and

he'll start another joke as from this

position back up for installation

meanwhile sunny will be working on the

so truss the next fun thing that she

gets to do is pull back some mli that's

on phase 3 of so it opens up a location

where she can climb inside the truss and

you can see the ML I peeled out of the

way in the opening that she gets to go

inside next you see the graphic of her

inside taking the cable bundle routing

along some interior handrails and that
comes over to a panel that's up inside

you'll see the connector flashing she

gets herself into position this was

launched with some strings holding the

bales in place you can see those three

white strings she will cut those with

scissors

throw the bail in the center take that

cap off and then connect the cable at

that point when she's done with that

she'll clean up the work site cover the

mli and then she'll go over and provide

a set of eyes for aki installing the

spare main bus switching unit onto the
s0 truss he puts that into position and
he drives the two bolts and then Sonny
gets to leave and go do other work while
he cleans up the work site one of the
gets heads that we have for a task if
we're ahead is the the NBS mask camera
will have aki fly up to that position
it's a single bolt to remove that camera
based on our recent priority change
he'll just take that camera off and
bring it back with them he won't install
another camera in place of that then the
arm will maneuver him back to the MBS
you that has the scoops on it and he'll
use that to egress the arm you'll see

that down to the lower left you can see

Sonny at the failed MBS you sitting on

the Met Ball stack shall take that and

she'll swing it around and install it

back on the fram she'll drive the bolts

take the scoops off clean up the mud

end-effector and then reinstall the

multi-layer install insulation and

that's ready to sit there until it's it

has finds another use meanwhile aki is

removing the articulating portable foot

restraint and he'll reposition that into

a worksite interface at this work site

the arm will reposition and provide him
with access to the boom camera you see highlighted here he will remove this camera and replace it with a spare that we will have brought out with us at the start of the EV a and then as time permits he and Sonny will translate out to the forward end of the space station and install the pressurized mating adapter to cover it's just a multi-layer insulation that has some Kevlar fiber in it that will protect those surfaces from micrometeoroid debris and it they'll strap that two handrails that you see highlighted in the graphic when they're
done with that again depending on time
mitting they may be able to head over to
kibo and the exposed facility and the
forward camera on there has no lights on
it and so as I get ahead they may be
able to remove that camera and replace
it with a spare it's planned for a six
and a half hour EV a so at this point
they'll clean up their work sites and
head back to the airlock and thus
concludes what we hope is a successfully
VA okay we'll take some questions now
first here in Houston then we'll go to
the phone lines let's say we'll start
with Gina for both of you what do you view is the most challenging element on each face lock well I'll just say the on the Russian spacewalk probably the smooth of the Strela it's a pretty big apparatus since on the end of an almost 50 foot boom maneuvering that around in the past they've had some trouble where they ran long on this particular task before or a similar task of moving estrela but it wasn't necessarily did anything in particular it just kind of ran long so it could be a timing thing associated with the Strela that could
allow could cause you know trip them up

00:24:36,128 --> 00:24:42,579
a little bit and cause the EBA to run

00:24:37,419 --> 00:24:44,860
long well I would say from the the USA

00:24:42,579 --> 00:24:46,689
perspective the crew has seen this in

00:24:44,859 --> 00:24:49,148
the water several times so they've

00:24:46,690 --> 00:24:52,450
they've got good training but what ends

00:24:49,148 --> 00:24:55,329
up happening is we change priorities and

00:24:52,450 --> 00:25:00,308
we change the the tasks that that

00:24:55,329 --> 00:25:03,579
they're being asked that they looked at

00:25:00,308 --> 00:25:12,428
in their training a while ago but we

00:25:03,579 --> 00:25:08,319
think that by getting them the right

00:25:00,308 --> 00:25:06,128
information and getting them talking

00:25:03,579 --> 00:25:08,319
with them before the e VA that we've

00:25:06,128 --> 00:25:12,428
minimized that that particular aspect of

00:25:08,319 --> 00:25:14,499
the e VA so our risks are similar in
that we want to make sure that we we

don't let the crew run long on a task

and we've time lined it so that we can

stop at various points to get them

inside so we're comfortable with that

there's been concerned about gloves and

they've been doing periodic checks on

gloves Drake spacewalks is that still an

operating procedure well from from the

US AV a yes oui oui timeline glove

inspections throughout the e VA we are

concerned we have enhanced the gloves

and made them better to resist damage

that we've seen in the past but we still
do periodic checks to make sure that whatever they've been handling along the way is hasn't caused any damage to cause them to come inside the other aspect of it that stations been up there for a long time so we have the crew watch where they're going and make sure that they don't do anything untoward on their gloves cute okay thanks Gina let's go to the phone lines and take some questions from there I think that we had the nice cha think that we lost one person so let's see who is uh I'll see who's there hi go ahead and eat just a couple quick
questions for the the US EPA will the astronauts be doing the Institute light exercises prior to going out that's a good question and thank you for asking I did have that in my notes and I did mean to to bring that up yes that is correct and we will be doing the insuit light exercise protocol and that is currently with the ways and trades the best method for prolonged oxygen and it minimizes the crew activity and they don't have to sleep out in the end the airlock so we find that it is the best protocol and that's what we will be
utilizing thanks and also for launching

00:27:08,390 --> 00:27:12,680
the sphere satellite how much of a

00:27:11,059 --> 00:27:14,389
priority is that and if the Russians

00:27:12,680 --> 00:27:16,460
don't get to in there a VA is that

00:27:14,390 --> 00:27:20,450
something that might be considered as a

00:27:16,460 --> 00:27:24,710
get ahead task for the American DBA for

00:27:20,450 --> 00:27:26,630
the US epa's and yeah for the Russian

00:27:24,710 --> 00:27:29,000
when the launching of the the sphere

00:27:26,630 --> 00:27:31,100
satellite is that something if the

00:27:29,000 --> 00:27:33,140
Russian cosmonaut don't get to it is

00:27:31,099 --> 00:27:35,659
that something that might be added to

00:27:33,140 --> 00:27:37,130
the list of get ahead for the American

00:27:35,660 --> 00:27:39,170
EPA and

00:27:37,130 --> 00:27:40,940
it's a purely Russian experiment and so

00:27:39,170 --> 00:27:43,190
we would have no plans to add that to
the USC VA and it specifically didn't

been designed you know the trajectory

and everything that we've analyzed the

crew will go out on the EV a ladder and

push it aft and so that doesn't really

sink well with our you se va it is just

a purely Russian type experiment okay

thanks thanks Denise then follow us here

Gina okay we're going to wrap it up but

before we step away let's take a look at

our broadcast coverage here on NASA

our coverage will begin at nine a.m.

first one coming up on August twentieth

our coverage will begin at nine a.m.
central time with the EV a due to begin

at nine forty and again will last close

to six six and a half hours we'll be

back on August 30th for the u.s.

spacewalk which our coverage will begin

at six a.m. central time seven a.m.

eastern time the actual space walk

itself will start about an hour and 15

minutes later at 715 a.m. central time

815 a.m. eastern and again that will

last about six and a half hours for the

latest just log on to the NASA website

at WWDC gov / station thanks for being

with us