SECTION FIVE: OP-1B
(XLDS)

HIGH PRESSURE AIR STORAGE SYSTEM (HPASS)

02/17/2012

CAUTION: BEFORE STARTING THIS PROCEDURE ENSURE THE SUPPLY REGULATORS ARE BACKED OFF COUNTER CLOCKWISE UNTIL THE KNOBS SPIN FREELY AND THE DIVERS PNEUMOFATHOMETER SUPPLY VALVES ARE SHUT.

NOTE: OP-1B can be used for either the RDC-2 or RDC-3. For the RDC-2, the third diver, Yellow diver should be n/a. OP-1 should be performed prior to System use. Performing this procedure as the operator cycling all Valves prior to bringing up gas supplies from the HP source to ensure all Valves operate smoothly. The procedure leaves the RDC-3 lined up for diving.

NOTE: The standard RDC-3 and RDC-2 Systems have two Yokes per diver circuit for attachment to two single or double SCUBA Cylinders. If other types of Cylinders and connections are being used, ensure the connections contain a Bleed Valve so that Cylinder changing can be accomplished without gas interruption. Ensure all fittings have a proper pressure rating for the Cylinders being used, and have an orifice size no smaller than of .112".

Date:
Helmet/Mask Serial #:
Associated Equipment Serial #(s):
Technician (print name):

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STEP	PROCEDURES	INITIALS
CONSOLE PRE-DIVE SET-UP AND INSPECTION SECTION 1		
WARNING: Do not over tighten Valves. Over tightening multi-turn Valves could result in Valve seat and / or stem damage, resulting in reduced capability. Initials_____		
1.1 Test operate Valves	**Diver/Tender- Check the following (a - e):**	**INITIALS**
	a. Open the Console lid and lock in place. Carefully inspect all Gauges and Valves for obvious signs of damage. Without air lined up, test operate all Valves as outlined below to ensure smooth operation. Caution: Do not over tighten the valves, over tightening Valves will cause stem and/or seat damage. Perform the following:	
	b. HP Regulators: back out counterclockwise until no resistance is felt and the hand wheel spins freely, then rotate in clockwise using two fingers, until a slight resistance is felt, then stop.	
	c. Red HP Reg 1	
	d. Green HP Reg 2	
	e. Yellow HP Reg 3	
1.2. Cross Connect Valve XC-1, 2	**Diver/Tender- Check the following (a):**	
	a. Open cross connect valve XC-1, check for smooth operation, then shut.	
	b. Open cross connect Valve XC-2, check for smooth operation, then shut.	

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STEP	PROCEDURES	INITIALS
1.3. Removing Umbilical supply outlet Caps	**Diver/Tender- Check the following (a-d):**	
	a. On the right side of the Control Console, remove each of the Umbilical Supply outlet Dust Caps.	
	b. ALP-1R outlet	
	c. ALP-2G outlet	
	d. ALP-3Y outlet	
1.4. Removing HP Supply Dust Pugs	**Diver/Tender- Check the following (a-d):**	
	a. On the left side of the Console, remove the HP Inlet Supply Caps.	
	b. Red Diver	
	c. Green Diver	
	d. Yellow Diver	
1.5 Pneumo supply Valves	**Diver/Tender- Check for proper operation the following (a - c):**	
	a. Pneumo Valve RED, open one full turn, then close lightly	
	b. Pneumo Valve GREEN, open one full turn, then close lightly	
	c. Pneumo Valve YELLOW, open one full turn, then close lightly	
1.6 Diver Umbilical supply Valves	**Diver/Tender – Check the following (a - c):**	
	a. Outlet Valve ALP-1R, open then close.	
	b. Outlet Valve ALP-2G, open then close.	
	c. Outlet Valve ALP-3Y, open then close.	

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STEP	PROCEDURES	INITIALS
NOTE: Visually inspect all portable gas supply Cylinders to be attached as well as all reserve Cylinders that will be placed at the ready. Ensure all Cylinders are fully charged. Inspect the Cylinder Valves to ensure the seal area is clean and the O-ring is present. Ensure the valve shows no signs of damage. Inspect the Yokes/DIN, Fittings, Cylinder Whips, and Main Supply Whips for signs of damage in the form of bent, frayed or dented hoses. Initials_____		
NOTE: When using the RDC-3, if only one diver is being deployed, set-up Red Diver as the primary and Green Diver as the standby. If two divers are being deployed set-up Red and Green as primary and Yellow Diver as standby. Initials_____		
SETTING UP THE CONTROL CONSOLE FOR RED, GREEN, AND YELLOW DIVERS SECTION 2		
NOTE: If the RDC is equipped with VCO O-ring Fittings that connect the high-pressure supply Whips to the Console, The fittings need only be lightly tightened using the power of three fingers on the 5/8"wrench. Initials_____		
2.1. Red Divers HP Whips	**Diver/Tender- Check the following (a-d)**	
	a. Remove the protective Plug from Red Divers Supply Whip. Inspect the fitting surface for signs of damage and contamination, Inspect Red regulator inlet fitting, to ensure the O-ring is present and fitting is free of damage and obvious signs of contamination. Attach and tighten whips. Repeat this procedure for Green and Yellow	
	b. Red	
	c. Green	
	d. Yellow	
NOTE: The HPASS cylinders utilize an isolation manifold; each DIN/yoke attachment port can be opened or closed individually. The center valve is normally used to isolate the cylinders from each other. During SSD operations the center valve is always open.		
NOTE: Each diver must have at least ONE Cylinder attached to each Yoke or DIN prior to commencement of diving. Only one Cylinder should be on line at a time with the other Cylinder in standby. Initials_____		
NOTE: HPASS cylinder manifolds have the option of using DIN style or A-Yoke SCUBA regulator style connections either type can be used.		

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STEP	PROCEDURES	INITIALS
2.2 Install Cylinder DIN adapter (optional)	**Diver/Tender: - Check the following (a-c):** Using a ¼" allen wrench remove A-Yoke adapters in both cylinder manifold valves and install DIN adapters	
	a. Red Primary & Secondary cylinders	
	b. Green Primary & Secondary cylinders	
	c. Yellow Primary & Secondary cylinders	
2.3 Install Cylinder Gauge (optional)	**Diver/Tender: - Check the following (a-c):** Attach cylinder gauge to left or right side manifold valve	
	a. Red Primary & Secondary cylinders (one each)	
	b. Green Primary & Secondary cylinders (one each)	
	c. Yellow Primary & Secondary cylinders (one each)	
2.4 Red Divers Cylinder Connection	**Diver/Tender: - Check the following (a-c):** a. Red Divers cylinder Yokes, or fitting attachment, remove the protective Cap/Plug from cylinder valve connection, (left or right side) and inspect seat for damage and contamination. Attach and tighten Red Divers whip to Cylinder Valve.	
	b. Red DIN/Yoke 1 (Primary)	
	c. Red DIN/Yoke 2 (Secondary)	
2.5 Green Divers Cylinder Yoke/DIN	**Diver/Tender: - Check the following (a-c):** a. Green Divers Cylinder Yokes, or fitting attachment, remove the protective Cap/Plug from cylinder valve connection, (left or right side) and inspect Seat for damage and contamination. Attach and tighten Green Divers whips to Cylinder Valve.	
	b. Green DIN/Yoke 1 (Primary)	
	c. Green DIN/Yoke 2 (Secondary)	

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2.6 Yellow Divers Cylinder Yoke/DIN	**Diver/Tender: - Check the following (a-c):**	
	a. Yellow Divers Cylinder Yokes or fitting attachment, remove the protective Caps/Plugs from cylinder valve connection (left or right side) and inspect Seat for damage and contamination. Attach and tighten Yellow Divers whips to each Cylinder Valve.	
	b. Yellow DIN/Yoke 1 (Primary)	
	c. Yellow DIN/Yoke 2 (Secondary)	
CAUTION **THE HIGH-PRESSURE BLEED VALVES ON THE DIVE LAB HP WHIP SYSTEM HAS SOFT SEAT, AND OPERATE WITHOUT THE NEED FOR HEAVY TIGHTENING. DO NOT OVER TIGHTEN. OVER TIGHTENING THESE VALVES COULD DAMAGE THE SEAT OR STEM, RESULTING IN LEAKS. INITIALS_____**		
2.7 Yoke Bleed Valve	**Diver/Tender: - Check the following (a-d):**	
	a. Open, then shut, each Yoke Bleed Valve.	
	b. Red Yoke Bleed 1 Open _____ Shut _____ Red Yoke Bleed 2 Open _____ Shut _____	
	c. Green Yoke Bleed 1 Open _____ Shut _____ Green Yoke Bleed 2 Open _____ Shut _____	
	d. Yellow Yoke Bleed 1 Open _____ Shut _____ Yellow Yoke Bleed 2 Open _____ Shut _____	
CAUTION **THE HIGH-PRESSURE ISOLATION VALVES ON THE DIVE LAB HP WHIP SYSTEM HAS SOFT SEAT VALVES AND OPERATE WITHOUT THE NEED FOR HEAVY TIGHTENING. DO NOT OVER TIGHTEN. OVER TIGHTENING THESE VALVES COULD DAMAGE THE SEAT OR STEM, RESULTING IN REDUCED CAPABILITY. INITIALS_____**		
2.8 HP Isolation Block Valves	**Diver/Tender: - Check the following (a-d):**	

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	a. Open then shut, each high-pressure Isolation Block Valve.	
	b. AHP-1R Open _____ Shut _____ AHP-2R Open _____ Shut _____	
	c. AHP-1G Open _____ Shut _____ AHP-2G Open _____ Shut _____	
	d. AHP-1Y Open _____ Shut _____ AHP-2Y Open _____ Shut _____	
ATTACHING THE UMBILICALS SECTION 3		
NOTE: Prior to attaching Umbilicals, the Umbilicals should be laid out to avoid tangling. Inspect the Umbilical Log to ensure all maintenance has been performed. Initials_____		
STEP	**PROCEDURES**	**INITIALS**
3.1 Attach Divers Umbilicals	**Diver/Tender: - Check the following (a-d):**	
	a. Remove the protective Plug from Red Divers Umbilical. Attach the Umbilical to Red Divers Umbilical Outlet valve QD or Fitting and lock-in or tighten. Repeat this procedure with Green and Yellow Divers Umbilicals.	
	b. Red	
	c. Green	
	d. Yellow	
3.2 Attach Divers Pneumo Hoses	**Diver/Tender: - Check the following (a-d):**	
	a. Remove the protective caps from Red Divers pneumofathometer hose and attach to Red Diver Console QD fitting and lock-in Repeat this procedure with Green and Yellow Divers Pneumofathometer hoses.	
	b. Red	
	c. Green	
	d. Yellow	

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3.3 Attach Umbilical Strain Relief	**Diver/Tender: - Check the following (a-d):** a. Attach the Umbilical strain relief for each Umbilical to the Console Handle, then secure the Console to an immovable object.	
	b. Red	
	c. Green	
	d. Yellow	
3.4 Attach Divers Comm Plugs	**Diver/Tender: - Check the following (a-d):**	
	a. Attach divers communication plugs to the communications box being used.	
	b. Red	
	c. Green	
	d. Yellow	
NOTE: At this point, Air can be brought up to the Regulators and the Umbilical blown down.		
CAUTION **WHEN BLOWING DOWN THE UMBILICALS, POINT IN A SAFE DIRECTION. BLOW-DOWN ONE UMBILICAL AT A TIME AS OUTLINED BELOW.**		
NOTE: **HPASS CYLINDER MANIFOLD VALVES USE COLOR INDICATING VALVE HANDLES WHEN RED SLEEVE IS SHOWING THE VALVE IS CLOSED, WHEN GREEN SLEEVE IS SHOWING THE VALVE IS OPEN.**		
PRESSURIZING THE CONTROL CONSOLE **SECTION 4**		
4.1 HP Air Cylinders	**Diver/Tender: - Check the following (a-i):** a. Slowly open Red Diver center manifold cylinder Valve on **Primary** and **Secondary** cylinders, fully, then back off 1/4 turn.	
	b. **Red Diver Primary cylinders**: Slowly crack open manifold valve that has the pressure gauge attached Read and record cylinder pressure on gauge. Primary Air _____psig	

	c. **Red Diver Secondary cylinder**s: Slowly crack open manifold valve that has the pressure gauge attached Read and record cylinder pressure on gauge. Secondary Air _____psig	
	d. Slowly open **Green Diver** center manifold cylinder Valve on **Primary** and **Secondary** cylinders, fully, then back off 1/4 turn.	
	e. **Green Diver Primary cylinders**: Slowly crack open manifold valve that has the pressure gauge attached. Read and record cylinder pressure on gauge. Primary Air _____psig	
	f. **Green Diver Secondary cylinders**: Slowly crack open manifold valve that has the pressure gauge attached. Read and record cylinder pressure on gauge. Secondary Air _____psig	
	g. Slowly open **Yellow Diver** center manifold cylinder Valve on **Primary** and **Secondary** cylinders, fully, then back off 1/4 turn.	
	h. **Yellow Diver Primary cylinders**: Slowly crack open manifold valve that has the pressure gauge attached. Read and record cylinder pressure on gauge. Primary Air _____psig	
	i. **Yellow Diver Secondary cylinders**: Slowly crack open manifold valve that has the pressure gauge attached. Read and record cylinder pressure on gauge. Secondary Air _____psig	
4.2 Lining up HP Air	**Diver/Tender: Check the following: (a –e)**	
	a. Slowly open Red diver's primary air cylinder valve that is attached to the whip going to HP manifold.	

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	b. Slowly open Red diver's secondary air cylinder valve that is attached to the whip going to HP manifold.	
	c. Slowly open AHP-1R	
	d. Check Cylinder pressure on Red Divers console HP gauge.	
	e. NOTE: Red Divers air is now lined up to the HP Regulator. **Initials_____**	
	Diver/Tender: Check the following: (a – e)	
	a. Slowly open Green diver's primary air cylinder valve that is attached to the whip going to HP manifold.	
	b. Slowly open Green diver's secondary air cylinder valve that is attached to the whip going to HP manifold.	
	c. Slowly open AHP-1G	
	d. Check Cylinder pressure on Green Divers console HP gauge.	
	e. NOTE: Green Divers air is now lined up to the HP Regulator. **Initials_____**	
	Diver/Tender: Check the following: (a – e)	
	a. Slowly open Yellow diver's primary air cylinder valve that is attached to the whip going to HP manifold.	
	b. Slowly open Yellow diver's secondary air cylinder valve that is attached to the whip going to HP manifold.	
	c. Slowly open AHP-1Y	
	d. Check Cylinder pressure on Yellow Divers console HP gauge.	
	e. NOTE: Yellow Divers air is now lined up to the HP Regulator. **Initials_____**	

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STEP	PROCEDURES	INITIALS
4.3 HP Air Regulator	**Diver/Tender: - Check the following (a):** a. Slowly load Red, Green, and Yellow Divers Regulators by rotating the Regulator Adjustment Knob clockwise until the LP Gauge reads between 10-50 PSIG Gauge. Red_____ Green_____ Yellow_____	
4.4 Red Diver	**Diver/Tender: Check the following (a):**	
	a. Point Red Umbilical in a safe direction and slowly open the Umbilical Outlet Valve (ALP-1R) and allow gas to flow for 10-15 seconds, then shut.	
4.5 Umbilical Red Diver	**Diver/Tender: Check the following (a):** a. Red Divers umbilical is ready to be attached to ICS or Mask/ Helmet being used. After completing follow on OP's.	
4.6 Green Diver	**Diver/Tender: Check the following (a):**	
	a. Point Green Umbilical in a safe direction and slowly open the Umbilical Outlet Valve (ALP-2G) and allow gas to flow for 10-15 seconds, then shut.	
4.7 Umbilical, Green Diver	**Diver/Tender: Check the following (a):** a. Green Divers umbilical is ready to be attached to ICS or Mask/ Helmet being used. After completing follow on OP's	
4.8 Yellow Diver	**Diver/Tender: Check the following (a):**	
	a. Point Yellow Umbilical in a safe direction and slowly open the Umbilical Outlet Valve (ALP-3Y) and allow gas to flow for 10-15 seconds, then shut.	
4.9 Umbilical Yellow Diver	**Diver/Tender: Check the following (a):** a. Yellow Divers umbilical is ready to be attached to ICS or Mask/ Helmet being used. After completing follow on OP's.	

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4.10 Load Regulators **XLDS MODE 350-375 psi** **CONVENTIONAL MODE 115-250PSI**	**Diver/Tender: Check the following (a):** a. Load Regulators IAW the required supply pressures for the equipment being used 1/4" XLDS umbilical or 3/8" conventional umbilical. Red _____psig_____bar Green _____psig_____bar Yellow _____psig_____bar	
4.11 Ready to move on to appropriate OP	**Diver/Tender: Check the following (a):** a. When ready, slowly bring pressure to the umbilical and helmet or mask being used after completing the appropriate OP's. OP-2 _____ SSOCS OP _____	
END OF PROCEDURE		

Technician Signature: _____ Date _____

Comments:_____

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