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# New model of HAL Lumbar Type for Well-being (BB04) will be available from August 2019

**~ Supports both caregivers and care receivers as well as installation of new mode to improve usability~**

CYBERDYNE, INC. [President and CEO: Yoshiyuki Sankai, ("The Company")] has been offering two models for the field of care; a) HAL Lumbar Type for Care Support designed to reduce the stress applied on the lower back of the caregivers and b) HAL Lumbar Type for Well-being (FB02) designed to maintain and improve the weakened function in the body's core and lower limbs. The Company developed a new model of HAL Lumbar Type for Well-being (BB04) with the ability to switch the model between mode depending on whether the wearer is a caregiver or a care receiver. The new model will be available from August 1, 2019.

When the device is used by caregivers, HAL system can reduce the stress applied on the wearers muscle and intervertebral disc of the wearer as they go through various tasks in care. Some example of these tasks are supporting the care receivers as they transfer from wheelchair to the bed, and vice versa. Or supporting the care receivers when they wish to change their posture.

When the device is used by care receivers, the wearer can repeatedly perform movements to practice the movement of the core, standing up and sitting down. Especially for care receivers with weekend leg or hip function, HAL can induce improvement in the wearer's body, which could lead to better autonomy in daily life after taking off the HAL device.

The Company initially offered a separate model for caregivers and care receivers. However, from the perspective of reducing the rental fee and improving usability, the Company was requested to develop a model which could be used for both sides, with the single unit of HAL Lumbar Type.

The Company installed a new option of selecting "Cybernics Autonomous Control (CAC)" mode[*1] in addition to Hybrid Control mode[*2] that was initially installed for HAL Lumbar Type, in order to improve the usability of the device. CAC mode can be used without having to attach the sensors, allowing the wearer to wear the device in 10 seconds or so. This is especially useful for caregivers who wanted to use HAL Lumbar Type in various situation with minimal effort. The device is also protected from limited dust ingress and water spray from any direction, limited ingress protection (IP54). This allows HAL Lumbar Type for Well-being (BB04) to be used in variety of environments, such as in bathing care support. The communication function of HAL Lumbar Type for Well-being (BB04) is also significantly reinforced so that it could cover the wider areas both indoors and outdoors. This could advance the concept of Internet of Humans/ Internet of Things (IoH/IoT) further by connecting the wearer to the network through HAL.

HAL Lumbar Type for Well-being (BB04) is also included in the category of "Wearable Transferring Aid devices", which is part of the list of eligible category to a subsidy program hosted by the Ministry of Health Labour and Welfare, "Subsidy to Support the Securing of Human Resources; Nursing-care/Welfare Device Course" (temporary translation by the Company). By taking advantage of the scheme, the facility that made the application for this scheme could not only receive subsidy upon introduction of the device, but also upon achieving targets related to reduction of turnover rates. Japan is facing a "burdening-care" situation, where number of people who require care (ie. Bed ridden-elderly person and people with disability) are on the rise while the caregivers who will look after those people are on a declining trend. The Company works to overcome this situation by approaching both the caregivers and care receivers through the innovative Cybernics Technology[*4] such as HAL Lumbar Type for Well-being (BB04). Through this endeavor, the Company aims to realize a "Zero Burdening-care Society". In addition, the Company aims to reduce the number of people who requires care through technologies that could improve the physical function in order to solve problems like financial difficulty in the Japanese Care Insurance System, high turnover rates in care facilities and lack of caregivers in care facilities.

The Company will continue its R&D in the area of care and welfare while accelerating its effort to create a new industry. The Company will utilize its innovative Cybernics Technology that fuses and combines the function of human, robot and information systems to realize the hyper smart society of "Society 5.0/5.1".

*1 Cybernics Autonomous Control (CAC) mode is a control mode based on AI processing of the wearers information of a movement, such as postures and center of gravity.

*2 Hybrid Control mode is a control mode based on mixture of Cybernics Voluntary Control (CVC) mode, utilizing the faint brain originated bio-electrical signals that reflects the user's motion intent, and on Cybernic Autonomous Control (CAC) mode.

*3 The "Subsidy to Support the Securing of Human Resources; Nursing-care/Welfare Device Course" (temporary translation by the Company) by the Ministry of Health Labour and Welfare ("MHLW") is a subsidy program in operation since 2018. The subsidy program was introduced to encourage facility owners to implement schemes to improve the work condition in order to secure the human resources and reduce turnover rate.

The subsidy will reduce the cost upon implementing devices for care support and also if the initiatives by the facility owners leads to reduction of its turnover rate. For more details please refer to the following link (available in Japanese only) https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000199292.html

*4 A new academic field that is centered around human, robots and information systems. Targeting medicine, welfare and living support fields (including labor support) as its main industries. It fuses and combines the functions of humans, robots and information systems, realizing interactions between physical-information-vital systems. Cybernics is championed by Dr. Yoshiyuki Sankai, a professor at the University of Tsukuba (he is also the President and CEO of CYBERDYNE) and the technology is thought to be one of the core technical domain that drives the movements to realize "Society 5.0". Cybernics technology means practical application of Cybernics.

<About CYBERDYNE, INC.>

The Group's business is to realize "Society 5.0/5.1", a future society based on the idea of Techno-Peer-Support where human and technology live together and support each other. This goal is attained through revolutionary changes in industry and society, and The Group seeks to utilize "Cybernics Technology" (fusion and combination of systems of

human, robot and information) that handles “human” + Cyberspace” + “Physical space”, to create a “Cybernics Industry” for this transition following the breakthroughs of the Robotics Industry and IT Industry.

The Group’s business has a unique advantage in its ability to access and integrate information within the human body (e.g. Brain-nerve and vital systems) in addition to information outside the human body (behavior, life and environmental information) and applying them to different fields such as medicine, nursing care, production, household, and work places. All of the Group’s devices and interfaces are compatible with Internet of Humans/Internet of Things (“IoH/IoT”), and through these products, information of the brain- nerve, vital, physiological, behavioral, life and environmental systems can be integrated and connected to a super computer. The Group aims to realize a system where Big Data of the aforementioned information are accumulated, analyzed and processed with AI. The Group simultaneously works on research and development, business development and formation of business alliances to further accelerate the emergence of a Cybernic Industry that will solve the problems facing society.